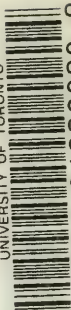


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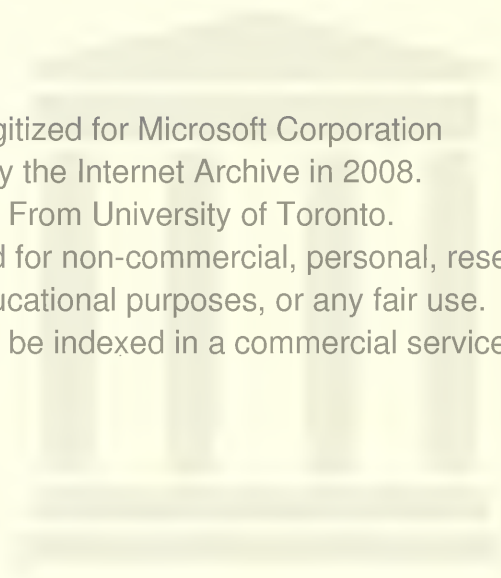
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THE
GENUINE WORKS
OF
HIPPOCRATES

TRANSLATED FROM THE GREEK

WITH

A PRELIMINARY DISCOURSE AND ANNOTATIONS

BY

FRANCIS ADAMS, LL.D.

SURGEON.

IN TWO VOLUMES

VOL. I.

LONDON

PRINTED FOR THE SYDENHAM SOCIETY

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THE Council of the Sydenham Society having done me the honour of consulting me respecting a proposed volume of translations from the Works of Hippocrates, I ventured to give it as my opinion that such a selection ought to comprehend the whole of those Treatises which are now regarded as genuine; and this suggestion having been approved of, I was appointed to the task of translating and editing them according to the best of my judgment. The design, then, of the present Work,¹ is to give a translation of all the genuine remains of the GREAT HIPPOCRATES, along with such an amount of illustration as may be sufficient to render them intelligible to any well-educated member of the profession at the present day. It was understood, indeed, when I first engaged in this undertaking, that I was merely to give a faithful translation of the original; but I soon became satisfied, that a considerable amount of illustration, in the form of Annotations, Arguments, and so forth, would be indispensable to the general utility of such a publication. It is well known that many parts of my author's works are very obscure, owing to the conciseness of the language, and the difficulty which now exists of properly apprehending the views entertained on certain abstruse questions at so very distant a period; and, consequently, it will readily be understood, that a simple version, without either comment or illustration, would have been nearly

¹ It is necessary to inform my readers in this place, that, owing to its bulk, it has been judged expedient by the Council of the Sydenham Society to divide the work into two separate parts or volumes.

as unintelligible to most of my readers as the original itself. And that the works of Hippocrates stand in need of illustration is rendered apparent from the number of commentaries which have been written upon them in all ages, commencing almost with his own time. But whether or not I have been fortunate enough to give just such an amount of illustration as was necessary, and have taken proper care at the same time not to load my pages with superfluous matters of this description, must be left to the judgment of my readers to determine. However, I may be permitted to say, that whatever value shall be put upon my performances in this line, I have certainly spared no pains to make myself well acquainted with the true doctrines of my author, and that for this purpose I have consulted all the best authorities to which I could obtain access, from the commentaries of Apollonius and Galen down to the learned labours of several continental scholars, my contemporaries, especially Dr. Ermerins, of Holland, and MM. Littré and Malgaigne, of France. I flatter myself it will also be admitted, that I have further collected from a variety of sources, a considerable store of valuable materials, for which I am in nowise indebted to any of my predecessors in the same field of research.

Considering how scanty all the information is which the English language can supply on many questions connected with the medical literature of the ancients, I have judged it necessary to enter into a discussion of several of these subjects, in order to prepare my readers for understanding the doctrines of my author. These are contained in the Preliminary Discourse, and will be found to relate principally to the origin of Grecian Medicine, to the Biography of Hippocrates, and an analysis of the works which bear his name, and to an exposition of the principles of the Physical Philosophy which form the basis of most of the hypotheses which occur in the Hippocratic Collection. Having bestowed much pains on the illustration of the

philosophical tenets of the ancients, I shall feel anxious to learn how far the judgment pronounced by me on various controverted points is approved of by persons possessing the necessary degree of information to enable them to form a correct estimate of them, along with a proper degree of candour in judging between the conventional opinions of the present time, and those which prevailed in so remote an age.

That I have imposed upon myself a very serious additional task, by engaging not only to give a true version of the language of my author, but also to expound his opinions, and place them, so to speak, in juxtaposition with those of the present age, will be readily admitted; and I have reason perhaps to apprehend, that I have thereby exposed myself to the strictures of a certain class of critics, who have formed to themselves a very different ideal of the duties of a translator, fancying that he ought merely to concern himself with the words of the original author, and not venture to sit in judgment on the doctrines. I shall not attempt, however, any formal defence of the method which I have pursued, but may be allowed to remark, that, if I shall be found to have failed in satisfying the reasonable expectations of such readers as are sincerely desirous of becoming familiarly acquainted with the opinions of an author, whom I verily believe to be the highest exemplar of professional excellence which the world has ever seen, it is not from want of zeal in the discharge of the arduous duties which I had undertaken.

I have little left to say in this place respecting most of the critical subjects connected with the work, as I have entered at considerable length into the discussion of these matters in the Preliminary Discourse. It is proper, however, to acknowledge that I have derived great assistance from M. Littré's excellent edition, of which the parts already published embrace all the treatises here given, with the exception of the last four. On all occasions I have freely availed myself of his labours,

more especially in amending the text, in which respect his edition undoubtedly surpasses all those which preceded it. I have also not neglected to consult all the other standard editions, especially those of Foës, Van der Linden, and Kühn, and likewise, as will be seen, many other editions of separate treatises, so that, altogether, I trust it will be found that I have not often failed in attaining the true meaning of my author, as far as it can now be ascertained. I am aware, indeed, that, situated as I am, at a distance from public libraries, and deprived of personal intercourse with learned men of congenial pursuits whom I could consult in cases where I felt myself in doubt, I have laboured under disadvantages which may render my work not so perfect in all respects as could have been wished; and that, by sending it to the press as soon as completed, it is not unlikely I may have left it disfigured by certain blemishes which *multa dies et multa litura* might have enabled me to remove. But the urgency of my other professional and private concerns forbade me to devote much longer time to any one task, however interesting or important; while the weight of increasing years, and the confirmed conviction of the endless nature of literary research on such a subject as this, disposed me, on the present occasion, to keep in mind the solemn admonition of my Author, that "Life is short, and Art is long."

F. A.

BANCHORY; *Jan.* 1849.

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PLATES I, II, III, WITH DESCRIPTION.

ERRATA.

<p>Page.</p> <p>26, for Philenus, read Philinus.</p> <p>56, for Bacchus, read Bacchius.</p> <p>74, for bronchus, read branchus.</p> <p>123, for Præcepta, read Precepts.</p> <p>152, for comporta, read composta.</p> <p>183, for κα̃ ἦ, read καὶ ἦ.</p> <p>194, for Re, read Œc.</p>	<p>Page.</p> <p>206, for ὠραῖα, read ὠρᾶια.</p> <p>221, for ἀναρῖοι, read ἀναρθοι.</p> <p>237, line 10 fr. foot, for σῶμα, read ῥῶτον.</p> <p>290, for πελιὸν, read πέλιον.</p> <p>425, for τῆς, read τῆν.</p> <p>453, for Asellius, read Arantius.</p>
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PRELIMINARY DISCOURSE.

BY THE EDITOR.

PRELIMINARY DISCOURSE.

SECTION I.

ON THE ORIGIN OF GRECIAN MEDICINE, WITH A SKETCH OF THE LIFE OF HIPPOCRATES.

It is well known that the oldest documents which we possess relative to the practice of Medicine, are the various treatises contained in the Collection which bears the name of Hippocrates. Their great excellence has been acknowledged in all ages, and it has always been a question which has naturally excited literary curiosity, by what steps the art had attained to such perfection at so early a period. This investigation, however, is attended with peculiar difficulties, and has never been marked by any very satisfactory results. At one time, indeed, it was usual to solve the question by supposing that Greece had derived all the arts and sciences, in a state of considerable advancement, from the oriental nations, who are admitted to have possessed a considerable degree of civilization before the Hellenic race became distinguished for intellectual development.¹ The question with regard to the origin of Medicine was thus supposed to have met with a satisfactory solution. For, it being generally admitted that the Hippocratic Medicine had emerged from the schools of philosophy, and it having been assumed as incontro-

¹ This is the view which is taken regarding the origin of Grecian medicine by Schulze, in his *Historia Medicinæ*. He is a most learned and trustworthy authority on the history of medicine, but in the present instance his judgment is biased by the opinion which was generally held in his age with respect to the origin of Grecian philosophy. At that time it was customary to follow the later Platonists in tracing the rise of philosophy to Egypt. Lord Monboddo, in his work on *Ancient Metaphysics*, strongly espouses this opinion, which, in fact, was the established belief of learned men down to a late period. Kant advocated the views which are here adopted.

vertible that the early philosophy of the Greeks had been derived from the East, the inference appeared to be quite legitimate that medicine, in a state of considerable advancement, had been imported from the same quarter. Recent research, however, has cast great doubts on the supposed descent of Grecian philosophy from a foreign source, and it is now pretty generally admitted that the Orientals, in early times, had never made any considerable progress in mental science.¹ Instead, then, of looking upon philosophy as having been an exotic production in the land of Hellas, we have every reason to believe that it was, what its inhabitants, in the noble pride of political freedom and intellectual superiority, boasted that their forefathers had been, namely, "the offspring of their own soil."² Since the philosophy of the Greeks was indigenou, there is every reason to suppose that their medicine was so in like manner. How long the union between medicine and philosophy had subsisted before the time of Hippocrates, has not been determined upon any contemporary evidence, but the disciples of Pythagoras, in after ages, did not hesitate to ascribe to him the honour of effecting this alliance.³ However this may be, it appears to me very doubtful whether these philosophers ever practised medicine as a craft. Indeed, it is much more likely that they merely speculated upon the phenomena of disease. Thus we shall see afterwards, that Plato himself did not discard speculative medicine from his system of philosophy, although we are quite sure that he

¹ See in particular the introductory chapters to Ritter's History of Ancient Philosophy; Thirlwall's History of Greece, c. xii; Grote's History of Greece, P. I, c. xvii. The opinion now generally held on this subject may be explained in few words. The Homeric poems are beyond all doubt of Grecian origin, for it cannot be shown that the ancient Egyptians or Babylonians had anything resembling a regular epos. Now, as Mr. Grote well observes, "from the poetry of Homer to the history of Thucydides, and the philosophy of Plato and Aristotle, was a prodigious step, but it was the native growth of the Hellenic youth into the Hellenic man, and what is of still greater moment, it was brought about without breaking the thread either of religious or poetic tradition—without any coercive innovation or violent change in the mental feelings. The transition of Grecian mind from its poetical to its comparatively positive state was self-operated, and accomplished by its own inherent and expansive force—aided indeed, but by no means either impressed or provoked, from without."—L. c.

² Plato, Menex.

³ Celsus mentions Pythagoras, Empedocles, and Democritus, as the most distinguished of the philosophers who cultivated medicine.—Præfat.

never practised it as an art. But this connexion between medicine and philosophy was by no means regarded, in after times, as having been favorable to the advancement of the former, for we find Hippocrates complimented by Celsus for having brought about a separation between them.¹

It is clearly established that, long before the birth of philosophy, medicine had been zealously and successfully cultivated by the *Asclepiadæ*, an order of priest-physicians that traced its origin to a mythical personage bearing the distinguished name of *Æsculapius*. Two of his sons, *Podalirius* and *Machaon*, figure in the Homeric poems, not however as priests, but as warriors possessed of surgical skill in the treatment of wounds, for which they are highly complimented by the poet. It was probably some generations after this time (if one may venture a conjecture on a matter partaking very much of the legendary character) that *Æsculapius* was deified, and that Temples of Health, called *Asclepia*, presided over by the *Asclepiadæ*, were erected in various parts of Greece, as receptacles for the sick, to which invalids resorted in those days for the cure of diseases, under the same circumstances as they go to hospitals and spas at the present time. What remedial measures were adopted in these temples we have no means of ascertaining so fully as could be wished, but the following facts, collected from a variety of sources, may be pretty confidently relied upon for their accuracy. In the first place, then, it is well ascertained that a large proportion of these temples were built in the vicinity of *thermæ*, or medicinal springs, the virtues of which would no doubt contribute greatly to the cure of the sick.² At his

¹ "Hippocrates primus ab studio sapientie disciplinam hanc separavit."—Præfat.

² See the authorities quoted at *PAULUS ÆGINETA*, Vol. I, p. 73, Syd. Soc. edition; also in particular *Xenophon's Memorabilia*, iii, 13; and *Pausanias*, ii, 2. The most complete list which is anywhere given of the ancient *Asclepia*, is that contained in *Schulze's History of Medicine*, i, 24. It is to be regretted, however, that the references to *Pausanias* are made according to the pages of an old edition, instead of books and chapters, so that one experiences some difficulty in finding the passages referred to. The number of *Asclepia* in Greece noticed by him is sixty-four. *Plutarch* states in positive terms that all the Temples of Health were erected in high situations, and where the air was wholesome.—(*Quæst. Rom.*) On the practice of medicine in the ancient Temples of Health, see further *Sprengel*, *Hist. de la Méd.*, c. v. *Sprengel*, however, does not acknowledge so candidly as he ought to have done his obligations to his predecessor *Schulze*.

entrance into the temple, the devotee was subjected to purifications, and made to go through a regular course of bathing, accompanied with methodical frictions, resembling the oriental system now well known by the name of *shampooing*. Fomentations with decoctions of odoriferous herbs were also not forgotten. A total abstinence from food was at first prescribed,¹ but afterwards the patient would no doubt be permitted to partake of the flesh of the animals which were brought to the temples as sacrifices. Every means that could be thought of was used for working upon the imagination of the sick, such as religious ceremonies of an imposing nature, accompanied by music, and whatever else could arouse their senses, conciliate their confidence, and, in certain cases, contribute to their amusement.² In addition to these means, it is believed by many intelligent Mesmerists of the present day, that the aid of Animal magnetism was called in to contribute to the cure;³ but on this point the proof is not so complete as could be wished. Certain it is, however, that as the Mesmerists administer medicines which are suggested to the imagination of patients during the state of *clairvoyance*, the Asclepiadæ prescribed drugs as indicated in dreams. These, indeed, were generally of a very inert description; but sometimes medicines of a more dangerous nature, such as hemlock and gypsum, were used in this way,⁴ and regular reports of the effects which they produced were kept by the priests in the temples. It is also well known that the Asclepiadæ noted down with great care the symptoms and issue of every case, and that, from such observations, they became in time great adepts in the art of prognosis. When we come to an analysis of the different Hippocratic treatises, it will be seen that there is strong reason to believe we are still possessed of two documents composed from the results of observations made in the ancient Temples of Health. It would also contribute much to the increase of medical knowledge in this

¹ Philostratus, *Vita Apollonii*, i, 9; Strabo, *Geogr.*, xiv.

² Pausanias, vii, 21.

³ This I have reason to know is the belief of the learned and estimable author of the *Isis Revelata*.

⁴ Aristides, *Orat. in Æsculap.*, viii. It may be proper to state that Sprengel, in referring to this passage (*Hist. de la Méd.*, p. 160, French edition), falls into the mistake of saying that these medicines were prescribed to Aristides himself.

way, that the office of priesthood was hereditary in certain families, so that information thus acquired would be transmitted from father to son, and go on accumulating from one generation to another.¹ Whether the Aselepiadæ availed themselves of the great opportunities which they must undoubtedly have had of cultivating human and comparative anatomy, has been much disputed in modern times; indeed, the contrary is expressly maintained by some eminent authorities, such as Gruner² and Sprengel.³ But it will be shown in another place, that there is good reason for believing that these two scholars have greatly underrated the amount of anatomical knowledge possessed by Hippocrates, and his predecessors the priest-physicians in the Temples of Health. Moreover, it is worthy of remark, that Galen holds Hippocrates to have been a very successful cultivator of anatomy.⁴ Galen further states, upon the authority of Plato,⁵ that the Aselepiadæ paid no attention to dietetics; but this opinion would require to be received with considerable modification, for, most assuredly, whoever reflects on the great amount of valuable information on this subject which is contained in the Hippocratic treatises, will not readily bring himself to believe that it could have been all collected by one man, or in the course of one generation. It is worthy of remark, moreover, that Strabo, whose authority I need scarcely say stands deservedly high in all literary matters, does not hesitate to affirm that Hippocrates was trained in the knowledge of dietetics, from documents preserved in the Asclepion of Cos.⁶ That gymnastics, as stated by Galen,⁷ were not recognised as a regular branch of the healing art, until the age of Hippocrates, is indeed not improbable, and this perhaps is what Plato meant when he says that the Aselepiadæ did not make any use of the pedagogic art until it was introduced by Herodicius. But at the same time there can be no doubt, as further stated by Galen,⁸ that exercise, and especially riding on horseback, constituted

¹ Galen, de Administ. Anatom., ii.

² Censura Operum Hippocrat., p. 184.

³ Hist. de la Méd., i, 5, p. 175, French edit. Schulze, in like manner, depreciates the anatomical knowledge of the Aselepiadæ, and holds that it had been overrated by Galen.—Hist. Med., i, 2, 5.

⁴ Comment. in Libr. de Artic., iii, 28; de Decret. Hippocrat. et Platon., viii, 1.

⁵ Polit., iii, 399; ed. Tauchnitz.

⁶ Geograph., xiv, 2.

⁷ De Sanitate tuenda, i.

⁸ l. c.

one of the measures used by the *Asclepiadæ* for the recovery of health, having been introduced by *Æsculapius* himself.

Of the *Asclepia* we have mentioned above, it will naturally be supposed that some were in much higher repute than others, either from being possessed of peculiar advantages, or from the prevalence of fashion. In the beginning of the fifth century before the Christian era, the temples of Rhodes, Cnidos, and Cos were held in especial favour, and on the extinction of the first of these, another rose up in Italy in its stead.¹ But the temple of Cos was destined to throw the reputation of all the others into the background, by producing among the priests of *Æsculapius* the individual who, in all after ages, has been distinguished by the name of the GREAT HIPPOCRATES.²

Before proceeding, however, to give a brief sketch of his biography, I may state, partly by way of recapitulation, and partly in anticipation of what will be found in a subsequent part of this work, the leading facts which are known relative to the state of medicine before his time.

1. The origin of Grecian medicine is involved in impenetrable darkness, being anterior to all authentic history, and nothing being known either as to its rise or the steps by which it grew up to be a regular art.

2. There is no reason to suppose that the germs of medical science, any more than those of philosophy, had been originally imported into Greece from the East.

3. The earliest practitioners of medicine concerning whom we have any authentic information, were the *Asclepiadæ*, or priest-physicians, who endeavoured to cure the sick partly by superstitious modes of working upon the imagination, and partly by more rational means, suggested by observation and a patient study of the phenomena of disease.

4. Though the men of letters who directed their attention to the phenomena of disease, as constituting a branch of philosophy, may in so far have improved the theory of medicine by freeing

¹ Galen, Opera, tom. iv, ed. Basil, 35.

² Aristotle, Polit., vii, 4. Notwithstanding the high compliment which Aristotle here pays to the professional reputation of Hippocrates, there can be no doubt that he does not always make proper acknowledgment for the many obligations which he lies under to the Coan sage. Galen states repeatedly that the greater part of Aristotle's physiology is derived from Hippocrates.

it from the trammels of superstition, it is not likely they could have contributed much to the practice of medicine, which is well known to be founded on observation and experience.

5. Though there can be little or no doubt that the priest-physicians, and the philosophers together, were possessed of all the knowledge of medicine which had been acquired at that time, it is not satisfactorily ascertained by what means the art had attained that remarkable degree of perfection which we shall soon see that it exhibited in the hands of Hippocrates. But I must now proceed with my Sketch of his Life.

That Hippocrates was lineally descended from *Æsculapius* was generally admitted by his countrymen, and a genealogical table, professing to give a list of the names of his forefathers, up to *Æsculapius*, has been transmitted to us from remote antiquity. Although I am well aware that but little reliance can be put on these mythical genealogies, I will subjoin the list to this section, in order that it may be at hand for reference, as many allusions will have to be made to it in the subsequent pages.¹

Of the circumstances connected with the life of Hippocrates little is known for certain, the only biographies which we have of him being all of comparatively recent date, and of little authority. They are three in number, and bear the names of *Soranus Ephesius*, *Suidas*, and *Tzetzcs*. Of the age in which the first of these authors flourished, nothing is known for certain; the second is a lexicographer, who lived in the beginning of the eleventh century; and the third flourished in the twelfth century. The birth of Hippocrates is generally fixed, upon the authority of *Soranus*, as having occurred in the first year of the 80th Olympiad, that is to say, in the 460th year before the vulgar era. On this point, however, I must say that I see no good grounds for the unanimity of opinion which has generally prevailed among modern scholars. In fact, the counter-evidence of *Aulus Gellius* has always appeared to me to be unjustly over-

¹ See some ingenious observations on these mythical genealogies in *Grote's History of Greece*, vol. i, p. 593. He holds that they are altogether unworthy of credit, or at least that there is no test whereby one can separate the true from the false in them. *Clinton*, indeed, in his *Fasti Hellenici*, attaches more importance to them; but apparently *Mr. Grote's* judgment on them is perfectly just. See further vol. ii, p. 53, &c.

looked, as I cannot but think that his authority ought to rank much higher than that of Soranus, of whom nothing is known, not even the century in which he lived. Aulus Gellius, then, in an elaborate disquisition on Greek and Roman chronology, states decidedly that Socrates was contemporary with Hippocrates, but younger than he.¹ Now it is well ascertained, that the death of Socrates took place about the year 400 A.C., and as he was then nearly seventy years old, his birth must be dated as happening about the year 470 A.C. This statement would throw the birth of Hippocrates back several years beyond the common date, as given by Soranus. There is also much uncertainty as to the time of his death: according to one tradition he died at the age of 85, whereas others raise it to 90, 104, and even 109 years. These dates of his birth and death, although vague, are sufficient to show that the period at which we may reasonably suppose he had practised his profession with the greatest activity and reputation, must have been the latter part of the fifth century A.C. It will readily occur to the reader, then, that our author flourished at one of the most memorable epochs in the intellectual development of the human race. He had for his contemporaries, Pericles, the famous statesman; the poets Æschylus, Sophocles, Euripides, Aristophanes, and Pindar; the philosopher Socrates, with his distinguished disciples Plato and Xenophon; the venerable father of history, Herodotus, and his young rival, Thucydides; the unrivalled statuary, Phidias, with his illustrious pupils, and many other distinguished names, which have conferred immortal honour on the age in which they lived, and exalted the dignity of human nature. Nor was Greece the only region of the earth remarkable at this time for moral and intellectual improvement; for, if we may believe oriental chronology, Confucius and Zoroaster had gone off the stage of life only a very few years before the dawn of this celebrated age of Grecian superiority in the arts and sciences. Hippocrates, it thus appears, came into the world under circumstances which must have co-operated with his own remarkable powers of intellect in raising him to that extraordinary eminence which his name has attained in all ages. From his forefathers he inherited a distinguished situation in one of the most eminent hospitals, or Temples

of Health, then in existence, where he must have enjoyed free access to all the treasures of observations collected during many generations, and at the same time would have an opportunity of assisting his own father in the management of the sick.¹ Thus from his youth he must have been familiar with the principles of medicine, both in the abstract and in the concrete,—the greatest advantage, I may be permitted to remark, which any tyro in the healing art can possibly enjoy. In addition to all this, he had excellent opportunities of estimating the good and bad effects resulting from the application of gymnastic exercises in the cure of diseases, under the tuition of Herodicus, the first person who is known for certain to have cultivated this art as a branch of medicine.² He was further instructed in the polite literature and philosophy of the age, by two men of classical celebrity, Gorgias and Democritus; the latter of whom is well known to have devoted much attention to the study of medicine, and its cognate sciences, comparative anatomy and physiology.

Initiated in the theory and first principles of medicine, as now described, Hippocrates no doubt commenced the practice of his art in the Asclepion of Cos, as his forefathers had done before him. Why he afterwards left the place of his nativity, and visited distant regions of the earth, whither the duties of his profession and the calls of humanity invited him, cannot now be satisfactorily determined. The respect paid to him in his lifetime by the good and wise in all the countries which he visited, and the veneration in which his memory has been held by all subsequent generations, are more than sufficient to confute the base calumny, invented, no doubt, by some envious rival, that he was obliged to flee from the land of his nativity in consequence of his having set fire to the library attached to the Temple of Health, at Cnidos, in order that he might enjoy

¹ That Hippocrates drew the rudiments of his medical knowledge from the reports of cases collected in the Asclepion of Cos, is attested by good authorities. See Strabo, Geogr., xiv; Pliny, H. N., xxix, 2.

² On the introduction of the gymnastic exercises into the practice of medicine, see Schulze, Hist. Med., i, 2, 8. The author of the VI Epidem. condemns Herodicus for using exercises in the treatment of acute diseases. Herodicus is frequently mentioned in the Dialogues of Plato. See Protagoras, § 20; and de Repub., iii. Plato says, that being in ill health, he wore out first himself and afterwards many others, by combining gymnastics with medicine.

a monopoly of the knowledge which he had extracted from the records which it had contained.¹ Certain it is, that he afterwards visited Thrace, Delos, Thessaly, Athens, and many other regions, and that he practised, and probably taught, his profession in all these places.² There are many traditions of what he did during his long life, but with regard to the truth of them, the greatest diversity of opinion has prevailed in modern times. Thus he is said to have cured Perdiccas, the Macedonian king, of love-sickness; and although there are circumstances connected with this story which give it an air of improbability, it is by no means unlikely that he may have devoted his professional services to the court of Macedonia, since very many of the places mentioned in his works as having been visited by him, such as Pella and Acanthus, are situated in that country; and further, in confirmation of the narrative, it deserves to be mentioned, that there is most satisfactory evidence of his son Thessalus having been court physician to Archelaus, king of Macedonia;³ and it is well ascertained that another of his descendants, the Fourth Hippocrates, attended Roxane, the queen of Alexander the Great.⁴

Our author's name is also connected with the great plague of Athens, the contagion of which he is reported to have extinguished there and in other places, by kindling fires.⁵ The only serious objection to the truth of this story is the want of proper contemporary evidence in support of it. It is no sufficient objection, however, that Thucydides, in his description of the circumstances attending the outbreak of the pestilence in Attica, makes no mention of any services having been rendered to the commu-

¹ Soranus alludes to this fiction, and quotes Andreas as an authority for it. See also Pliny, H. N., xxix, 2. Tzetzes calls it the Temple of Cos, and not of Cnidos, which was burned.

² See Plato, Protagoras.

³ Galen, Comment. in Libr. de Nat. Human.

⁴ Suidas in voce Hippocrates.

⁵ It was a common practice in ancient times to kindle great fires as *disinfectants* or *deodorizers*. We have entered pretty fully upon this subject in our Commentary on PAULUS ÆGINETA, Vol. I, p. 274. There can be no doubt that it was the established practice of the profession in the days of Hippocrates. The names of Acron, Empedocles, and Hippocrates are particularly famous as having successfully adopted the practice. See Aëtius, v, 94; Paulus Ægineta, l. c.; Pliny, II. N., xxxvi, 69; and Plutarch, De Iside et Osiride.

nity by Hippocrates; while, on the contrary, he states decidedly that the skill of the physicians could do nothing to mitigate the severity of this malady. It is highly probable, that, if Hippocrates was actually called upon to administer professional assistance in this way, it must have been during one of the subsequent attacks or exacerbations of the disease which occurred some years afterwards. We know that this plague did not expend its fury in Greece during one season, and then was no more heard of; but on the contrary, we learn that it continued to lurk about in Athens and elsewhere, and sometimes broke out anew with all its original severity. Thucydides briefly mentions a second attack of the plague at Athens about two years after the first,¹ attended with a frightful degree of mortality; nor is it at all improbable that this was not the last visitation of the malady. Though the name of Hippocrates, then, may not have been heard of at its first invasion, it is not at all unlikely that, after he had risen to the head of his profession in Greece, as we know that he subsequently did, he should have been publicly consulted regarding the treatment of the most formidable disease which was prevailing at the time.² What adds an appearance of truth to the tale is, that several of the genuine works of Hippocrates, which were probably published in his lifetime, relate to the causes and treatment of epidemic and endemic diseases.³ That the magistrates of Athens, then, should have applied to him as the most eminent authority on the subject, to assist them in their sanitary regulations⁴

¹ Hist., iii, 87.

² It deserves to be mentioned further, as adding probability to the present narrative, that it was quite common in ancient times for the Asclepiadæ to be publicly consulted by cities and states respecting the general health of the inhabitants, and this both for the prevention and cure of diseases. See Aristid. Opera, i, p. 81.

³ Galen, in many parts of his works, alludes to the professional services of Hippocrates during the great plague described by Thucydides. He mentions decidedly that Thucydides gives only those symptoms which would strike a common, that is to say, a non-professional man; whereas Hippocrates describes the disease accurately like a professional man, but gives few of those symptoms which appeared most interesting to Thucydides.—De Difficult. Respir., ii, 7.

⁴ Thucydides mentions that the mortality of the plague was greatly aggravated by the influx of the people from the country into the city, and the crowding of them in ill-ventilated huts. (ii, 52.) Mitford, in describing the plague of Athens, remarks that the want of sewers in ancient times must have contributed very much to the severity of the disease. (Hist. of Greece, vol. ii, p. 195.) He refers (l. c.) to Strabo (Geogr. v) for proof that the Romans were the first people who constructed sewers.

during the prevalence of this great pestilence, is so far from being improbable, that I think it would have been very extraordinary if they had omitted to consult him, seeing that he was undoubtedly looked up to as the *facile princeps* among the physicians of the day. That his services in this way have been exaggerated by the blind admiration of his worshippers, both at that time and in after ages, may be readily admitted; but this circumstance ought not to make us reject the whole story as being fabulous. I repeat, then, that although this part of the history of Hippocrates be not vouched by any contemporary evidence, it is by no means devoid of probability, while the objections which have been started to it by modern authorities have not so much weight as is generally supposed.

Another circumstance in the life of Hippocrates, for the truth of which Soranus, Suidas, and a host of ancient authorities concur in vouching, namely, that he refused a formal invitation to pay a professional visit to the court of Persia, is rejected with disdain by almost all the modern scholars who have touched upon this subject. But was it an uncommon thing for the king of Persia to manœuvre in this way with Grecian talent in order to attract it to his court? So far is the contrary known to be the case, that, as every person who is familiar with the early history of Greece must be well aware, the manner in which “the Great King” rendered himself most formidable to the Grecian Republics after the humiliating defeats which the military forces of Persia had sustained at Marathon, Salamis, and Plataea, was by intriguing with all those distinguished persons in Greece who would render themselves accessible to his bribes and flatteries, and thus endeavouring to detach them from the cause of their country. Of this we have notable examples in the case of two illustrious individuals, who were nearly contemporary with Hippocrates—I mean Pausanias and Themistocles. Moreover, it is well known that Grecian physicians at all times were in high repute at the court of Babylon;¹ witness Ctesias, the contemporary and kinsman of Hippocrates,² who was court physician to the king of Persia, and was employed in that capacity in the most

¹ See Xenophon, *Cyropæd.*, i and viii.

² Galen, *Comment. in libr. de Artic.* iii.

serious emergencies.¹ What more natural, then, or more likely to happen, than that the king of Persia, when he saw his country overrun by the plague,² should seek advice from a neighbouring people, whose superiority to his own subjects in all the arts of war and peace he and his predecessors had learned from sad experience? I readily admit that the letters in the Hippocratic Collection which relate to this story can scarcely be received as genuine; but does this prove that the event upon which they are made to turn is also devoid of truth? I can see no probability in this supposition; for whether we regard these documents as willful forgeries, executed with the fraudulent intention of palming them on the literary world as genuine productions, or whether we look upon them as mere exercises made on given subjects by the Sophists or Scholiasts to display their ability in sustaining an assumed character, it would have been preposterous to make them relate to stories of which every person of that age must have been able to detect the falsehood. Were any person at the present day, from whatever motive, desirous of palming upon the public certain letters said to have been written by the celebrated John Hunter, he would surely not be so imprudent as to endeavour to pass off as genuine a correspondence purporting to have taken place between him and the king of France, as every one at all acquainted with professional biography, would at once perceive that the authenticity of the documents in question was completely disproved by the falsity of the narrative upon which they are founded. Seeing, then, that these letters are admitted on all hands to be very ancient, that is to say, of a date not much later than the time of

¹ Xenophon, *Anabasis*, i. It has never been clearly determined whether he was in the suite of Artaxerxes the king, or of his brother Cyrus, before the battle of Cunaxa, in which the latter was killed, and the former being severely wounded, was attended professionally by Ctesias. Diodorus Siculus, indeed, says decidedly that he was taken prisoner on the occasion. (*Bibl.* ii, 32.) But we are certain, from the authentic narrative of Xenophon, that he was not taken prisoner in the battle, nor is it likely that he was one of those who were kidnapped afterwards, otherwise the historian would certainly not have omitted the name of so distinguished a personage. Besides, had he been brought to Babylon in this way, as a captive, Artaxerxes was not likely to have intrusted his royal life to a person who had been so lately the professional attendant on his rebel brother.

² See Thucyd., ii, 48.

Hippocrates, we may rest assured that the main facts to which they allude were believed at the time to be of an authentic nature.

For the like reasons I am disposed to think that, although the letters in the Collection which refer to a pretended correspondence between him and Democritus are most probably to be regarded as spurious, it is far from being improbable that the physician may have rendered the services of his profession to the philosopher. Had there been no grounds whatever for this story, why so many ancient authors should have agreed in giving credit to it I cannot imagine.

According to all the accounts which have come down to us of his life, he spent the latter part of it in Thessaly, and died at Larissa, when far advanced in years. The corruptions with regard to numbers which, in the course of transcription, have crept into all works of great antiquity, sufficiently account for the differences already mentioned in the statements respecting his age at the time of his death.

These are all the particulars of any importance which can now be gathered regarding the life of him who has been venerated in all ages as "The Father of Medicine." That they are scanty and rather unsatisfactory, must be admitted; but yet what more, in general, can we desire to know respecting the biography of a physician than the manner in which he was educated, how he was esteemed by his contemporaries, and what he did and wrote to reflect credit on his profession? The approbation and gratitude of those who have consulted him for the cure of their maladies are the best testimony to the public character of a physician, and the estimation in which his writings are held by the members of his own profession is what constitutes his professional reputation. I need scarcely say that, as a medical author, the name of Hippocrates stands pre-eminently illustrious. In this way he has left monuments of his genius more durable than the marble statues of Phidias, his contemporary, and as enduring as the tragedies of Sophocles, or the Olympiac odes of Pindar.

In the next section I intend to give a careful analysis of all the writings which have come down to us from antiquity under the name of Hippocrates, and to state clearly the grounds upon which some are to be received as genuine, and others rejected as supposititious. I shall conclude the present section,

although it may appear that I am anticipating some things which had better have come after the succeeding one, with a brief account of our author's general principles, both as regards the theory and the practice of medicine; and in doing this I mean not to confine myself strictly to the treatises which are acknowledged to be genuine, as they are unfortunately so few in number, that we are often obliged to guess at the tenets of our author from those held by his immediate successors and disciples.

The opinions which he held as to the origin of medicine, and the necessities in human life which gave rise to it, are such as bespeak the soundness of his views, and the eminently practical bent of his genius. It was the necessity, he says,¹ which men in the first stages of society must have felt of ascertaining the properties of vegetable productions as articles of food that gave rise to the science of Dietetics; and the discovery having been made that the same system of regimen does not apply in a disordered as in a healthy condition of the body, men felt themselves compelled to study what changes of the aliment are proper in disease; and it was the accumulation of facts bearing on this subject which gave rise to the art of Medicine. Looking upon the animal system as one whole, every part of which conspires and sympathises with all the other parts, he would appear to have regarded disease also as one, and to have referred all its modifications to peculiarities of situation.² Whatever may now be thought of his general views on Pathology, all must admit that his mode of prosecuting the cultivation of medicine is in the true spirit of the Inductive Philosophy; all his descriptions of disease are evidently derived from patient observation of its phenomena, and all his rules of practice are clearly based on experience. Of the fallaciousness of experience by itself he was well aware, however, and has embodied this great truth in a memorable aphorism,³ and therefore he never exempts the apparent results of experience from the strict scrutiny of reason. Above all others, Hippocrates was strictly

¹ De Prisca Medicina.

² See in the next section, under xxiii. Though I have not admitted the treatise here referred to into the list of genuine works, it will be seen below that it possesses considerable evidence in its favour, and that beyond doubt it is very ancient.

³ Aphor. I, 1.

the physician of experience and common sense. In short, the basis of his system was a rational experience, and not a blind empiricism, so that the Empirics in after ages had no good grounds for claiming him as belonging to their sect.¹

What he appears to have studied with particular attention is the natural history of diseases, that is to say, their tendencies to a favorable or fatal issue; and without this knowledge, what can all medical practice be but blind empiricism?—a haphazard experiment, which perchance may turn out either to cure or to kill the patient? In a word, let me take this opportunity of saying, that the physician who cannot inform his patient what would be the probable issue of his complaint, if allowed to follow its natural course, is not qualified to prescribe any rational plan of treatment for its cure.

One of the most distinguishing characteristics, then, of the Hippocratic system of medicine, is the importance attached in it to *prognosis*, under which was comprehended a complete acquaintance with the previous and present condition of the patient, and the tendency of the disease. To the overstrained system of Diagnosis practised in the school of Cuidos, agreeably to which diseases were divided and subdivided arbitrarily into endless varieties, Hippocrates was decidedly opposed; his own strong sense and high intellectual cultivation having, no doubt, led him to the discovery, that to accidental varieties of diseased action there is no limit, and that what is indefinite cannot be reduced to science.²

Nothing strikes one as a stronger proof of his nobility of soul, when we take into account the early period in human cultivation at which he lived, and his descent from a priestly order, than the contempt which he everywhere expresses for ostentatious charlatany, and his perfect freedom from all popular superstition.³ Of amulets and complicated machines to impose on the credulity

¹ See Galen, Opera, tom. v, p. 488; ed. Basil.

² This is clearly defined and stated by Aristotle, Phys., i. See also Boethius in Præd., p. 113; ed. Basil.

³ This is the more remarkable, as it does not appear to have been the established creed of the greatest literary men and philosophers of the age, who still adhered or professed to adhere to the popular belief in the extraordinary interference of the gods with the works of Nature and the affairs of mankind. This at least was remarkably the case with Socrates, whose mind, like that of most men who make a great impression on the religious feelings of their age, had evidently a deep tinge of

of the ignorant multitude, there is no mention in any part of his works. All diseases he traces to natural causes, and counts it impiety to maintain that any one more than another is an infliction from the Divinity. How strikingly the Hippocratic system differs from that of all other nations in their infantine state must be well known to every person who is well acquainted with the early history of medicine.¹ His theory of medicine was further based on the physical philosophy of the ancients, more especially on the doctrines then held regarding the elements of things, and the belief in the existence of a spiritual essence diffused through the whole works of creation, which was regarded as the agent that presides over the acts of generation, and which constantly strives to preserve all things in their natural state, and to restore them when they are preternaturally deranged. This is the principle which he called Nature, and which he held to be a *vis medicatrix*. "Nature," says he, or at least one of his immediate followers says, "is the physician of diseases."² His physical opinions are so important, that I have resolved to devote an entire section to an exposition of the ancient doctrines on this head. (See Sect. III.)

Though his belief in this restorative principle would naturally dispose him to watch its operations carefully, and make him cautious not to do anything that would interfere with their tendencies to rectify deranged actions, and though he lays it

mysticism. See Xenoph. Memor., i, 1, 6-9; Ibid. iv, 7, 7; also Grote's History of Greece, vol. i, p. 499. The latter remarks, "Physical and astronomical phenomena are classified by Socrates among the divine class, interdicted to human study." (Mem., i, 1, 13.) He adds, in reference to Hippocrates, "On the other hand, Hippocrates, the contemporary of Socrates, denied the discrepancy, and merged into one the two classes of phenomena—the divine and the scientifically determinable,—which the latter had put asunder. Hippocrates treated all phenomena as at once both divine and scientifically determinable." (p. 499.) He then quotes the memorable passage in the treatise 'On Airs,' &c. It does not appear, however, that in ancient times the charge of Atheism was ever brought against him. It has been urged against him by modern fanatics, but scarcely deserves a serious refutation. See Schulze (Hist. Med., i, 3, 2), and Ackerman (Hist. Lit. Hippocr., pp. xii, xiii; ed. Kühn). By such persons, whoever does not join in their anthropomorphical notions of a first cause is held up for an Atheist.

¹ For the medicine of the ancient Jews, Egyptians, and Babylonians, see the introductory chapters of Sprengel's Hist. de la Méd. The medicine of the Hindoos, as given in the 'Susruta' of D'Hanvantare, abounds in superstitious practices.

² Epidem., vi.

down as a general rule by which the physician should regulate his treatment, "to do good, or at least to do no harm,"¹ there is ample evidence that on proper occasions his practice was sufficiently bold and decided. In inflammatory affections of the chest he bled freely, if not, as has been said, *ad deliquum animi*,² and in milder cases he practised cupping with or without scarifications.³ Though in ordinary cases of constipation he merely prescribed laxative herbs, such as the mercury (*mercurialis perennis*),⁴ beet,⁴ and cabbage,⁴ he had in reserve elaterium,⁵ scammony,⁶ sparges,⁷ and other drastic cathartics, when more potent medicines of this class were indicated. And although, when it was merely wished to evacuate upwards in a gentle manner, he was content with giving hyssop,⁸ and other simple means, he did not fail, when it was desirable to make a more powerful impression, to administer the white hellebore with a degree of boldness, which his successors in the healing art were afraid to imitate.⁹ A high authority has expressly stated that he was the discoverer of the principles of derivation and revulsion in the treatment of diseases.¹⁰ Fevers he treated as a general rule, upon the diluent system, but did not fail to administer gentle laxatives, and even to practise venesection in certain cases.¹¹ When narcotics were indicated, he had recourse to mandragora, henbane, and perhaps to poppy-juice.¹²

In the practice of surgery he was a bold operator. He fearlessly, and as we would now think, in some cases unneces-

¹ Epidem., i.

² De Diæta in Morb. Acut., Prognost., 15. See the argument to the Appendix to the former work.

³ See Galen, Oper. tom. v, p. 106; ed. Basil.

⁴ See De Morbis, pluries; de Prisca Med., 22.

⁵ De Superfæt. et pluries.

⁶ De Ratione Vietus in Acut. There is some doubt, however, whether the *σκαμμώνιον* of Dioscorides be the *Convolvulus scammonia*. Some rather take it for the *C. sagittifolius*.

⁷ De Superfæt. et alibi.

⁸ De Morb. Mulier.

⁹ De Fract., Aphor. et alibi.

¹⁰ Galen, Meth. Med., v, 3; Comment. in Libr. de Humor. See further in illustration, (Econom. Hippocrat. under *Παροχρετέειν* and *Ἀντίσπασις*; and Schulze, Hist. Med., i, 3, 4, 10.

¹¹ See Epidem., i and iii; Aphor., i, 16; and De Diæta Acutor., passim.

¹² See De Morbis, ii; and Le Clerc, Hist. Med., 1, 3, 20.

sarily, perforated the skull with the trepan and the trephine in injuries of the head. He opened the chest also in empyema and hydrothorax. His extensive practice, and no doubt his great familiarity with the accidents occurring at the public games of his country, must have furnished him with ample opportunities of becoming acquainted with dislocations and fractures of all kinds; and how well he had profited by the opportunities which he thus enjoyed, every page of his treatises 'On Fractures,' and 'On the Articulations,' abundantly testifies. In fact, until within a very recent period, the modern plan of treatment in such cases was not at all to be compared with his skillful mode of adjusting fractured bones, and of securing them by means of waxed bandages. In particular, his description of the accidents which occur at the elbow- and hip-joints will be allowed, even at the present day, to display a most wonderful acquaintance with the subject. In the treatment of dislocations, when human strength was not sufficient to restore the displacement, he skillfully availed himself of all the mechanical powers which were then known.¹ In his views with regard to the nature of club-foot, it might have been affirmed of him a few years ago, that he was twenty-four centuries in advance of his profession when he stated that in this case there is no dislocation, but merely a declination of the foot; and that in infancy, by means of methodical bandaging, a cure may in most cases be effected without any surgical operation. In a word, until the days of Delpech and Stromeyer, no one entertained ideas so sound and scientific on the nature of this deformity as Hippocrates.

But I must not allow my enthusiastic admiration to carry me too far. I will therefore conclude the present section by making a few observations on the peculiar style of our author's writings. According to Galen, whose extensive acquaintance with Greek literature rendered him a most competent judge, the characteristics of his style are extreme conciseness, precision, and, in certain cases, obscurity, as the natural result of laboured brevity.² To these traits of character he adds, elsewhere, that Hippocrates makes it a rule to avoid all superfluity of discussion and unnecessary repetitions, and never says more

¹ See the work 'On the Articulations,' pluries.

² See in particular Venesect. adv. Erasistrat., Comment. in Lib. de Ofic. Medic.

than what is indispensable.¹ Now, it is no proper objection to this general view of the character of his style, as stated by M. Littré, that it is not the same in all his works; as, for example, in his treatise ‘*On Airs, Waters, and Places*,’ where the style is certainly not so laconic as in some of his others; although, even with regard to it, I must be permitted to say that I agree with a most competent authority, the late Dr. Coray, that its style is remarkable for conciseness.² And, indeed, if brevity of expression, bordering at times upon obscurity, be not the characteristic of the style of Hippocrates, we must admit that his mode of composition is not in accordance with the taste of his age. There can be no doubt that the style of Hippocrates is nearly akin to that of his contemporary, the historian Thucydides, which is thus described by a very acute and original critic: “The most obvious and characteristic of his peculiarities is an endeavour to express as much matter as possible in as few words as possible, to combine many thoughts into one, and always to leave the reader to supply something of his own. Hence his conciseness often becomes obscure.”³ I would beg leave to add that other peculiarities in the style of Thucydides, which are severely animadverted upon by Dionysius, may be clearly recognised also in the writings of Hippocrates, especially irregularities of syntax, with a somewhat rude and inartificial mode of constructing his sentences. I mention this the rather that the English reader may not expect to find in my translation any of those well-turned periods and graceful modes of construction by which elegant composition is now distinguished. I wish it to be known that in making this translation, I have followed the example of the modern authority lately referred to, that is to say, I have been more studious of fidelity than of elegance, and have endeavoured to give not only the matter, but also the manner, of my author.⁴

¹ De Dyspn., ii, p. 181; ed. Basil. This brevity of style, Galen, in another passage of the same work, pronounces to be characteristic of all the old writings. In fact, when the materials of writing were scarce and dear, it is not likely that authors would indulge in an extravagant use of them.

² Coray, *Traité de Hippocrat. des Airs, &c.*, Discours préliminaire, pp. 1, lvii.

³ Dionysius Halicarnassensis de iis quæ Thucyd. propria sunt, et de Platon. *judicium*.

⁴ Opus supra laudatum, p. clxxiv.

As promised above, I here subjoin the Mythical Genealogy of Hippocrates from Tzetzes.

Æsculapius was the father of Podalirius, who was the father of Hippolochus, who was the father of Sostratus, who was the father of Dardanus, who was the father of Crisamis, who was the father of Cleomyttades, who was the father of Theodorus, who was the father of Sostratus II, who was the father of Theodorus II, who was the father of Sostratus III, who was the father of Nebrus, who was the father of Gnosidicus, who was the father of Hippocrates I, who was the father of Heraclides, who was the father of HIPPOCRATES II, otherwise called the GREAT HIPPOCRATES. (*Chiliad.*, vii, 155.)

I may also add a few particulars, deserving to be known, respecting the family of Hippocrates. As Galen relates, he had two sons, Thessalus and Draco, each of whom had a son who bore the name of Hippocrates. (*Comment.* ii, in *Lib. de Nat. Human.*) It thus appears that there were in the family four persons of the name of Hippocrates, closely related to one another. First, the father of Heraclides, and grandfather of Hippocrates II; second, Hippocrates II, our author; third and fourth, his grandchildren, the sons of Thessalus and Draco. Besides these, three or four other members of the family bearing the name of Hippocrates are enumerated by Suidas. Of Thessalus, it is related by Galen (*l. c.*) that he adhered strictly to the principles of his father, and became physician to Archelaus, king of Macedonia. Of Draco little mention is made, only it is well known that he also followed his father's profession. But of all the family of Hippocrates the Great, Polybus, his son-in-law, is the most celebrated. Galen calls him the disciple of Hippocrates and successor in his school, and adds, that he made no innovations on the doctrines of his teacher. (*Comment.* i, in *Lib. de Nat. Hum.*)

SECTION II.

DISQUISITION ON THE AUTHENTICITY OF THE DIFFERENT TREATISES WHICH HAVE BEEN ATTRIBUTED TO HIPPOCRATES.

THERE can scarcely be a doubt that Hippocrates followed the practice which we know to have been adopted by almost all the great writers of antiquity with regard to the publication of their works, namely, that of publishing them separately, at the time they were composed. We know, for example (to begin with a distinguished author, regarding whom our information is particularly ample), that Horace published his books of satires, epistles, odes, and epodes separately, and at different times; and that the collection of them in its present form was not compiled until after his death.¹ We have every reason for concluding that the same rule was followed by Martial,² Cicero,³ and other Roman authors. It is further well ascertained (to come to a period not far removed from the age of Hippocrates) that Plato⁴ and Aristotle⁵ likewise gave their works to the literary world upon the same plan. We have every reason, therefore, to suppose that Hippocrates published several of his works separately, in his lifetime; and indeed Galen often expresses himself so as to leave little or no ground for doubt on this point.⁶ It would be most interesting and important then to know, were this possible, in what order the different works of our author were published. But unfortunately

¹ See the editions of Horace by Bentley and Tate, *pluries*.

² See in Bentley's Horace. The poet himself, in several of his pieces, alludes to the separate publication of the various books, as i, 97; vi, 1; ii, *præfat.*; et *pluries*.

³ See Middleton's *Life of Cicero*, *pluries*.

⁴ See the editions by Ast, Bekker, and Stallbaum, and the ancient authorities there referred to.

⁵ See the preliminary dissertation prefixed to Buhle's edition; also Schneider's edition of the *Historia Animalium*, *Epimetrum* iii.

⁶ He mentions, in his commentary on the treatises entitled 'On Regimen in Acute Diseases,' that, from the marks of confused arrangement about it, he was persuaded the author had left it in an unfinished state, and that it had been published after his death. See *Opera*, tom. v, p. 70; ed. Basil.

this is a question which we have no proper data for solving satisfactorily, only as the 'Aphorisms' are evidently made up in a great measure of conclusions drawn from the results of discussions and observations recorded in other of his works, we have every reason to infer that this important work was among the latest of his literary labours.¹ But although we may not be able to determine the order in which the different pieces were composed and published, we need have no hesitation in deciding with all the best authorities, ancient and modern, that all the following treatises were composed by him, and, from the first, obtained the sanction of his name, viz. : the 'Prognostics ;' the 'First and Third Epidemics ;' 'On Regimen in Acute Diseases ;' 'On Airs, Waters, and Places ;' 'On Wounds of the Head ;' the 'Aphorisms.' It is in so far satisfactory, then, to know, that respecting the authorship of these works there has never been any reasonable question, and that whoever entertains doubts on this point of literary history, ought, on the same principles of criticism, to dispute the authenticity of the 'Protagoras' and 'Phædo' of Plato; of the 'History of Animals' and 'Politics' of Aristotle; and of the 'Olynthiacs' and 'Philippics' of Demosthenes. In a word, nothing but the most lawless spirit of scepticism can lead any one to challenge the genuineness of the works which I have just now enumerated. These, however, it will be seen, constitute but a very small portion of the treatises contained in the Hippocratic Collection; and with regard to a very great number of the others, it is unfortunately not only impossible to bring any competent evidence of their genuineness, but it is also quite apparent that they betray marks of an entirely different authorship; and this is abundantly obvious, whether we look to the matters which they contain, or the manner in which these are given. Thus in some of the treatises we discover hypothetical doctrines and rules of practice utterly at variance with those which are contained in the works of acknowledged authenticity; and in some of them, instead of that nervous conciseness which, as we have already stated, has always been held to be characteristic of the style of Hippocrates, we find an insipid verbosity and vagueness of expression, which clearly stamp them as being productions of a very different hand. But, besides this internal evidence

¹ See Galen, de Crisibus, i, 6.

which we have to assist us in forming a correct judgment on these works, we fortunately still possess a considerable number of ancient Commentaries, written expressly in illustration of them, from which, in many instances, modern critics have been enabled to draw very satisfactory data for forming a correct judgment on the points at issue. Before proceeding further, it is but fair to acknowledge that I have freely availed myself of the labours of Vander Linden, Ackerman, Gruner, Littré, and other learned men, who have preceded me in this field of investigation, but at the same time I may venture to assure the reader that there is scarcely a passage in any of the ancient authorities, bearing on the points in discussion, which I have not examined carefully for myself.

The oldest commentator of whom we have any mention, is the celebrated Herophilus, who flourished about the year 300 A.C.¹ But of his Commentaries we have no remains, nor of those of the other commentators down to Apollonius Citiensis, a writer of the first century A.C. His Scholia on the Hippocratic treatise, 'De Articulis,' along with those of Palladius,

¹ Galen, Gloss., tom. v, p. 705; ed. Basil. As frequent mention of the commentators will occur in the course of this work, I will here subjoin a complete list of them, with a few brief notices of them, more especially of a chronological nature, derived principally from the following sources: Ackerman, *Bibliotheca Græca*; Dietz, *Præfatio in Scholia Apollonii*, &c.; Littré, *Op. Hippocrat.*, tom. i, pp. 80-132; Daremberg, *Cours sur l'Histoire et la Littérature des Sciences Médicales*.

Herophilus, the famous anatomist of Alexandria; flourished about from 310-280 A.C. Xenocrates of Cos, quoted by Erotian as an authority on the Prognostics; nearly contemporary with Herophilus.

Philinus of Cos, contemporary with Herophilus, and probably a disciple.

Bacchius, contemporary with Philenus.

Glaucias immediately after Bacchius; flourished probably between 290-260 A.C.

Zeuxis the Empiric, immediately after Glaucias and before Zeno; probably from 270-240 A.C. See Daremberg.

Heraclides Tarentinus, somewhat later than Bacchius, probably about 260-240 A.C.

Zeno the Herophilean, the contemporary and rival of Heraclides; probably the same as Zeno of Laodicea.

Apollonius Biblas, the contemporary and rival of Zeno.

Callimachus, according to Daremberg, an immediate disciple of Herophilus.

Epicteustus of Crete, of uncertain date.

Apollonius Ophis, of uncertain date.

Lysimachus of Cos, uncertain.

Euphorion, uncertain.

Heraclides the Erythrean, rather uncertain; but, according to Daremberg, a con-

Stephanus, Theophilus, Meletius, and Joannes Alexandrinus, all writers of an uncertain date, but certainly much later than the Christian era, were published by the late Dr. Dietz, at Königsburg, in 1834. To these we have to add two others, of much higher celebrity, namely, Erotian, who lived during

temporary with Heraclides Tarentinus. The same as Heraclides the Herophilean. (Strabo, Geogr., xiv.)

Epieles, uncertain.

Eurycles, uncertain.

Philonides of Sicily, uncertain.

Ischomachus, uncertain.

Cydias, uncertain.

Cinesias, uncertain.

Demetrius, the Epicurean.

Diagoras, uncertain.

Nicander the Poet of Colophon, from 150-120 A.C.

Apollonius Citiensis; Daremberg places him between 80-52 A.C. See also Dietz and Littré.

Asclepiades of Bithynia, contemporary with Pompey the Great; about 60-40 A.C.

Thessalus, the famous Methodist; about 50-70 P.C.

Erotian flourished in the reign of Nero, from 50-70 P.C. His Glossary still preserved.

Sabinus, of uncertain date, but probably not long anterior to Galen, by whom he is frequently quoted. (Op., tom. v, p. 433.)

Metrodorus, disciple of Sabinus.

Rufus or Ruffus Ephesius, contemporary with Sabinus. Several of his works remain, but no portion of his Commentaries on Hippocrates.

Marinus, the celebrated anatomist, about the beginning of the second century P.C.

Quintus, the Empiric, probably about from 110-130 P.C.

Lycus, the Macedonian, the disciple of Quintus; from 120-140 P.C. See Daremberg.

Lycus, of Naples, date rather uncertain.

Artemidorus, a favorite of the Emperor Hadrian; often blamed by Galen for his alterations of the text; about 120-140 P.C.

Dioscorides (*not* the author of the *Materia Medica*), an associate of Artemidorus.

Numesianus, somewhat later than Dioscorides.

Dionysius, about the time of the last.

Pelops, the disciple of Numesianus.

Satyros, the disciple of Quintus.

Phecianus, the disciple of Quintus.

Julian the Alexandrian, the immediate predecessor of Galen, who frequently animadverts on his writings.

GALEN, flourished between 150-190 P.C.; wrote Commentaries, still in existence, on the following works:—On the Nature of Man; on Regimen in Health; on Regimen in Acute Diseases; on the Prognostics; on the First Book of the *Prorrhethics*; on the *Aphorisms*; on the First, the Third, and the Sixth Books of the *Epidemics*; on the *Treatise on Fractures*; on the *Articulations*; on the

the reign of Nero, and the famous Galen, who, it is well known, flourished in the latter part of the second century, P.C. It is from the works of these two writers that the most important facts are to be elicited, for forming a correct judgment respecting the authenticity of the Hippocratic treatises. As we shall have occasion to quote their opinions on the different heads of our inquiry, it would be useless to occupy room by giving their entire lists in this place. Suffice it to say, that Erotian rarely assigns any reason for admitting the treatises into his list of genuine works, and that Galen generally rests his judgment, when he assigns any grounds for it, upon the evidence of preceding authorities, and upon what he holds to be the characteristics of the doctrines and style of Hippocrates. These, assuredly, are most sound and legitimate principles of criticism; but it has been often supposed, that in applying them the great commentator is at times very dogmatic, and not always consistent with himself. But, upon the whole, all must allow that Galen is our best guide on the subject of our present inquiry. And, moreover, it is from his works especially that we are enabled to glean whatever information we possess with re-

Physicians' Establishment or Surgery; on the Humours; fragments of the Commentaries on Airs, Waters, Places, and on the Aliment. Besides these, he wrote several other Commentaries, which are lost.

Domnus, of uncertain date, after Galen.

Attalion, like the last, cited in the Commentary attributed to Oribasius.

Philagrius, of uncertain date, quoted by Theophilus.

Gesius, of uncertain date.

Asclepius, of uncertain date, quoted by Theophilus. (Dietz, tom. ii, p. 458.)

Stephanus, the Athenian, supposed by Dietz to have lived in the reign of Heraclius, that is to say, in the earlier part of the seventh century. According to Dietz, not the same as Stephanus Alexandrinus.

Palladius, probably about the seventh century; his Commentary on the book 'On Fractures,' published by Foës, and a considerable portion of his Commentary 'On the Sixth Epidemic,' by Dietz.

Joannes Alexandrinus, probably near the time of Palladius; part of his Commentary 'On the Nature of the Young Man,' published by Dietz.

Theophilus, or Philotheus, surnamed Protospatharius, probably flourished in the seventh century P.C. See the Annotations of Dr. Greenhill, in his excellent edition of the work 'De Corporis Humani Fabrica;' Oxford, 1842. Several of his Commentaries on the Aphorisms, published by Dietz.

Meletius, of uncertain date; part of his Commentaries on the Aphorisms, published by Dietz. See also *Anc. Gr.*, ed. Cramer.

Damascius, of uncertain date; a few of his Commentaries on the Aphorisms, published by Dietz.

gard to the opinions of the earlier commentators, from Herophilus down to his own times.

I will now proceed to give a brief sketch of the labours of modern critics in this department.

The earliest modern authority is Lemos, whose work was published in the end of the sixteenth century. It appears that he follows almost entirely the opinions of Galen, and seldom or never ventures to exercise an independent judgment of his own.

The work of Mercuriali is a much more elaborate and important performance, and his principles of judgment appear to me most unexceptionable, being founded entirely upon ancient authority and peculiarity of style; only it may, perhaps, be objected, that he rather exaggerates the importance of the latter at the expense of the former; for it must be admitted that very contradictory conclusions have sometimes been founded on imaginary peculiarities of style. I cannot agree with M. Littré, however, that the whole system of Mercuriali is founded on a *petitio principii*; as if, before describing the style of his author, he ought to have decided which were his genuine writings.¹ For, as already stated, any one is perfectly warranted in assuming that certain of the works which bear the name of Hippocrates are genuine, and from them, and the general voice of antiquity, Mercuriali was further justified in deciding what are the peculiarities of the style of Hippocrates, and in applying them as a test of the genuineness of other works which had been attributed to the same author. Mercuriali divides the Hippocratic treatises into four classes, as follows: The first comprehends those which bear the characters of his doctrine and style. The second comprises those which are composed of notes taken from memory, and published by Thessalus, Polybus, or other of his disciples, and contain foreign matter interpolated with them. The third class consists of those which have not been composed by Hippocrates, but are the work of his sons or disciples, and represent his doctrines with greater or less exactness. The fourth includes those tracts which have nothing to do with the school of Hippocrates. As the views and principles of Mercuriali accord, in the main, very well with my own, I think it proper to set down his classification of the treatises.

¹ Œuvres d'Hippocrat., tom. i, p. 171.

CLASSIS I.

1. De Natura Humana.
2. De Aëribus, Aquis, et Locis.
3. Aphorismi.
4. Prognostica.
5. De Morbis popularibus.
6. De Morbis acutis.
7. De Vulneribus Capitis.
8. De Fracturis.
9. De Articulis.
10. De Officina Medici.
11. Mochlicus.
12. De Alimento.
13. De Humoribus.
14. De Ulceribus.

CLASSIS II.

1. De Locis in Homine.
2. De Flatibus.
3. De Septimestri Partu.
4. De Octimestri Partu.
5. De Ossibus.

CLASSIS III.

1. De Carnibus seu Principiis.
2. De Genitura.
3. De Natura Pueri.
4. De Affectionibus.
5. De Affectionibus internis.
6. De Morbis.
7. De Natura Muliebri.
8. De Morbis Muliebribus.
9. De Sterilibus.
10. De Fœtatione et Superfœtatione.
11. De Virginum Morbis.
12. De Sacro Morbo.
13. De Hemorrhoidibus.
14. De Fistulis.
15. De Salubri Diæta.

16. De Diæta, tres Libri.
17. De Usu Liquidorum.
18. De Judicationibus.
19. De Diebus Judicatoriis.
20. Prædictionum Libri.
21. Coacæ Prænotiones.
22. De Insomniis.

CLASSIS IV.

1. Jusjurandum.
 2. Præceptiones.
 3. De Lege.
 4. De Arte.
 5. De Arte Veteri.
 6. De Medico.
 7. De Decenti Ornatu.
 8. De Exsectione Fœtus.
 9. De Resectione Corporum.
 10. De Corde.
 11. De Glandulis.
 12. De Dentitione.
 13. De Visu.
 14. Epistolæ.
 15. De Medicamentis purgantibus
 16. De Hominis Structura
- } Latinè tantum.¹

Perhaps we may venture to affirm, without much risk of challenge, that the works of no ancient author owe more to the exertions of a single individual than those of Hippocrates do to the labours of Foës. Of his excellencies as an editor, and expositor of the meaning of his author, I will have occasion to speak afterwards; and here I shall merely state regarding him, that as a critic called upon to decide with regard to the authenticity and spuriousness of the different works, his merits are by no means proportionally high. He rarely or never ventures to differ from Galen, and everywhere evinces so easy a disposition to recognise the works in question as being the productions of his beloved author, that his opinion on any point connected with their authenticity is not deserving of much weight.

¹ See Schulze, *Hist. Med.*, i, 3, 1.

Haller arranges the Hippocratic treatises in the following classes: The first contains those which in all ages have been admitted as being genuine.¹ The second embraces those which contain doctrines at variance with those “of the divine old man,” or inventions of a later date, or vices which Hippocrates disclaims. The third embraces those which are manifestly spurious, as is obvious from their being mere compendia of the works of Hippocrates, or which betray a manner totally at variance with his. The fourth embraces a certain number of pieces not contained in the preceding classes. Such is Haller’s arrangement, which, however, is not entitled to much consideration; for the illustrious author himself seems to admit, candidly, that his critical knowledge of the language was too slender to warrant him in trusting his own judgment when it came into collision with any high authority, such as Foës; and, moreover, it would appear, that his edition of the works of Hippocrates had been got up in a very slovenly manner, by some incompetent person, after his death.

Gruner is one of the most learned and original of our authorities on the literature of the Hippocratic works.² His decision, with regard to the authenticity of the different pieces, is made to rest mainly on internal evidence, that is to say, upon their possessing the proper characteristics of the language and style of Hippocrates. These he is at great pains in showing to be, in the first place, brevity, approaching to the laconic, which he justly holds with Galen³ to be one of the most striking peculiarities of the ancient style of writing. To conciseness and simplicity, he adds gravity of manner, and an absence of all subtlety of reasoning. This last trait in the literary character of Hippocrates I hold to be particularly

¹ It will be proper to give this Class:—

- | | |
|------------------------------|----------------------------|
| 1. De Aëre, Aquis, et Locis. | 9. De Victu Acutorum. |
| 2. De Natura Hominis. | 10. De Fracturis. |
| 3. De Locis in Homine. | 11. De Articulis. |
| 4. De Humoribus. | 12. Mochlicus. |
| 5. De Alimento. | 13. De Vulneribus Capitis. |
| 6. De Morbis popularibus. | 14. Officina Medici. |
| 7. Prognosticon. | 15. Aphorismi. |
| 8. Prædictionum, ii. | |

² *Censura Librorum Hippocrateorum*, Vratislaviæ, 1772.

³ *De Elementis*, i, 9.

apparent in the works which are generally admitted to be genuine. Some stress is also laid by him on the use of the Ionic dialect, but this is a most fallacious criterion, and had better have been left out of the question altogether; as there is good reason to believe that great liberties were used with the language of Hippocrates by the ancient editors and commentators, more especially by Artemidorus Capito, who lived a short time before Galen.¹ And besides, as every person who is generally acquainted with Greek literature knows, although the Ionic dialect in the age of Hippocrates had been fused into the Attic,² for several centuries afterwards it continued to be arbitrarily used by many writers, both of prose and verse, owing to the high character which it possessed, as being the dialect of the Homeric poems. Hence it is used in later times, not only by the poets, such as Quintus Smyrnæus, Nonnus, and Oppian, but also by at least one great medical author, I mean Aretæus. It would appear, however, that Gruner himself was sensible that much stress ought not to be laid on peculiarity

¹ Tom. v, p. 442; ed. Basil.

² Galen, who is a most unexceptionable judge in such a case, says that the language of Hippocrates inclines to the Attic, and that some had held it to be Old Attic. (Tom. v, p. 525; ed. Basil.) Dionysius of Halicarnassus, another admirable critic, says that Herodotus is the most excellent standard of the Ionic (and so, by the way, Photius also says, under the head of *Ctesias*), and Thucydides of the Attic. (De Platon. Judicium.) Now, since we have already made it appear that there is a most striking similarity between the language of Hippocrates and Thucydides, the judgment of Dionysius is evidently in accordance with that of Galen on this point. Indeed, as briefly stated in the text, the Attic was nothing more than a new development of the Ionic, and scarcely more different from it than the English language in the age of Pope is from the same in the age of Milton. It is to be borne in mind that the name Ionian was originally applied to the Thracians and the inhabitants of Attica, who were evidently closely allied to one another in consanguinity. It was in Thrace that learning and civilization first sprang up under the auspices of Thamyris, Orpheus, and Musæus, by whom the elegant arts were transplanted to Athens. (See Hesychius, in voce *Iones*; Eustathius, ad *Iliad.*, ii; Diogenes Laertius, *Prefat.*; also Hermes Philologus, p. 23, by the author of this disquisition, whose mind now reverts with great delight, *ad studia quæ adolescentiam alevant.*) The inhabitants of Asiatic Ionia and the adjoining islands were colonists from Attica. (Thucyd., i, 12; Herodotus, viii, 44; Heraclides, de Polit.) From what has been stated it will readily be understood that the only standard of polite Greek was the Ionic, with its offspring the Attic. The Æolic and Doric dialects, although used in certain scientific and popular compositions, such as Bucolies and certain philosophical treatises, were never looked upon as being fashionable and learned dialects.

of dialect; for, in resuming his conclusions as to the proper tests of genuineness in judging of the Hippocratic writings, he determines them to be conciseness and gravity of language, paucity of reasoning, and accuracy of observation, along with the authority of the ancient critics, that is to say, of the commentators. Now, it certainly must be admitted that, taken together, these principles are most just and reasonable; only it is apparent, that, like Mercuriali, he has ranked last what he ought to have laid most stress upon, namely, ancient authority. For, as remarked above, unless ancient authority had previously determined certain works in the Collection to be genuine, the modern critic would have had no premises from which he could have drawn conclusions as to the characteristics of our author's style. Starting, then, from the principles now stated, Gruner arranges the works of Hippocrates in two divisions, namely, the genuine and the supposititious. We shall only give the former list, which embraces the following ten treatises :

1. Jusjurandum.
2. Aphorismi.
3. De Aëre, Aquis, et Locis.
4. Prænotiones.
5. Prædictionum, ii.
6. De Officina Medici.
7. Popularium Morborum, i, iii.
8. De Victu Acutorum.
9. De Vulneribus Capitis.
10. De Fracturis.

It will be shown below that in this list he has admitted one work (Prædict. ii), which certainly has not sufficient claims to the place which he has assigned it; and, on the other hand, he has acted most inconsistently in rejecting the work 'De Articulis,' while he admitted that 'De Fracturis,' for, as we shall see, there is the strongest reason for believing that the two originally constituted one work. But the truth of the matter is, that Gruner having hastily adopted the notion that Hippocrates was altogether ignorant of human anatomy, the celebrated passage in this treatise which so strikingly alludes to the dissection of the human body¹ would decide him to reject it from his list of genuine works.

¹ De Artic. i.

Though Le Clerc, in his 'History of Medicine' (b. iii), shows himself to be well acquainted with the fact that many of the treatises ascribed to Hippocrates are supposititious, he nowhere lays down any rules for distinguishing the genuine from the spurious, only he insists strongly on conciseness as being one of the most striking characteristics of the style of Hippocrates, and shrewdly remarks that the treatises which abound most in reasoning are those which are most suspected of being spurious.

Schulze also, in his 'History of Medicine,' with much learning and excellent judgment, enters cursorily upon the examination of the question regarding the genuineness of the works ascribed to Hippocrates, but he scarcely ever deviates from the rules laid down by Mercuriali and Le Clerc. Indeed, he almost always agrees with the latter. We shall have occasion to refer pretty frequently to his opinions when we come to give our own judgment on the authenticity of the particular treatises contained in the Hippocratic Collection.

Ackerman,¹ in the first place, gives an elaborate and very lucid exposition of the labours of all preceding critics in the same line, and then proceeds to deliver his own opinions *seriatim* on the different treatises. He rests his judgment generally on the authority of the ancients, and more especially of Erotian and Galen; and in so doing, M. Littré thinks he acted so judiciously, that he does not hesitate to pronounce Ackerman to be the safest guide which we can follow. Like Gruner, he divides the works into two classes, the genuine and the spurious. The former list is as follows:—

1. Epidemica, i, iii.
2. Prænotiones.
3. Prædictorum, ii.
4. Aphorismi.
5. De Victu Acutorum.
6. De Aëre, Aquis, Locis.
7. De Vulneribus Capitis.

This, it will be remarked, is the smallest list which we have yet encountered, and one cannot but feel saddened to find the remains of the great Hippocrates thus reduced to so small a

¹ See his *Historia Literaria Hippocratis*, in the *Bibliotheca Græca* of Albertus Fabricius, or in vol. i of Kühn's edition of Hippocrates.

compass. We shall have occasion, however, by and by, to show that Ackerman has been too unsparing in applying the obelisk¹ to treatises of suspected authenticity.

Grimm, the German translator of Hippocrates, professes also, like Ackerman, to be guided principally by ancient authority, such as that of Galen and Erotian, but he only reposes full confidence in it when confirmed by internal evidence. The style, he says, should be simple, brief, and expressive, and the language in accordance with the epoch. He adds, no hypothesis, no subtlety, however ancient, no extraordinary remedies or modes of treatment, should be found in these books. Starting from these principles, which, it will be remarked, are rather fancifully laid down, Grimm reduces the number of genuine works to the following very meagre list :

1. Popularium Morborum, i, iii.
2. Prognostica.
3. Aphorismi.
4. De Victu Acutorum, p. i.
5. De Aëre, Aquis, Locis.

The reader will not fail to remark, in this result of Grimm's inquiry, indications of that bold spirit of scepticism for which the learned criticism of Germany has been distinguished of late—the spirit of her Wolfs and Lachmans, of her Asts and Schliermachers, which has deprived the Iliad and Odyssey of their ancient authorship, and reduced the bulky tomes of Plato to a very small volume. It is impossible not to admire the learning, the ingenuity, and the love of truth which these critics display, but surely the sober judgment of other scholars, not infected with the same spirit of innovation, will pause before acquiescing in the justness of a verdict which would deprive so many immortal performances of the *prestige* with which they have so long been regarded. For my own part, I would venture to say, *pace tantorum virorum*, that these learned critics are deficient in a practical acquaintance with the laws of evidence, and do not properly take into account that, in matters of common life, negative evidence is never allowed to bear down positive, unless the former be remarkably strong, and the latter particularly weak. When, then, the voice of antiquity pronounces strongly and consistently in favour of any work, no

¹ Galen, tom. v, p. 17 ; ed. Basil.

negative evidence, unless of a very remarkable character, ought to be allowed to counterbalance the positive. In short, what I object to in Grimm is, that he gives an undue preponderance to the internal evidence over the external, that is to say, over the traditionary evidence of antiquity, and that in this respect he goes greater lengths than even Gruner and Aekerman.

Kurt Sprengel is the author of a separate work on the Hippocratic writings¹ which I have not seen, but I have reason to believe that the substance of it is contained in his 'History of Medicine,' where (t. i, p. 295) he enters into a very elaborate disquisition on the authenticity of the works ascribed to Hippocrates. He insists much, as a test of authenticity, upon the style, which, in imitation of Galen, he describes as being concise and laconic to a degree which sometimes renders it obscure. Hippocrates, he adds, avoids all superfluous discussion and unseasonable repetitions, and expresses himself as briefly as possible, without adding conditions or restrictions. He justly remarks, that what Celsus says of Hippocrates, namely, that he separated philosophy from medicine, must be received with considerable limitations, and not in too strict a sense, as if there were no philosophical tenets in his works. On the other hand, Sprengel uses these philosophical doctrines as a guide for determining the date of the different treatises. This is a new, and no doubt a very important, element in the criticism on these works; but it is one very liable to be abused, as our information on many occasions, with regard to the introduction of new doctrines in philosophy, is by no means such as can be safely trusted to. Sprengel's opinion on the various works in question we shall have occasion to state when we come to revise them separately.

We now proceed to the examination of the labours of two very learned and ingenious critics, Link and Petersen, who, treading in the footsteps of Sprengel, have expended much research in endeavouring to solve the question regarding the date of the Hippocratic treatises, by considering the philosophical and pathological theories which prevail in them. I think it right to state that I have not had an opportunity of consulting the work of Link, and therefore have been obliged to judge of his opinions,

¹ Apologie, &c.

in a great measure, from Petersen's essay, which is professedly based on the principles of Link. Of Petersen's little tract, I have no hesitation in declaring that I have seldom seen a work of the kind which displays more critical acumen and deep research; and although I cannot bring myself to subscribe to many of his general conclusions, I feel bound in gratitude to acknowledge the benefit which I have derived from many of his special investigations.¹ On one important point, which he is at great pains to make out, I have already stated that I am disposed to agree with him, namely, respecting the date of our author's birth, which I certainly think he has proved by the most unexceptionable authorities to have been considerably earlier than as generally stated. Petersen divides the Hippocratic works into nine classes, in the following chronological order:—The first contains those treatises in which the flow of bile and phlegm is considered to be the cause of disease;² the second recognises fire,³ and the third, air, as the principle of things;⁴ in the fourth, bile and phlegm are spoken of as the primary humours of the human body;⁵ in the fifth, spirit (*πνεῦμα*) and humidity are held to be the first principles of generation;⁶ in the sixth, the elements of the body are held to be contrary to one another;⁷ in the seventh, yellow and black bile, phlegm, and blood are set down as being the primary humours of the human body;⁸ in the eighth, bile, water, phlegm, and blood are held to be the primary humours;⁹ and in the ninth, fire and water are held to be the principles of things.¹⁰

¹ Hippocratis nomine quæ circumferuntur scripta ad temporis rationes disposuit Christianus Petersen, p. prior. Hamburgi, 1839.

² Prædict., i; Coacæ Prænot.; de Loc. in Hom.

³ De Carne.; de Part. Sept.; de Part. Oct.; de Superf.; de Dent.

⁴ De Flat.

⁵ De Morb. Popul., i, iii; de Morb., i; de Affect.; de Morbo Sacro; de Insan.; de Veratr. Usu; de Victu Acut.; de Victu Sal.; Præn.; Prædict., ii; Aphor.; de Aëre, Locis, et Aq.; de Insom.; de Hæmorrh.; de Fistul.

⁶ De Nat. Puer.

⁷ De Prisca Med.

⁸ De Nat. Hom.; de Humor.; de Nat. Oss.; de Corde; de Corp. Sect.; de Gland.; de Visu; de Alim.; de Usu Liquid.; de Affect. Interu.; de Morb. Popul., ii, iv, &c.; de Morb., ii, iii; de Morb. Mulier.; de Nat. Mulieb.; de his quæ ad Virg. Spect.; de Steril.; de Vulner.; de Judic.; de Dieb. Judic.

⁹ De Morb., iv; de Genitura; de Remed. Purgaut.

¹⁰ De Victu Sanor. libri tres.

Now, assuredly, no reasonable person will deny to the author of this distribution the praise of great boldness and originality of thought. We may well apply to him the words of the poet, that if he has failed in attaining his object, "magnis tamen excidit ausis." For my own part, I cannot but regret to see so much talent and research expended upon conjectural points of criticism, which, from their nature, can never be determined with any degree of certainty; for, after all his labours, few scholars, I venture to predict, will prefer being guided by his hypothetical reasoning, however ingenious, rather than by the authority of the ancient commentators. I must also use the liberty to remark, that M. Petersen appears to me to have no well defined ideas regarding the doctrines which the ancient philosophers held respecting the elements of things. For example, when he states, as the basis of the theory which prevails in the tract 'On Ancient Medicine,' that the elements are the contraries to one another, he evidently confounds the elements, namely, fire, air, earth, and water, with the powers, or, as we should now call them, the qualities, hot, cold, moist, and dry. (See the next Section.) And although, in the treatises 'On the Seventh Month Fœtus,' and 'On the Eighth Month Fœtus,' much and deserved importance is attached to heat as the prime mover of conception, and although, in the treatise 'On Airs,' the importance of air as a cause of disease be strongly insisted upon, one is not warranted, as he contends, in concluding that the authors of these treatises recognise respectively fire and air as the first principle of all things. M. Littré, also, in his candid review of M. Petersen's work, points out some very striking oversights which M. Petersen has committed in his arrangement of the different treatises.¹

I now come to M. Littré, who, in the Introduction to his edition of Hippocrates, has certainly surpassed all who went before him, in the extent of his labours on the general literature of the Hippocratic Treatises. How highly I estimate his work I need not here stop to declare; indeed the reputation it has already gained is so established, that it would be vain to blame and useless to praise it. I have to express my regret, however, in entering upon my exposition of his opinions, that they are given in a very expanded form, and with a degree of diffuse-

¹ Tom. ii, pp. 32, 33.

ness, *plus quam Galenica*, so that I find it difficult, within my necessary limits, to convey to the reader a distinct view of the very important matters which M. Littré has brought together to bear upon his subject.

He is at great pains to establish the following positions with regard to the various treatises contained in the Collection which bears the name of Hippocrates : 1st. That the Collection did not exist, in an authentic form, earlier than the date of Herophilus and his disciples, that is to say, until nearly 100 years after the death of Hippocrates. 2d. That it contains portions which certainly do not belong to Hippocrates ; and, 3d, also Collections of Notes, &c., which would never have been published by the author in their present form ; and, 4th, Compilations, which are either abridged, or copied word for word from other works which still form part of the Collection. 5th. As the different treatises do not all belong to the same author, so neither were they all composed at the same time, some being much more modern than the others. 6th. We find in the Collection mention made of numerous treatises written by the followers of Hippocrates, which are now lost, and which were no longer in existence when the Collection was first published. 7th. The most ancient writers do not know, for certain, to whom the several works forming the Collection belonged ; 8th, with the exception of a small number, which all of them, for one reason or another, agreed in attributing to Hippocrates himself.¹

I have now a few observations to make upon each of these positions. The first, which is a most important one in connexion with our present subject, I regret to say, is, I think, by no means satisfactorily made out by M. Littré. He shows, it is true, that Herophilus is the first commentator on any of the Hippocratic Treatises of whom there is any mention, but all we know of his labours in this line merely amounts to this, that he had commented on certain passages in the ‘Prognostics,’ and probably also in the ‘Aphorisms,’² but I do not see that this amounts to any proof either that the Collection was or was not formed in his time. The proof of the second position is made to rest upon a fact, which has attracted the attention

¹ Œuvres d’Hippocrate, tom. i, p. 263.

² See Stephanns, Comment. in Prognost. Hippocrat., tom. ii, p. 61, ed. Dietz.; and Galen, tom. v, p. 328, ed. Basil.

of all the critics on the Hippocratic Treatises, namely, that a memorable description of the veins, which appears in the Hippocratic treatise 'On the Nature of Man,' is published by Aristotle, in the third book of his 'History of Animals,' as the production of his son-in-law, Polybus. Now, M. Littré argues here, that as the publication of the Aristotelian Collection did not take place until long after that of the Hippocratic, the persons who made the latter could not have taken the passage in question from the other, and the only way in which we can account for the change of title, is by supposing that the works of Polybus had retained the name of their true author in the days of Aristotle, but had lost it at the time the Hippocratic Collection was made. Hence he infers that the Hippocratic Collection must have been made subsequently to the time of Aristotle.¹ But I must say that I do not recognise the force of this argument; for, although the whole of Aristotle's works were not published in a collected form, until the time of Apellicon, we have every reason to believe that many of his works were published separately, in his own lifetime. The fact, then, would rather tell the other way, and it might be argued, that the Hippocratic Collection must have been made before the time of Aristotle, otherwise the persons who made it would never have fallen into the mistake of attributing to Hippocrates a passage which so high an authority as Aristotle had referred to Polybus. But the truth is, that we are not entitled to draw any positive inference from all this, with regard to the epoch in question. It is well known that,

¹ The well known story regarding the concealment of Aristotle's library by his heir, Neleus of Scepsis, and its restoration by Apellicon, is faithfully related by Strabo, Geograph., ix. In this passage Strabo states, that before the restoration of the library by Apellicon, there were but few of Aristotle's works in the hands of the peripatetic philosophers, and these principally his exoteric works. But that the treatise 'On the History of Animals' was an exoteric work, can admit of no question. This is confidently maintained by the learned Schneider in the prolegomena to his edition of this work. Indeed, as he suggests, there is no good reason for doubting that the treatise 'On the History of Animals' had been published by Aristotle in his lifetime. (Epimetrum, ii.) See also Buhle's dissertation prefixed to his edition of Aristotle's works. I need scarcely add that, it being thus shown that all the most learned authorities on the literature of Aristotle's works are agreed that the History of Animals, in which is contained this disputed fragment on the veins, was published before the time when the Hippocratic Collection is supposed to have been made, M. Littré's conclusions on this head must fall to the ground.

in all ages, literary publications have sometimes come abroad into the world in an anonymous shape; and it need excite no surprise that, with regard to the fragment in question, as in many other cases, there should have been a diversity of opinion as to its authorship.

The third we shall see fully made out in our analysis of the different treatises given below.

The fourth will also be clearly proved, when we come to the examination of certain treatises, as, for example, the 'Officina Medici.'

The fifth is not made out to my satisfaction. M. Littré, however, thinks it is satisfactorily proved that the latest epoch of these productions does not come lower down than Aristotle and Praxagoras, and none so low as Erasistratus and Herophilus. Hence he draws the conclusion that the Collection must have been made between the time of Aristotle and Herophilus.¹

The sixth we shall see clearly made out, in our critique on the separate treatises.

The seventh is abundantly evident from what has been already stated, and will be made more apparent in the subsequent parts of this Section. But there is nothing peculiar to the Hippocratic Collection in all this, for there is as great uncertainty respecting many of the works ascribed to Plato, and other collections of pieces which have come down to us from high antiquity. Nay, every person who is conversant with biblical criticism must be aware how difficult it has proved to determine the authorship of many of the Psalms which bear the sainted name of King David.²

In support of the eighth position, little need be said in addition to what has been already stated. I need only repeat briefly that we have as much certainty that some of the treatises in the Hippocratic Collection are genuine, as we have that any other ancient works which have come down to us are the pro-

¹ The death of Aristotle is referred to A.C. 321. Now this is just about the date of the foundation of the Royal Library at Alexandria, and very near the age when Herophilus flourished. These (M. Littré's) positions clearly made out, it would follow that the dates of the treatises in the Collection come down very near to the foundation of the Alexandrian Library.

² See Hengstenberg's Commentary on the Psalms, pluries.

ductions of the authors whose names they bear. But I hasten to give M. Littré's distribution of the different works in the Collection. He divides them into the following classes :

CLASS I.—The Works which truly belong to Hippocrates.

1. On Ancient Medicine.
2. The Prognostics.
3. The Aphorisms.
4. The Epidemics, i, iii.
5. The Regimen in Acute Diseases.
6. On Airs, Waters, and Places.
7. On the Articulations.
- ✓8. On Fractures.
- ✓9. The Instruments of Reduction (Mochlicus).
- ✓10. The Physician's Establishment, *or* Surgery.
11. On Injuries of the Head.
12. The Oath.
13. The Law.

CLASS II.—The Writings of Polybus.

1. On the Nature of Man.
2. Regimen of Persons in Health.

CLASS III.—Writings anterior to Hippocrates.

1. The Coan Prænotions.
2. The First Book of Prorrhetics.

CLASS IV.—Writings of the School of Cos,—of the Contemporaries or Disciples of Hippocrates.

1. Of Ulcers.
2. Of Fistulæ.
3. Of Hemorrhoids.
4. Of the Pneuma.
5. Of the Sacred Disease.
6. Of the Places in Man.
7. Of Art.
8. Of Regimen, and of Dreams.
9. Of Affections.
10. Of Internal Affections.
11. Of Diseases, i, ii, iii.
12. Of the Seventh Month Fœtus.
13. Of the Eighth Month Fœtus.®

CLASS V.—Books which are but Extracts and Notes.

1. Epidemics, ii, iv, v, vi, vii.
2. On the Surgery.¹

CLASS VI.—Treatises which belong to some unknown author, and form a particular series in the Collection.

1. On Generation.
2. On the Nature of the Infant.
3. On Diseases, iv.
4. On the Diseases of Women.
5. On the Diseases of Young Women.
6. On Unfruitful Women.

CLASS VII.—Writing belonging to Leophanes.
On Superfætation.

CLASS VIII.—Treatises posterior to Hippocrates, and composed about the age of Aristotle and Praxagoras.

1. On the Heart.
2. On Aliment.
3. On Fleshes.
4. On the Weeks.
5. Prorrhetic, ii.
6. On the Glands.
7. A fragment of the piece ‘On the Nature of Bones.’

CLASS IX.—Series of Treatises, of Fragments, and of Compilations which have not been quoted by any ancient critic.

1. On the Physician.
2. On Honorable Conduct.
3. Precepts.
4. On Anatomy.
5. On the Sight.
6. On Dentition.
7. On the Nature of the Woman.
8. On the Excision of the Fœtus.
9. The eighth Section of the Aphorisms.
10. On the Nature of the Bones.
11. On Crisis.
12. On Critical Days.
13. On Purgative Medicines.

¹ Although this piece be admitted into the first class, it also merits a place here.

CLASS X.—Writings now lost, which once formed a part of the Collection :

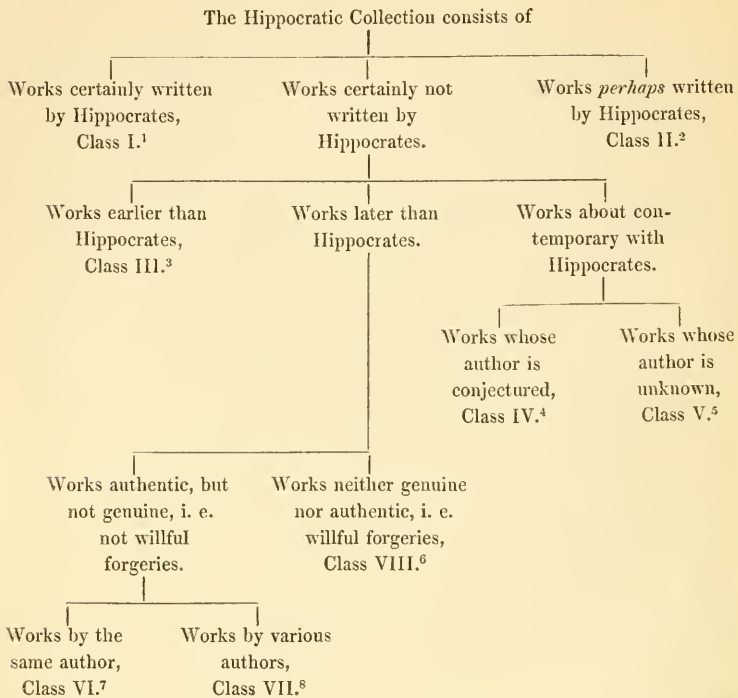
1. On dangerous Wounds.
2. On Missiles and Wounds.
3. The first Book of Doses—the Small.

CLASS XI.—Apocryphal pieces—Letters and Discourses.

Such is the classification of M. Littré, which he professes to have founded on the four following rules, *or* principles : firstly, on the authority of direct witnesses, that is to say, of authors who preceded the formation of the Alexandrian Library ; secondly, on the consent of the ancient critics ; thirdly, on the application of certain points in the history of medicine, which appear to him to offer a date, and consequently a positive determination ; fourthly, on the concordance of the doctrines, the similitude of the writings, and the characters of the style. Of these rules, the one which he professes to have been most guided by is the first, all the others being of subordinate importance. From what has now been stated, the reader will not fail to remark that the principles upon which the classification of Littré is founded scarcely differ at all from those of Ackerman. The reasonableness of these rules, moreover, no one, I presume, will venture to call in question, whatever may be thought of the judgment with which they are applied in particular instances. My own opinions on this point I need not state here, as they will come out more properly in my own disquisition on the characters of the particular treatises.

But, before concluding this part of my task, I must not neglect to notice the learned labours of a much esteemed friend and countryman—the first, the last, the only, scholar (I lament to say) which England has produced in this department of ancient criticism—Dr. Greenhill, of Oxford, who, in his excellent article on *Hippocrates* in Smith's 'Dictionary of Greek and Roman Biography and Mythology,' enters into a very elaborate disquisition on the authenticity of the various works which compose the Collection. His general distribution appears to me to be very ingenious, and his judgment in particular cases most correct, but it is proper I should state that I, perhaps, am scarcely qualified to pronounce an impartial judgment on this point, having had the honour of being consulted by the author, as he himself candidly acknowledges, while he was employed

on this task. The following is his tabular view of the different divisions and subdivisions of the Collection :



¹ Prænotiones or Prognostica; Aphorismi; Epidemiorum, i, iii; de Diæta Acutorum; de Aëre, Aquis, et Locis; de Capitis Vulneribus.

² De Prisca Medicina; de Articulis; de Fracturis; Mochlicus; Jusjurandum; Lex; de Ulceribus; de Fistulis; de Hæmorrhoidibus; de Officina Medici; de Morbo Sacro.

³ Prorrhetica, i; Coacæ Prænotiones.

⁴ De Natura Hominis; de Salubri Victus Ratione; de Natura Muliebri; de Morbis, ii, iii; de Superfætatione.

⁵ De Flatibus; de Locis in Homine; de Arte; de Diæta; de Insomniis; de Affectionibus; de Internis Affectionibus; de Morbis, i; de Septimestri Partu; de Octimestri Partu; Epidemiorum, ii, iv, vii; de Humoribus; de Usu Liquidorum.

⁶ Epistolæ; Thessali Legati Oratio; Oratio ad Aram; Atheniensium Senatus-Consultum.

⁷ De Genitura; de Natura Pueri; de Morbis, iv; de Mulierum Morbis; de Virginum Morbis; de Sterilibus.

⁸ Epidemiorum, v, vii; de Corde; de Alimento; de Carnibus; de Septimanis; de Natura Ossium; de Glandulis; de Medico; de Decenti habitu; Præceptiones; de Anatomia; de Dentitione; de Exsectione Fœtus; de Visu; de Crisibus; de Diebus Criticis; de Medicamentis Purgativis.

Having now finished this survey of the labours of preceding inquirers, I proceed to state the results of my own investigations in the same department; and in doing so, I shall give *seriatim* the evidence for and against the authenticity of the different treatises, along with my own decision in every instance. And, in order to add to the value of this disquisition, I mean to give an abstract of the contents of those works which I look upon as spurious, that the reader may be enabled to compare the doctrines contained in them with those which are delivered in the treatises which are recognised as genuine. Moreover, it is my object that the present volume should contain a summary of all the valuable matters to be found in the Hippocratic Treatises, whether genuine or not.

Before proceeding further, I must state *the rules by which I test the genuineness of the works in the Hippocratic Collection* :

1. All the works which are acknowledged as genuine by the ancient commentators and lexicographers which have come down to us, and especially by Erotian and Galen, are to be admitted as such, unless it can be shown that still older authorities held a different opinion regarding them, or that they contain doctrines and views decidedly at variance with those contained in the treatises which all allow to be genuine, or that the style and mode of handling the subject-matter be altogether different from the well-known method of Hippocrates.

2. The peculiar style and method of Hippocrates are held to be—conciseness of expression, great condensation of matter, and disposition to regard all professional subjects in a practical point of view, to eschew subtle hypotheses, and modes of treatment based on vague abstractions.

3. No treatise is to be received as genuine which is not recognised as such by any one of the ancient authorities, however strong a case may be made out in favour of its claims by modern critics from internal evidence.

I. Περὶ ἀρχαίας ἰητρικῆς—*On Ancient Medicine.*

Of all the treatises which are recognised as the genuine productions of "The Great Hippocrates," by M. Littré, this is decidedly the one which possesses the most questionable title to that honour. The only ancient authority that admits it as such is Erotian; it is passed over unnoticed by Galen and Palladius; and Athenæus does not scruple to affirm, respecting it, that some considered the one half of it spurious, and others the whole. (Deipn., ii, 16.) Foës, Schulze, and Zuinger,¹ are almost the only modern names in its favour; and it is rejected by Mercuriali, Gruner, Conringius, Ackerman, and Kühn.² The grounds, however, upon which Ackerman decides against its authenticity are of little weight, namely, that as it is stated in it (§ 1, 2) that medical works were numerous at the time it was composed, this circumstance implies a date considerably posterior to Hippocrates. But it is to be borne in mind, that Xenophon, who was almost contemporary with Hippocrates, puts into the mouth of Socrates, who was certainly nearly of the same age, the saying, that there were many medical works then in existence (Memorab., iv), so that at all events the argument of Ackerman falls to the ground. M. Littré, moreover, espouses its claims with remarkable zeal, and persuades himself that he has settled this point by showing that a passage in the Phædrus of Plato,³ which is quoted by Galen, as referring to a sentiment contained in the Hippocratic treatise 'De Natura Pueri,'⁴ does, in fact, have reference to the work now under consideration. This position he labours hard to establish, and succeeds at last so much to his own satisfaction, that he does not hesitate to declare, as the result of his elaborate disquisition, "that he had demonstrated the treatise 'On Ancient Medicine' to be the work of Hippocrates."⁵ Now, I must be permitted to say, with great deference to M. Littré, that his prolix process of argumentation, spun out as it is over twenty-six pages, does not carry the same conviction to my

¹ Hippocrat. Coi Comment. &c., Theod. Zuingeri studio. Basil, 1579.

² See his additions to Ackerman's Dissertation, in his edition of the Works of Hippocrates.

³ § 122, tom. i, p. 172 (ed. Bekker), where see the note of Heindorf.

⁴ Galeni Opera, tom. v, pp. 2, 16; ed. Basil.

⁵ Œuvres Complètes, &c., tom. i, p. 320.

mind as it does to his own.¹ But still, as this treatise has, at all events, one ancient authority in its favour, and as the matter contained in it appears to me to be highly valuable, I have not scrupled to follow the example of M. Littré in placing it at the head of the Works of Hippocrates. I shall have occasion to say more on the contents of it in the Argument prefixed to my translation.

II. Προγνωστικόν—*Prognostics.*

Of the genuineness of this work there has never been any question, so far as I am aware, from the time of the earliest of the ancient commentators, Herophilus, down to the present day.² That it is an admirable specimen of the plan upon which the Hippocratic practice was founded, there can be no doubt. The most important critical question to be decided with regard to it is the relation it bears to two other treatises on the same subject, namely, the ‘*Prorrhetica*,’ and ‘*Coacæ Prænotiones*,’ whether the ‘*Prognostics*’ be founded on them, or whether they be made up from the ‘*Prognostics*.’ This question will come more properly to be discussed in the Argument to the ‘*Prognostics*.’

Of this treatise there have been the following translations into English :

‘The Booke of the Presages of the Divine Hippocrates, divided into three parts, &c. By Peter Low, Arrelian Doctor in the Faculty of Chirurgery in Paris. Lond., 1597.’

¹ The argument turns principally on the meaning of the expression, *τι πότε λέγει Ἰπποκράτης τε καὶ ὁ ἀληθῆς λόγος*, which M. Littré contends signifies, “*ce qu’ Hippocrate et la raison pourraient dire.*” Now I must say that, to me, the words of Plato here quoted do not warrant the interpretation which M. Littré puts upon them; and, not satisfied with my own judgment on this point, which happens in the present instance to be an important one, I applied to one of the best authorities in Britain on the minutæ of the Greek language for his opinion, and was happy to find that it entirely corresponded with my own. Having alluded in the text to the prolixity of the discussion which M. Littré enters into on this occasion, I trust that eminent scholar will not be offended (provided these pages ever meet his eyes) if I introduce here an anecdote of the celebrated Kuster. Having been shown a work in which the quantity of argumentation and reflection greatly overbalanced the amount of facts and references, he laid it aside with the remark, “*I find nothing here but reasoning; non sic itur ad astra.*”

² Galeni Opera, tom. v, p. 119; ed. Basil.

‘The Prognostics and Prorrhethics of Hippocrates, translated from the original Greek, with large annotations, critical and explanatory; to which is prefixed a short account of the Life of Hippocrates. By John Moffat. Lond., 1788.’

‘Hippocrates on Air, Water, and Situation; or, Prognostics, &c. By Francis Clifton, M.D. Lond., 1734.’

Of these the last is the only one which possesses the slightest claim to consideration. It is the work of a scholar, who had evidently paid the most studious attention to his author with the intention of publishing a new edition of his works, a design, by the way, which it is much to be regretted, that he did not live to execute. What became of his literary labours in this department I have never been able to ascertain. The greatest fault I find with his translation is the quaintness of his style; for it cannot be alleged of him, as of Moffat, that he often mistakes the meaning of his author. The translations of the latter are utterly worthless, in fact, they are disgraceful to the translator, who ought to have been ashamed to engage in a task for which he was so utterly unqualified. The translations by Low are done in a strangely antiquated style, and otherwise have nothing to recommend them on the score of fidelity. Moreover, all these translators introduce confusion into the subject by mixing up together the contents of the ‘Prognostica,’ ‘Prorrhethica,’ and ‘Coacæ Prænotiones.’ Even Clifton is guilty of this indiscretion, although better might have been expected from him; for, considering how well acquainted he appears to have been with the spirit of his author, he ought to have been able to appreciate properly the obligations which Hippocrates had conferred on his profession by methodising subject-matters which had previously been destitute of scientific arrangement.

III. Ἀφορισμοί—*Aphorisms.*

That the greater part of the Book of Aphorisms is the work of Hippocrates himself there can be little or no doubt, but that it contains interpolations, some of which are of high antiquity, is equally indisputable. This is distinctly stated by Galen.¹ On this subject I would beg leave to quote the remarks

¹ Comment. vii; et sect. vii, 53 et seq.

of Dr. Greenhill: "Some doubts have arisen in the minds of several eminent critics as to the origin of the Aphorisms, and, indeed, the discussion of the genuineness of this work may be said to be an epitome of the questions relating to the whole Hippocratic Collection. We find here a very celebrated work, which has, from early times, borne the name of Hippocrates, but of which some parts have always been condemned as spurious. Upon examining these portions, which are considered to be genuine, we observe that the greater part of the first three sections agrees almost word for word with passages to be found in his acknowledged works; while in the remaining sections we find sentences taken apparently from spurious or doubtful treatises, thus adding greatly to our difficulties, inasmuch as they sometimes contain doctrines and theories opposed to those which we find in the works acknowledged to be genuine. And these facts are (in the opinion of the critics alluded to) to be accounted for in one of two ways: either Hippocrates himself, in his old age (for the Aphorisms have always been attributed to this period of his life), put together certain extracts from his own works, to which were afterwards added other sentences taken from later authors; or else, the collection was not formed by Hippocrates himself, but by some person or persons after his death, who made aphoristical extracts from his works, and from those of other writers of a later date, and the whole was attributed to Hippocrates, because he was the author of the sentences that were most valuable and came first in order. This account of the formation of the Aphorisms appears extremely plausible, nor does it seem to be any decisive objection to say, that we find among them sentences which are not to be met with elsewhere; for when we recollect how many works of the old medical writers, and perhaps of Hippocrates himself, are lost, it is easy to conceive that these sentences may have been extracted from some treatise that is no longer in existence. It must, however, be confessed, that this conjecture, however plausible and probable, requires further proof and examination before it can be received as true."¹ The fact of the matter is, that interpolation

¹ See under *Hippocrates*, in Smith's Greek and Roman Biographical and Mythological Dictionary.

is a mode of corruption from which few works of antiquity have escaped altogether free, and it was, no doubt, often practised upon them in a very innocent manner, and without any fraudulent intention. Thus, when the subject treated of by any author came afterwards to receive any notable improvements or alterations, the possessors of such a work would naturally mark them down on the margins of their MS., and these annotations in the course of transcription would often come to be incorporated with the genuine text. Such a work as the Aphorisms, consisting of detached sentences, was particularly liable to suffer in the manner now adverted to. Another mode of vitiation, which has been frequently practised upon ancient works, is the addition of appendices to them. Every classical reader must be aware that the *Odyssey* of Homer is generally admitted by the critics to have come down to us in this state; nay, many learned divines do not scruple to admit that certain portions of the Sacred Volume have not been exempt from this casualty. I may mention that the last chapter of the *Pentateuch*, the last Psalm in the *Septuagint*, and even the last chapter of the Gospel of St. John, have been suspected, by very able critics, of being appendices. I have stated in another place (*PAULUS ÆGINETA*, Vol. III, p. 437), that an addition in this way has probably been made to the medical works of *Aëtius*. On the addition of appendices to works, see further, *Galen* (*de Placit. Hippocrat. et Plat.*, vi, 3). Taking all this into account, it need excite no wonder that an appendix should have been added, by some unknown hand, to the seven sections of *Aphorisms*, and, accordingly, it is generally admitted that the eighth section is spurious.

I shall reserve my analysis of the contents of the genuine sections to the Argument prefixed to the translation.

We have the following translations of the *Aphorisms* into English.

‘The *Aphorisms* of *Hippocrates*, translated into English :

‘By S. H. Lond. 1610.’

‘By Conrad Sprengel. Lond. 1708.’

‘By T. Coar. Lond. 1822.’

‘By J. W. Underwood. Lond. 1828.’

Of these I have only carefully examined the translations by

Sprengel and Coar. That of Sprengel displays considerable pretensions to erudition, but, upon a careful examination, it will be quite apparent that the translator was not possessed of a competent acquaintance either with the Greek or English language. In short, nothing can be conceived more quaint, inelegant, and inaccurate, than the language of this translation. Lest I should be suspected of prejudices against my predecessor, and of exaggerating his faults, I shall subjoin a short list of passages which I hold to be mistranslated, so that the reader may judge for himself, whether my opinion of the work be well founded or not. (See Aph. i, 11,¹ 15,² 20,³ 23;⁴ ii, 6,⁵ 15,⁶ 27, 31, 34, 40; iii, 16, 21.)

The production of Coar is not destitute of some merit, although it is but too apparent that he was not fully competent for the task which he had undertaken. He gives, separately, every Aphorism in Greek, to which he subjoins first a Latin and then an English translation. In the Preface, he admits that "in executing the English translation considerable assistance had been derived from the elegant French translation of M. de Mercy." From this admission it will readily be gathered, that the translator felt conscious that he did not possess a proper acquaintance with the language of the original. I subjoin references to a few of the passages which, upon examination,

¹ "In all paroxysms, or sharp fits of intermitting diseases, we must take away meat, for then to give it is hurtful."

² "The belly is naturally hottest in winter and the spring, and most addicted to rest. Consequently in these seasons a greater proportion of food is to be allowed, because the inward heat is stronger, which is the reason that a more plentiful food is necessary. This difference may be seen in such as are old, and in such as are lusty and well-grown bodies."

³ "Those things that are or have been justly determined by nature, ought not to be moved or altered, either by purging or other irritating medicines; but should be left alone."

⁴ "Things evacuated and purged are not to be estimated by the multitude and quantity, but by their fitness to be avoided and sent forth; and must be such as are not too troublesome to the patient to bear. Though, where it is necessary, we must proceed in evacuating, even to swooning and fainting, if the patient can bear it."

⁵ "Those who are grieved in any part of the body, and are scarce sensible of their grief, have a distempered mind."

⁶ "When the upper parts of the throat or gullet are sore, or a breaking out of small tumours does arise in the body, we ought to look upon the excrements; for if they are choleric, the body is also sick; but if they are like the excrements of sound persons, the body may be nourished without danger."

appeared to me to be incorrectly rendered. (See Aph. i, 2,¹ 10;² 20;³ ii, 49;⁴ iii, 11,⁵ 26, 31; iv, 1; v, 26, 44, 68.)

IV. Ἐπιδημιῶν ἄ καὶ γ'—*The First and Third Books of the Epidemics.*

These are among the most undoubtedly genuine remains of Hippocrates, and well sustain the high reputation of their great author. In fact, of all the earlier records of medicine, these are about the most precious which have come down to us. Although, as I have stated, no one has questioned their genuineness, Galen complains that, by some mishap or other, they had not wholly escaped from some derangement of the subject-matters which they contain, and from additions being made to them.⁶

The following, I believe, are the only English translations of them which have ever been published.

'A Comment on forty-two histories described by Hippocrates in the First and Third Books of his Epidemics. By J. Floyer.'

'The History of Epidemics, by Hippocrates, in Seven Books. Translated into English from the Greek, with Notes and Observations. By Samuel Farr, M.D. Lond. 1780.'

The former of these I have not been able to see. The other, although it appears to have been got up with considerable care, is manifestly the work of a man not properly acquainted with the language and doctrines of his author. In proof of this, I

¹ "When that which ought to be evacuated is discharged by spontaneous vomiting and diarrhœa, it is useful and easily endured; but when otherwise, the contrary. *This is equally true with regard to every vessel,*" &c.

² "They in whom the greatest vigour of the disease is immediately perceived, are to be immediately sparingly supplied with food; but from those in whom it occurs later, the food must at that time, or a little earlier, be abstracted. Previously, however, we must nourish more freely, that the sick may be supported."

³ "Whilst the crisis is forming, and when it is complete, nothing ought to be moved or to be introduced, whether by purgatives or other irritants; but all should be left at rest."

⁴ "They who are accustomed to daily labour, although even weak or old, endure it more easily than the robust or young, who are even accustomed to it."

⁵ "In regard to the seasons, if the winter have been dry and cold, and the spring moist and warm, in summer acute fevers, ophthalmias, and dysenteries must necessarily occur, chiefly, however, among females and men of pituitous temperament."

⁶ Tom. v, p. 399; ed. Basil.

subjoin below a few examples collected from the first book, near the beginning.¹

V. Περὶ διαίτης ὀξέων—*On the Regimen in Acute Diseases.*

This work is acknowledged as genuine by Erotian,² Palladius,³ and Galen,⁴ and other ancient authorities, as well as by all the modern critics, from Mercuriali and Lemos down to Littré and Greenhill. The authenticity of the latter part, indeed, is questioned by Galen, who pronounces the style, theories, and language to be different from those of Hippocrates. Yet even he admits that it is of great antiquity, being more ancient than the time of Erasistratus, who lived within less than a century from the death of Hippocrates.⁵ Even if not genuine, then, this part (which is published by M. Littré as an appendix) possesses great value, not only as containing important matter, but as furnishing us with the opinions of the Coan school at a very early period after the time of our author. We shall have occasion to give a fuller analysis of its contents, in the Argument prefixed to the translation of it.

VI. Περὶ αἰθρῶν, ὑδάτων, καὶ τόπων—*On Airs, Waters, and Places.*

Fortunately there are no reasonable grounds for questioning the authenticity of this highly important work. It is admitted as genuine by Erotian, Palladius,⁶ Athenæus,⁷ and Galen,⁸ and by every one of the modern critics, with the exception of Haller, who pronounces against it upon very insufficient grounds. He argues that it is obvious, from its contents, that the author

¹ "The state of the air being, upon the whole, dry, with a south wind, which was just contrary to what happened the year before, when the north chiefly prevailed; there were but few inflammatory fevers, and these were of a mild disposition, very few being attended with hemorrhages, and much fewer, if any, with death." (p. 4.)

"They affected children, young persons, and those who were arrived at years of maturity, and especially those who used much exercise, yet but few women." (Ibid.)

"Before the summer, and even during that season, nay, in winter likewise, there were many who had been disposed to a plthisis who were now afflicted with that disease," &c. (Ibid.)

"The extremities were generally very cold, there was seldom any heat in them." (p. 3.)

² Præfat. Gloss.

³ Comment. in Libr. de Fract.

⁴ In Lib. Prognos. Comment.

⁵ Tom. v, p. 89; ed. Basil.

⁶ Comment. in Lib. de Fract.

⁷ Deipnos, ii, 7.

⁸ De Propr. Lib., in III. Epid., Comm. ii, Præf.

of this treatise was a European, which cannot be said of Hippocrates, seeing that his native place, Cos, was one of the Asiatic islands.¹ But, if Haller had possessed any competent acquaintance with classical literature, he must have been aware that all the inhabitants of the islands adjoining to Asia Minor were colonists from Greece, and consequently looked upon themselves as Europeans, and not as Asiatics.² Nor is this more remarkable than that the present inhabitants of America should rank themselves ethnologically with the Europeans, and not with the native inhabitants of the country they now occupy.

An edition of this treatise, with a French translation, was published at Paris by a learned modern Greek, Dr. Coray, in the beginning of this century; the annotations to which are highly valuable. The only English translation of it which we possess, as far as I know, is the following :

‘Hippocrates upon Air, Water, and Situation. By Francis Clifton, M.D. Lond. 1734.’

This, I am inclined to think, is the best English translation which we have of any of the Hippocratic treatises. It is generally accurate, and the only drawback to it which I am aware of, is the style, which is often exceedingly quaint and obsolete. The translator, as we stated above, was well acquainted with all the works of Hippocrates, and of his painstaking industry the notes in this treatise bear undoubted evidence. Of these I have availed myself, whenever I could derive any assistance from them, but from the translation itself I have never copied literally.

VII. Περὶ ἀρθρῶν—*On the Articulations.*

This work was received as genuine by all the ancient commentators, from Bacchus and Philinus, the disciples of

¹ Bibl. Med., p. 1, 29, 59.

² The inhabitants of Asiatic Ionia, and the islands adjoining, were all colonists from Attica. (See in particular Thucyd., i, 12; and also Herodot., viii, 44; and Heraclides, de Politis.) Dr. Coray supposes that Hippocrates represents himself as being a European, in consequence of his having composed this treatise in Europe, at a distance from his native country. But there is no necessity for this supposition, as Hippocrates, being of Grecian descent, would naturally enough consider himself a European, since the great body of the Greeks were Europeans. Coray mentions a striking instance of Haller's incapacity to form a correct judgment on the works of Hippocrates, from want of a proper acquaintance with the Greek language.—Discours Préliminaire, &c., p. lvi.

Herophilus, down to Erotian, Galen,¹ and Palladius.² It was also admitted by all the earlier modern critics, down to Gruner, who rejected it on these grounds: 1. Because it contains a reference to the treatise 'On Glands,' which all acknowledge to be spurious. 2. That in the course of the work a degree of anatomical knowledge is evinced, far beyond what its actual state in the time of Hippocrates would warrant. 3. That the legend of the Amazons, which is received as true history in the treatise 'On Airs, &c.,' is rejected as fabulous in this work. Grimm also agrees with Gruner in condemning it as spurious; but Littré shows good reasons for admitting it into the list of genuine productions. He replies in a very satisfactory manner to Gruner's objections. Thus he shows, in particular, what we have adverted to previously, that the knowledge of anatomy which was possessed in the Hippocratic age, had been much underrated by Gruner and others, and that the two passages in which the Amazons are supposed to be referred to, are not parallel, and do not admit of a comparison. He also very properly insists upon it, as a strong argument in favour of the genuineness of this treatise, that it had been commented upon by Ctesias.³ The work, indeed, contains so much valuable matter, of which subsequent authors (as Celsus and Paulus Ægineta) have freely availed themselves, in handling the subjects which are treated of in it, that I have every disposition to receive it as genuine. We shall see, afterwards, that, taken in connexion with the next work, it is a perfect masterpiece on the subject of Fractures and Dislocations.

VIII. Περὶ ἀγμῶν—*On Fractures.*

Tried by the tests laid down by us above, this treatise must undoubtedly be received as genuine. It is decidedly acknowledged as such by Palladius, Erotian, Galen, and, in short, by all the ancient authorities, and the only modern critics who venture to question its claim, are Grimm, the German translator of Hippocrates, and Kühn; and, in fact, the latter does so merely in deference to Grimm, for his arguments on the question of its authenticity all tell the other way. That the treatises 'On Fractures' and 'On Articulations' constituted

¹ De Placit. Hippocr., et Platon. ix; de Diff. Resp., iii, 7.

² Ap. Foës., p. 197.

³ Galeni Opera, tom. v, p. 652; ed. Basil.

originally one work, is shown in a very convincing manner by Galen, in his introductory comment on the latter.¹ This is an additional reason for admitting the work 'On Articulations' as genuine. Indeed, I do not hesitate to declare that whoever refuses to admit these two treatises as genuine, may consistently dispute the claims of any other work of the same date.

IX. Μοχλικός—*On the Instruments of Reduction.*

This work is quoted by Galen as one of the acknowledged books of Hippocrates,² and is admitted by Erotian into his list of genuine works; nay, it appears from the latter that it had been commented upon by Bacchius. Of the modern authorities, Foës and Littré concur with the ancient in admitting its claims, but it is rejected by Lemos, Mercuriali, Haller, Gruner, Grimm, and Kühn. No one who reads it carefully can fail to remark that, as stated by Galen,³ it is a compendium of the work 'On the Articulations,' so that whoever admits the latter to be genuine must acknowledge the treatise now under consideration to be one which embodies the opinions of Hippocrates, whether it were actually composed by him or not. Taking all this into account, it appears to me superfluous diligence in modern critics to search out grounds for questioning its authenticity.

X. Περὶ τῶν ἐν κεφαλῇ τραυμάτων—*On Injuries of the Head.*

This work is acknowledged as genuine by all the authorities, ancient and modern. The only objection to its genuineness is the appearance of certain interpolations towards the end of it.⁴ This, however, as we have remarked above (No. III), is a mode of vitiation from which few ancient works are altogether exempt.

XI. Ὁρκός—*The Oath.*

This interesting little piece is quoted as genuine by Erotian,⁵ Theodore Priscian,⁶ Soranus Ephesius,⁷ St. Jerome,⁸ Gregory

¹ Opera, tom. v, p. 578; ed. Basil.

² Ibid., p. 170.

³ In Prædict. i, Comm. i, 4.

⁴ V. Galen, in Exeges. in vocibus ἐκλούσθω, σφάκερος, &c.

⁵ Præfat. Gloss. Hippocrat.

⁶ Gynæc., tom. i, P. I, p. 13.

⁷ In vita Hippocrat.

⁸ Ad Nepotian. de vita Cleric., Ep. ii, p. 13, tom. i; ed. Paris, 1643.

Nazianzen,¹ Suidas,² and Scribonius Largus.³ It is also received as such by Foës, Gruner, and Littré, but is rejected by Mercuriali, Schulze, Haller, Kühn, Ackerman, and other modern authorities, as quoted by Ackerman. The only reasonable grounds which I can see for questioning its authenticity is the silence of Galen with regard to it; but when we take into account that Galen has nowhere given an entire list of what he considers to be the genuine works of Hippocrates, this omission on his part may be merely incidental, and is not of much weight. On the other hand, the argument which M. Littré seeks to establish in favour of its authenticity on fancied allusions to it by Aristophanes⁴ and Plato,⁵ appears to me to have no weight; indeed, he himself gives up the former in another place.⁶

I have met with the following English translations of this piece, and no doubt there may be others:

‘The Protestation which Hippocrates caused his Scholars to make, by Peter Low; Lond. 1597.’

‘—————, by Francis Clifton, M.D.; Lond. 1734.’

The translation by Low is in a quaint and antiquated style; that by Clifton is carefully done.

XII. Νόμος—*The Law.*

This little piece is noticed by Erotian, and admitted as genuine by M. Littré, but Mercuriali, Gruner, Ackerman, Kühn, and Greenhill incline to reject it. It is well written, but the style is rather too scholastic for the age and taste of the great Father of Medicine. At the same time, it has so many points of accordance with ‘The Oath,’ that it seems inconsistent to admit the one as authentic and reject the other as spurious.

XIII. Κατ’ ἰητροῦ—*On the Surgery.*

All the ancient commentators which have come down to us, such as Erotian, Galen, and Palladius, admit it to be genuine;

¹ Orat. Funebr. in Cæsarium Fratrem.

² Sub voce Hippocrates.

³ Epist. ad C. Jal. Callistum.

⁴ Thesmothor., l. 240.

⁵ De Legg. iv, l. vi, p. 134; ed. Tauchnitz.

⁶ Tom. ii, p. xlviij; Add. et Corrig.

but it would appear from Galen that some of the older commentators were not satisfied upon this point, some doubting whether it was the production of the great Hippocrates or of Thessalus, and some referring it to Hippocrates, the son of Gnosidicus.¹ It is received also by Foës, Gruner, and, after a good deal of hesitation, by M. Littré. Schulze expresses himself on this point doubtfully,² and the work is rejected by Grimm, Ackerman, and Kühn. Beyond all doubt, it is a compendium of the treatises 'On Fractures' and 'On the Articulations,' so that, whether the composition of Hippocrates himself or not, there can be no question that the subject-matter of it is derived from him. Galen appears to have been remarkably fond of this treatise, and makes frequent reference to it in his great work 'On the Dogmata of Hippocrates and Plato.' It would appear that Diocles, Philotimus, and Mantias had written treatises bearing the same title.

There is some difficulty in determining accurately what was the nature of the ancient *Iatrium* (ἰατρείον). See an interesting disquisition on this subject in Littré's edition of Hippocrates, t. v, p. 25. It most probably was an establishment kept by the physician, in which were contained not only all sorts of medicines, but also all kinds of surgical apparatus. Mention of the *Iatrium* is made by Plato (Legg. iv, p. 720, and i, p. 646; ed. Tauch.) Aristotle is said to have possessed an *Iatrium*, which, if the story be true, he had no doubt acquired from his father, who was a medical practitioner.³ From what is stated by Plato, it would appear that the assistants were qualified to administer professional assistance in the absence of their superior, and were also called doctors. (Legg. iv.) So it appears that the modern abuse of this title was sanctioned by classical usage! It must be recollected that, in the time of Hippocrates, eminent physicians were *periodeutæ*, that is to say, wanderers from place to place, and consequently they would stand in need of such an establishment as we have described the *Iatrium* to be. See further the Argument to this work.

¹ Tom. v, p. 526; ed. Basil, &c. Elsewhere he quotes it as being undoubtedly genuine.—De Placit. Hippoc. &c., ix, 1.

² Hist. Med., p. 283.

³ See Polybius, as quoted by Littré, l. c.; also section iii of the Preliminary Discourse.

XIV. Περὶ φύσεως ἀθρώπου—*On the Nature of Man.*

Erotian, Galen, Palladius, and Macrobius¹ do not hesitate to quote the doctrines contained in this treatise as being those of the great Hippocrates, but its authenticity has long been considered very questionable, owing to the circumstance that a passage in it of considerable length, relative to the anatomy of the venous system, is quoted by Aristotle² as being the production of Polybus, and it is accordingly received as such by Haller,³ Gruner, Littré, and most of our recent authorities on ancient medicine. Galen, however, contends that the passage quoted by Aristotle is not the work either of Hippocrates or of Polybus, but an interpolation, and that the rest of the treatise is genuine.⁴ But Galen, at the same time, admits that Dioscorides, the Commentator (he must not be confounded with the celebrated author of the *Materia Medica*), had marked the first part of this treatise with the sign of the obelisk, as indicating his suspicion of its being spurious, and that he held it to be the work of Hippocrates, the son of Thessalus, that is to say, of a grandson of the great Hippocrates. But, whatever may be decided regarding its authorship, a careful perusal of the treatise will satisfy any one that it is a piece of patchwork, made up of several fragments, which do not cohere properly together. It certainly also appears to me that many of the philosophical dogmata which are delivered in it do not accord well with the doctrines contained in those treatises which are universally admitted to be genuine.

After alluding briefly to the opinions of those philosophers who held that the human body is formed from the four elements, that is to say, fire, air, water, and earth, the writer proceeds to state his own doctrines regarding the four humours, namely, blood, phlegm, yellow and black bile, and the diseases which are occasioned by the prevalence of one or other of them, according to the seasons of the year, and other circumstances. The doctrines, as herein stated, are very hypothetical, and certainly, as already hinted, not in accordance with those delivered in the genuine works. It is proper to mention,

¹ Saturnal., vii, 6.² Hist. Animal., iii, 3.³ In Boerhaav. Meth. Stud. Med.⁴ De Placit. Hippocrat. et Plat., vi, 3; et Opera, tom. v, p. 22; ed. Basil.

however, that Galen, in several parts of his works, makes Hippocrates to be the author of the theories of the elements and of the humours.¹ The treatise contains certain general truths and rules of practice not unworthy of some consideration, such as this, that diseases are cured by their contraries, that is to say, that diseases arising from repletion are removed by evacuation, and *vice versa*; and that diseases in general are occasioned either by the food we eat, or the air we breathe, those which prevail epidemically being produced by the latter cause. All sudden changes of diet are held to be attended with danger, and to be avoided. It is also an important rule of practice that, in venesection, blood should be abstracted from a part as distant as possible from the seat of the pain and of the collection of blood. There can be no doubt, in a word, as we have stated in the preceding section, on the authority of Galen, that Hippocrates was well acquainted with the principle of revulsion in the practice of medicine. The natural heat, or, as it is now called, the animal heat, is stated to be greater the younger the body is—a physiological doctrine strenuously advocated by Galen in several parts of his works, but more especially in the treatise ‘Against Lycus.’² The theory of the formation of urinary calculi is also discussed. The same occurs in the treatise ‘De Aëre,’ &c., and in the work ‘De Morbis’ (iv, 28). Allusion is likewise made to the occurrence of substances in the urine resembling hairs.³ The last fragment of which this treatise is composed relates to fevers, the greater part of which are held to be occasioned by bile. It is said that there are four varieties of them, namely, synochus, quotidian, tertian, and quartan; that the synochus is formed from the most intense bile, and comes soonest to a crisis, and the others in the order we have stated them. This is very unlike the doctrines of fever laid down in the genuine works, and accordingly this portion of the treatise was a great stumbling-block to those among the ancient commentators who contended for the genuineness of the treatise.⁴ Altogether, then, I must say, that a careful perusal of the work leads me to the conclusion that, notwithstanding the high authorities in

¹ De Nat. Facult., tom. i, p. 87.

² Opera, tom. v, p. 329; ed. Basil.

³ See English translation of PAULUS ÆGINETA, Book I, p. 549.

⁴ See Galen, tom. v, p. 2.

its favour, it does not deserve to be received as a genuine production of Hippocrates.¹

XV. Περὶ διαίτης ὑγιεινῆς—*On Diet in Health.*

This work is passed over unnoticed by Palladius and Erotian ; and Galen, although he wrote a commentary on it which still remains, informs us that some of the elder commentators had assigned it to Polybus, the son-in-law to Hippocrates.² He further mentions that it had been variously referred to Euryphon, Phaon, Philistion, and others ; ancient authority in its favour is, therefore, very equivocal. The modern critics are pretty unanimous in rejecting it ; indeed, Littré, improving on the hint cast out by Galen, does not scruple to refer it and the preceding treatise to Polybus. Though the subject-matters of it are not, in the main, of much importance, it contains some directions for the regulation of the diet, which are by no means injudicious. One of his directions, with regard to clothing, is very different, however, from what we might have expected, considering the fondness of the ancients for the use of oil to counteract the effects of cold.³ The author of this work directs oily garments to be used in summer, but clean ones in winter. Emetics are recommended to be taken by persons of a gross habit of body, but to be avoided by those who are slender. This rule is expressed by Celsus in the following terms : “ Vomitus inutilis gracilibus et imbecillum stomachum habentibus, utilis plenis et biliosis omnibus, si vel nimium se repleverint vel parum concoxerint.”⁴ The author of this treatise recommends hyssop as an emetic, and we find its use in this way not unfrequently noticed in the Hippocratic treatises, but not in the works of subsequent authorities, as far as I am aware. The work concludes with a passage on diseases of the brain, which also occurs, ‘De Morbis’ (ii), and seems much out of place here. It is said that they are first manifested by stupor of the head, frequent passing of urine, and other symptoms of strangury ; and it is added, that a discharge of water or of mucus by the nose or ears relieves these complaints.

Altogether, considering how slender the evidence is, both

¹ See further, under No. I.

² Opera, tom. v, pp. 17, 29.

³ See PAULUS ÆGINETA, I, 50.

⁴ I, 3.

external and internal, in favour of the authenticity of this treatise, I can have no hesitation in rejecting it as spurious.

XVI. Προῤῥητικόν, ἁ—*First Book of Prorrhetics.*

XVII. Κωακὰ προγνώσεις—*Cosan Prognostics.*

These two works are so evidently allied to one another, that I have judged it expedient to treat of them together. The greatest difference of opinion has prevailed among the critics, both ancient and modern, with regard to them. Erotian declares expressly that the ‘Prorrhetics,’ both first and second, are not genuine; and Galen, although he writes a commentary on the first book, complains of the difficulty he experienced in explaining certain vocables of dubious meaning contained in it,¹ and elsewhere states that the treatise is composed of extracts from the ‘Prognostics,’ ‘Epidemics,’ and ‘Aphorisms.’ Foës is almost the only modern scholar of any note who stands up for the genuineness of the first book of the ‘Prorrhetics;’ and it is decidedly rejected by Grimm, Ackerman, Haller, Littré, and nearly all the other modern authorities. The ‘Coacæ Prænotiones’ have very little ancient authority in their favour, and even Foës rejects the work with greater disdain than it would seem to merit. Of late years, the opinion has gained pretty general assent that these two treatises are more ancient than the days of Hippocrates;² that, in fact, they constitute the materials out of which he composed the ‘Prognostics,’ and are the results of the observations made by the priest-physicians in the Asclepion, or Temple of Health, at Cos. This idea is followed out with great ability by Dr. Ermerins, in his ‘Specimen Historico-Medicum Inaugurale de Hippocratis doctrina a Prognostice oriunda,’ where, by a most ingenious and convincing process of comparison, he appears clearly to make out that the ‘Coacæ Prænotiones’ are formed from the first book of the ‘Prorrhetica,’ and the ‘Prognostics’ from the ‘Coacæ Prænotiones.’ These positions, I repeat, he seems to me to have established most satisfactorily, and I cannot hesitate to declare it as my opinion that Dr. Ermerius has thereby thrown great light on this department of the Hippocratic literature.

¹ Sect. ii, near the beginning.

² Comment. in III Epidem.

M. Littré has justly appreciated the labours of Dr. Ermerinus, and adopted his views without reserve. (v. i, p. 351.) As I shall have occasion to compare the contents of these two treatises now under consideration with the subject-matters of the 'Prognostics' in my Argument to the latter, I shall confine myself at present to a few observations, selected in a good measure from M. Littré's argument to the 'Coacæ Prænotiones.'

In the first place, M. Littré makes some interesting remarks on vomicae of the chest after pneumonia and pleurisy; but this subject will come to be treated of in the notes on the 'Prognostics.' He next gives some important observations on the following passage in the 'Coacæ Prænotiones,' § 418: "All sprains are troublesome, and cause intense pains at the commencement, and in certain cases occasion after-consequences; the most troublesome are those about the breast, and the most dangerous are those in which there is vomiting of blood, much fever, and pain about the mammae, chest, and back; when all these occur, the patients quickly die; but in those cases in which they do not all occur, nor are severe, they are longer protracted; the inflammation at farthest is protracted to forty days." He relates, in illustration of this passage, a case very much in point, from the 'Journal de Médecine,' Juillet, 1843, of a healthy person who, in lifting a log of wood, strained the parts about the chest so as to experience a cracking sensation about the breast; it was followed by intense inflammation, which, in spite of plentiful depletion, ended in an empyema which opened by the fifth intervertebral space. The patient recovered. This case is a good illustration of a species of accident frequently described in the Hippocratic Collection. He then briefly considers the question whether or not Hippocrates was acquainted with *the croup*, on which he does not give any decided opinion. In my opinion, the term *croup* is now used in a vague sense, being applied to cases of angina, in which the inflammation spreads down to the glottis and trachea, and also to cases of bronchitis attended with a croupy cough. I am confident that pure *cynanche trachealis*, that is to say, acute disease originating in the trachea, is of very rare occurrence, at least, it certainly is so in the north of Scotland. That the ancients were well acquainted with that species of *cynanche* in which the disease spreads down to the

windpipe there can be no doubt. See the Commentary on §§ 26, 27, Book III, of PAULUS ÆGINETA. It may reasonably be doubted whether they were not fully as well acquainted with diseases of the fauces and windpipe as the moderns are.

M. Littré's observations on sphaecelus of the brain do not at all accord with the opinions of Dr. Coray,¹ nor with those advanced in the Commentary on PAULUS ÆGINETA, B. III, § 7. He thinks that Hippocrates meant by it necrosis of the cranium. Although I still so far adhere to my former opinion that by sphaecelus was generally meant *ramollissement* of the brain, I must admit that some of the passages in the Hippocratic Collection, where it is described, would bear out M. Littré's ideas regarding it. On the subject of sphaecelus, see 'De Morbis,' near the beginning.

M. Littré draws, from a variety of sources, much interesting matter in illustration of § 500 of the 'Coacæ Prænotiones:' "Amaurosis is produced by wounds in the eyelash, and a little above it; the more recent the wound, they see the better; but when the cicatrix becomes older the amaurosis increases." Plattner² held that in this case the amaurosis is connected with lesion of the frontal nerve. Beer³ shows that the affection of the sight is not connected with injury of the nerve, but is rather the result of concussion of the ball of the eye. Walker, and Littré himself, are rather disposed to question altogether the truth of the statement made by Hippocrates.

M. Littré concludes his argument with some observations on the lethargus of the ancients, which he holds, and correctly, as I think, to be a pseudo-continual fever. My own opinion, as delivered in the Commentary on Book III, § 9, of PAULUS ÆGINETA, will be found to be very similar. Lethargus is there stated to have been a species of remittent fever, resembling the *causus*. M. Littré, further in illustration of this subject, gives from the works of Mr. R. Clark, an English physician at Sierra Leone, an interesting account of a sleepy-dropsy, to which the Negroes there are subject.

The greater part of the contents of these treatises are mixed

¹ Ad Hippocrat. de Aëre, Aquis, Locis, § 65.

² De Vulneribus superciliis allatis. Lips., 1741.

³ Lehre von den Augen-krankheiten. Wien, 1813.

up by Clifton with his translation of the ‘Prognostics;’ and Moffat gives a complete translation of this book of the ‘Prorrhethics.’ The latter, like all the other translations by the same hand, is utterly worthless. Clifton is only culpable for having introduced confusion into the contents of works which had been so admirably arranged by Hippocrates.

XVIII. Προρρητικόν, β’—*The Second Book of Prorrhethics.*

The reception which this work has met with from the critics, ancient and modern, appears rather singular. Erotian and Galen, who, in general, are too facile in admitting the claims of suspected works, in the present instance reject a work which many modern authorities acknowledge as genuine; as, for example, Haller, Gruner, Grimm, and, with certain qualifications, Ackerman and Kühn. I must say, however, with Foës, Littré, and Greenhill, that I cannot see how we can consistently recognise as genuine a work which has so large an amount of ancient authority against it, and none in its favour. At the same time, all must admit that the treatise in question contains nothing unworthy of the name of Hippocrates, and that, if estimated by the value of its contents, it is one of the most important works in the whole Collection. I will, therefore, give an abstract of its contents, along with my translation of the ‘Prognostics.’ It is deserving of much attention, as being the only work we possess which gives us an insight into the method taken by the ancient physicians to gain the confidence of their patients by their mode of conducting the preliminary examination of every case. In my younger days I knew an old physician, who was an adept in this art of conciliating the confidence of his patients by anticipating their histories of their own complaints.

XIX. Περί ἐλκῶν—*On Ulcers.*

This treatise is decidedly admitted as genuine by Galen,¹ Erotian, Celsus, and by Foës, Lemos, Mercuriali, Schulze,² and Vidus Vidius,³ but is rejected by Haller, Gruner, Ackerman,

¹ In VI Aphor., 3, Comm. vi; Meth. Med., iv, 6.

² Hist. Med., i, 3, 4, 60. His language is particularly strong: “Maximè genuinus ab omnibus judicatur.”

³ In his Commentary on this work.

and Kühn, on internal evidence, the nature of which we shall presently examine. M. Littré in so far concurs in the judgment of the authorities who reject it, although he does not admit the grounds of their decision. Gruner's principal, indeed I may say his sole, argument against the authenticity of this work is founded on the nature of the substances recommended by the author for the treatment of ulcers; namely, such acrid and (as Gruner chooses to call them) *absurd* medicines as arsenic, black hellebore, and cantharides. But how does it appear that these are "absurd" applications to ulcers, when even at the present day the two strongest of them, namely, arsenic and cantharides, are the means often resorted to for the cure of indolent and malignant ulcers? The same articles are recommended by Celsus (v), and by Paulus Ægineta.¹ It is true that the titles given to certain of the prescriptions contained in this treatise are not appropriate, such as *emollient* (*μαλθακώδεια*), applied to applications which contain many acrid ingredients. But in this case, as is remarked by Foës, we should consider the text to be in so far corrupt, for certainly this does not constitute a legitimate reason for rejecting the treatise *in toto*.

Vidus Vidius, in his interesting commentary on this work, mentions, as a proof of its authenticity, that most of the principles laid down by Galen for the treatment of ulcers, are taken from this part of the works of Hippocrates. In a word, agreeably to the rules laid down by me for testing the authenticity of these treatises, I do not see that I am warranted in refusing to admit the claims of this work to be considered as genuine. I hold myself bound, therefore, to give a translation of it.

It may be proper in this place to mention that the term ulcer (*έλκος*) is used in this treatise to signify both a wound inflicted by an external body, and a solution of continuity from any internal cause. This usage of the word is sanctioned by the older poets, as, for example, Homer (*Iliad.*, ii, 723; *Ib.*, xiv, 130); Pindar (*Nem.*, viii, 50; *Pyth.*, iii, 84); and Bion (*Adonis*).

¹ Book iv, 44. See the authorities quoted in the Commentary on this chapter in the English edition. Schulze properly remarks, that the composition which he recommends as an application to certain sores resembles the *Ægyptiacum* of modern times.—*Hist. Med.*, i, 3, 4, 63.

XX. Περὶ σφίγγων—*On Fistulæ.*

Though this work be acknowledged as genuine by Erotian, Dioscorides, Celsus, Paulus Ægineta, and by Foës and Vidus Vidius, it is set down for spurious by Haller, Gruner, and Ackerman; and even by Littré and Greenhill its claims are not fully recognised. I can see no good reason, however, for rejecting it, since, as I have stated, the ancient authority in favour of it is very strong, and I can detect nothing in the doctrines and rules of practice delivered in it which are at variance with those laid down in the treatises which all admit to be genuine. Ackerman, indeed, pretends that the theory of bile and phlegm, as being the cause of disease, does not belong to Hippocrates or his school. But this is evidently begging the question; and, moreover, Galen, who must be admitted to be a high authority in such a case, decidedly holds Hippocrates to be the author of the Theory of the Humours.¹ Galen seems to say that this treatise, and the following one on hemorrhoids, constituted one work in his time; and he does not throw out the slightest suspicion against the genuineness of either, as the words of Ackerman would lead one to suppose.²

Vidus Vidius, although he acknowledges Hippocrates as the author of this work, holds that it had not been published by him, but had been left in an unfinished state. The argument, however, which he uses in proof of this opinion, is by no means convincing; he contends that the part which relates to inflammation of the anus is quite out of place in a work devoted to the consideration of fistulæ. But few who have much practical acquaintance with the subject will agree with him on this point, for it is well known that fistulæ, for the most part, originate in inflammation and abscess about the verge of the anus.

XXI. Περὶ αἱμορροΐδων—*On Piles.*

This little tract has experienced the same reception from the critics as the preceding one, that is to say, it is acknowledged

¹ Comment. in Lib. de Nat. Human.

² They are as follows: "Continuari cum libello de hæmorrhoidis manifeste spurio, idoque ipsum esse spurium, Galenus jam notat in Gloss., s. v. πύρινα et σφουβλήν." Now, as stated above, Galen does not say a word against the authenticity of these works.

as genuine by Erotian and Galen, and by Foës and Vidus Vidius, but is decidedly rejected as such by Mercuriali, Gruner, Grimm, and Ackerman. I can remark nothing in it, however, which appears to me at all inconsistent with the doctrines contained in the genuine works, unless it be that in this tract the author appears to direct that in operating upon hemorrhoids they should be all extirpated, whereas in one of his Aphorisms, which is quoted by Paulus Ægineta, in his chapter on this subject, he recommends that one should be left, as an outlet to the superfluous blood. (vi, 79.) I do not know how this divergence of opinion is to be explained, but, at all events, such an apparent contradiction would not warrant us in rejecting the treatise altogether.

XXII. Περὶ ἱεροῦ νόσου—*On the Sacred Disease.*

This work is acknowledged as genuine by Erotian, Galen,¹ and Cælius Aurelianus,² but is rejected by Lemos, Mercuriali, Haller, Gruner, Ackerman, Kühn, and even by M. Littré, although the last of these admits that the grounds upon which it had been refused a place among the genuine works are very equivocal. I feel very much at a loss what to decide with regard to it. It is unquestionably the work of a man possessed of a highly cultivated mind, free from the popular superstition of his age, and familiarly acquainted with comparative anatomy, and having no contemptible knowledge of human physiology. There is, in fact, no name, whether in ancient or modern times, to which it might not do honour. That it is not unworthy, then, of the great Hippocrates, all must allow, but whether or not he be the actual author of it, there is much difficulty in determining satisfactorily. That, in certain respects, it is very unlike his other works, must be admitted; the talent which it displays is more of a reflective than of a perceptive nature, which is the reverse of the common character of Hippocrates, who, in his genuine works, evidently evinces a disposition to trust to accurate observation rather than to acute ratiocination. The style, too, I must admit, is more diffuse than the true Hippocratic style

¹ Comment. i, in Hipp. Prognost. The quotation prefixed to this work in the editions of Vander-linden and Frobenius, in which Galen is stated to have held this work not to be genuine, is admitted by Littré to be of no authority.

² Morb. Diurn., i, 4.

generally is. All this might, no doubt, be accounted for, upon the supposition that the work was addressed to the general reader, and not to the professional. Other reasons might be imagined, to account for the diversity of style and matter, but these I shall not occupy time in discussing, as I have decided upon giving a translation of it, so that the English reader may be enabled to judge for himself as to its genuineness. Whether the tract in question be the work of Hippocrates, or, as some have supposed, of his philosophical friend Democritus,¹ there can be little or no doubt that it is a production of that age, for it appears to me that their contemporary, Plato, has evidently made reference to it. Thus, in that portion of his ‘Timæus’ which treats of the causes of diseases, he clearly seems, in accounting for epilepsy, to have had in view the doctrines contained in this treatise. For although he uses the term “sacred disease,” and applies “most divine,” as an epithet to the cavities (*ventricles?*) of the head, he still, in imitation of the author of this work, accounts for the disease upon natural causes, that is to say, from derangements of the pncuma and phlegm.²

XXIII. Περὶ φυσῶν—*On Airs.*

This treatise deserves, in many respects, to be put in the same category as the last; that is to say, it is generally admitted by the ancient authorities, but rejected by the modern. Thus it is noticed as genuine by Erotian and Galen, and by Gregory Nazianzen and Stobæus.³ On the other hand, Mercuriali, Le Clerc,⁴ Haller, Gruner, Ackerman, and Kühn reject it. M. Littré, also, in deference to the opinion of later critics, refuses it a place in his list of genuine works, but, at the same time, expresses himself doubtfully on this point. Le Clerc, although, as we have stated, he inclines to the opinion of those who reject it, does not hesitate to declare, “that this book, upon reading it, seems to be one of the most rational and coherent of all Hippocrates’s works.” And I in so far agree with Le Clerc, that the contents of it are of great importance for the right understanding of the ancient theory of medicine, whether

¹ See Menage in Diogen. Laert., p. 241.

² See § 66, tom. vii, p. 359; ed. Bekker.

³ See all these authorities as quoted by Ackerman.

⁴ Hist. de la Méd., i, iii, 4.

we refer the tract in question to Hippocrates or not. I shall now give a summary of the doctrines contained in it, which I must say appear to me to smack rather of the school of philosophy, than of the practical good sense for which the author of the First and Third Epidemics, and of the Prognostics, is so remarkable.

The author sets out with stating "that there are certain arts which are of laborious acquisition, but are profitable to those who practise them; of general utility to the common people, but painful to those who exercise them. Of such a nature is the art of medicine. The physician contemplates dreadful things (*δεινὰ*), comes in contact with what are unpleasant, and reaps sorrow to himself from the afflictions of others; but the sick are freed from the greatest evils by the art, namely, from diseases, pains, sorrow, and death; for medicine has been found decidedly to be a cure for all these. In the manual parts of medicine (surgery) practice is necessary. For in all that relates to manipulation, usage is the best teacher. But with regard to the most obscure and difficult diseases, a judgment is to be formed rather from opinion than art; and it is in such cases that experience differs much from inexperience. And it is a most important consideration to determine what is the cause of diseases, and what the beginning and fountain-head, as it were, of the evils in the body; for if one be acquainted with the cause of the disease, he may be able to apply the suitable remedies to the affections of the body, judging of diseases from their contraries: for this mode of cure is that which is most in accordance with nature. Thus, for example, hunger is a disease; for whatever afflicts man is called a disease. What, then, is the cure of hunger? Whatever will allay hunger, that is to say, food, and by it the other is to be cured. Again, drink cures thirst; and, moreover, evacuation cures repletion, and repletion evacuation, and rest labour, and labour rest; and, in a word, *the contraries are the cure of contraries*. For medicine consists of addition and subtraction—the subtraction of what is redundant, and the addition of what is deficient. And he that does these things best, is the best physician; and he that is most removed from this system, is the most removed from a knowledge of the art. The manner of all diseases is the same, but they differ in place; and hence

diseases appear to have no resemblance to one another, owing to the diversity and dissimilarity of situations. For there is but one form (*ἰδίη*) of all disease, and the cause is the same. What that is I will attempt to explain in the following discourse. The bodies of men and of other animals are nourished by three kinds of aliment, namely, food, drink, and airs; and those winds in the body are called spirits, which are named airs out of it. This it is which exercises the greatest power over the symptoms, and it is worth while to attend to the power of it; for the wind is a current and stream of air. When, then, much air makes a strong current, trees are torn from their roots by the force of the blast, and the sea is raised in billows, and ships of immense size are tossed aloft. Such power it possesses, and yet it is invisible to the sight, and is manifest only to the understanding. And what would there be without it, and from what thing is it absent? and with what is it not present? For the whole space between the earth and heaven is full of air, and it is the cause of winter and of summer; in winter becoming condensed and cold, and in summer mild and tranquil. The path also of the sun, moon, and stars is through air—for air is the pabulum of fire, and fire deprived of air could not live. And with regard to the sea, that it contains a portion of air is obvious to everybody. For water-animals could not exist if they did not participate in the air; and how could they participate in it otherwise, except by means of the water, and by drawing in the air along with it. And the moon's foundation is upon it, and this it is which supports the earth,¹ and nothing is void of it. And why the air is possessed of such power in other things has been now stated; but in men this is the cause of life, and of disease to

¹ It may appear a singular idea that the earth is supported on air, and yet it was very generally held by the learned men of antiquity. The poet Lucan thus alludes to this doctrine:

“Dum terra fretum terramque levabit
Aer.” Pharsal., i, 89.

And in like manner Ovid:

“Nec circumfuso pendebat in aere tellus
Ponderibus librata suis.” Met., I, 11.

Bentley remarks, in his note on the passage in Lucan, “*Omnis poetarum chorus hoc prædicat ut et philosophorum veterum.*”

those who are in ill health. And all bodies stand so much in need of air, that whereas if deprived of everything else, such as food and drink, a man may subsist for two, three, or more days; if the passage of air into the body be stopped, he will perish in a short part of a day, so necessary is air to the body. And, besides, there is some intermission of every other operation which men perform, for life is full of change; but this operation alone living animals perform incessantly, sometimes inspiring, and sometimes expiring. That all living animals, then, are closely connected with air has now been shown. After this we must forthwith declare what infirmities probably arise in an especial manner from this source—when it is redundant or deficient in quantity, or when polluted with morbid miasmata it enters the body. That diseases are the offspring of air I will show from the most common of all diseases, I mean, fever; for this disease accompanies all others, and most especially inflammations. This is well illustrated by the accidents which befall the feet; for along with the inflammation a bubo and fever speedily supervene. There are two kinds of fever (that I may touch upon that subject); the one common to all, which is called the plague, and the other being connected with vitiated food in those who use it. The air, then, is the cause of both these. A common fever (epidemic?) therefore is such, because all draw in the same breath (pneuma).” The author afterwards attempts an explanation of the phenomena of rigors, which, however, is not very intelligible, and then of the febrile heat and sweats which succeed them. The latter he compares to the condensed steam of boiling-water. He afterwards proceeds to explain that when the blood is mixed up with vitiated air (gases?), it occasions diseases in various parts of the body; for example, pain in the eyes, when it fixes there; when in the ears, the disease is seated there; when in the nose, coryza is the consequence; and when in the chest, bronchus (bronchitis?), and so forth. To the same cause he ascribes the origin of dropsy, namely, to the prevalence of airs, and the melting down of the flesh. He also accounts for the formation of apoplexy, by supposing that it arises from the flesh of the parts being filled up with gases; and in the same way he explains the origin of epilepsy very elaborately, and most ingeniously, but at too great length to suit my limits in

this place. Altogether the treatise is one of the most interesting pieces of medical philosophy which has come down to us from antiquity. It shows very decidedly what a talent for dealing with abstract ideas the ancient Greeks were endued with.

XXIV. Περί τόπων τῶν κατ' ἀνθρώπον—*On the Places in Man.*

The ancient authority in favour of this treatise is pretty strong. It is included in Erotian's list, is quoted by Cælius Aurelianus,¹ and by Ruffus Ephesius,² and is incidentally noticed by Galen in two places of his Glossary.³ That it is further quoted by Athenæus, as stated by Gruner and Ackerman, would appear to me to be a mistake.⁴ It is admitted to be genuine by Le Clerc, Schulze, Haller, Triller, Sprengel, Zuinger, Petersen, and others. It is rejected, however, by Lemos, Mercuriali, Duret, Reinsius, Gruner, and Ackerman. M. Littré does not venture to assign it a place among the genuine treatises, and yet he evidently inclines to the opinion that later critics had rejected it on very doubtful grounds, and leaves the question undecided. The following summary of its contents will show that it is not destitute of valuable matter.

The author of it commences with announcing this important physiological principle, which microscopical observations on the development of the chick have amply confirmed: "It appears to me that in the body there is no beginning, but that all parts are alike beginning and end; for in a described circle no beginning is to be found." He goes on to remark that, in consequence of this, diseases affect the whole body; that when seated in the dry parts of it they are more permanent, but when in the fluid, more changeable; that one part of the body imparts disease to the other parts, namely, the stomach to the head, and the head to the stomach; and that if the very smallest part of the body suffer, it will impart its suffering to the whole frame. He afterwards enters into a

¹ Morb. Chron., i.

² Corp. Human. Appell., ii, 1.

³ See under *Σήριον* and *κρημνός*.

⁴ They refer apparently to Deipnos, ii, 7, where Athenæus quotes a treatise of Hippocrates *περί τόπων*, but he evidently means by it the work 'de Aëre, Aquis, Locis.' It is to be borne in mind that Athenæus often makes his references in a loose manner.

lengthened anatomical description of the parts of the body which, although quoted by Galen,¹ and not unfavorably noticed by Gruner,² cannot now command much interest. He then describes seven defluxions from the head, namely, to the nose; to the ears; to the eyes; to the chest—producing empyema and phthisis; to the spine—producing another species of phthisis (*tabes dorsalis?*); to the fleshy parts—inducing dropsy; and to the joints—occasioning ischias and kedmata (*morbus coxarius?*). All this seems very hypothetical, and does not appear to savour of the strict process of induction which we remark in the genuine treatises of Hippocrates. When the disease is seated in the head, he directs numerous and deep incisions to be made in the scalp, down to the bone. He notices pleurisy, and its termination in empyema; the latter, he further remarks, may originate in ruptures (*sprains?*), and in this case, on succussion, an undulatory sound may be heard. He also states decidedly that empyema forms in phthisical persons, and that, in their case, too, a sound like that of water in a bladder may be heard on succussion. The symptoms accompanying empyema are given very graphically. He also describes the *tabes dorsalis*. He afterwards gives the treatment of pleurisy and pneumonia, in which it is remarkable that no mention is made of venesection, notwithstanding that, in the work ‘On Regimen in Acute Diseases,’ Hippocrates recommends bleeding *ad deliquium* in these diseases; and Galen accounts for his silence respecting venesection in his treatment of fevers on the supposition that he did not notice it, because he took it for granted, as a general rule, that the operation was performed.³ This consideration, as much as any other, inclines me to doubt the authenticity of this treatise. Ischiatic disease he directs to be treated by cupping-instruments and heating medicines, administered internally. Anasarca, in a young person, he treats by scarifications. In the brief notice of

¹ De Facult. Natur., ii.

² Censura Libr. Hippocrat., p. 115.

³ Comment. in Epidem., ii, 3. See also Le Clerc, Hist. de la Méd., iii, 17; and Sprengel, Hist. de la Méd., tom. i, p. 325, &c. A passage, which we shall see below, in the Prognostics (§ 15) puts it beyond a doubt that venesection was part of the routine of practice pursued by Hippocrates in cases of pneumonia. See also (and this passage is very decisive) de Diæta in Morb. Acut., § 5; and Galen’s Commentary, pluries.

injuries of the head here introduced, much the same views are advocated as in the work on that subject, of which a translation is given in this volume. The treatment of callous ulcers, as here laid down, is deserving of great attention, "remove the indurated parts by a septic medicine, and then produce reunion of the parts." Every practical surgeon must recognise this as a very sound and important rule of practice.

The treatment of suicidal mania appears singular:—"Give the patient a draught made from the root of mandrake, in a smaller dose than will induce mania." He also, in like manner, recommends mandragora in convulsions, applied by means of fires lighted around the patient's bed. Pains of the head he directs to be treated by opening the veins of the temples, or by applying the cautery to them. He then insists, in strong terms, that, under certain circumstances, purgatives will bind the bowels, and astringents loosen them. And he further makes the important remark that, although the general rule of treatment be "*contraria contrariis curantur*," the opposite rule also holds good in some cases, namely, "*similia similibus curantur*." It thus appears that the principles both of *Allopathy* and *Homœopathy* are recognised by the author of this treatise. In confirmation of the latter principle, he remarks that the same substance which occasions strangury will also sometimes cure it, and so also with cough. And further, he acutely remarks, that warm water, which, when drunk, generally excites vomiting, will also sometimes put a stop to it by removing its cause. He estimates successful and unsuccessful practice according to the rule whether the treatment was rightly planned or not; for he argues what is done in ignorance cannot be said to be correctly done, even if the results are favorable. The work concludes with a short passage on the diseases of women, all of which are said to be connected with the uterus. We find here the first mention that is anywhere made of the *globus hystericus*; indeed, I do not remember to have met with the term in any of the ancient medical works, with the exception of the Hippocratic treatises. He recommends fetid things to be applied to the nose, and aromatic and soothing things to the genital organs. The process of fumigating the uterus is fully described; and likewise suppositories and pessaries are mentioned. In the treatment of uterine hemorrhage the rules

here laid down are most important. All heating things, diuretics, and purgatives are to be avoided; the foot of the patient's bed is to be raised, and astringent pessaries are to be introduced.

My own opinion of the work may now be given in a few words. It undoubtedly contains much valuable matter, which would be no discredit to Hippocrates, nor to any of the greatest medical authorities, whether of ancient or modern times. I desiderate in it, however, a proper unity of design, and think I see too much of a speculative disposition to suit with the character of the Coan sage. That it is to be referred to the Cnidian school, as suggested by Gruner, seems doubtful; for, as we are informed by Hippocrates himself, the Cnidian physicians only gave the most obvious symptoms, while their practice was very inert, consisting entirely of drastic purgatives, whey, and milk, whereas in this work the diagnostic symptoms are more profoundly stated than they are in most of the Hippocratic treatises, and the practice, in many instances, is very bold and decided. The knife, the actual cautery, the use of strong purgatives and narcotics, are freely recommended in various diseases. Altogether, then, although I would hesitate to ascribe the present work to Hippocrates himself, I must admit myself inclined rather to refer it to the Coan than the Cnidian school. I see no proper data, however, for forming a decided opinion on this head, more especially as we are but very imperfectly acquainted with the tenets of the Cnidian school.¹

XXV. Περί τέχνης—*On Art.*

This treatise is sustained as genuine by Erotian, and even by one of the older commentators, Heraclides of Tarentum, but it is nowhere noticed by Galen, and Suidas would appear to refer it to Hippocrates, the son of Gnosidicus.² Mercuriali, Gruner, Haller, Ackerman, Kühn, and most of the modern authorities hold it decidedly to be spurious. Foës and Zuinger, however, do

¹ The strongest argument in favour of its being a production of the Cnidian school is the mode of treating pneumonia here laid down, which certainly in so far agrees with what Galen says of Cnidian practice in such cases, namely, that those authorities omitted bleeding and purging. See Opera, tom. v, p. 87.

² See under 'Ἰπποκράτης. The meaning of the passage, however, is somewhat doubtful.

not object to its authenticity; and Littré, although he excludes it from his list of the genuine works of Hippocrates, admits that it is very ancient, and formed a portion of the Collection from the commencement. To me it appears that it is written in too subtle and abstract a style to admit the supposition of its being the work of a practical physician like Hippocrates. Although it contains a good deal of original thought, there is not much in it which would prove interesting to the medical reader of the present day. It is an elaborate defence of the art of medicine against the attacks of those who maintain that it is no art at all, or one of an uncertain nature. According to the author's definition, the aim of the physician should be to remove the pains of the sick, to blunt the intensity of diseases, and not to interfere with those that are mastered by disease, as knowing that medicine can be of no avail in such a case. In conclusion, I shall merely remark that the evidence, both internal and external, is against the supposition of its being genuine; but still there appears no good reason for doubting that it emanated from the school of Cos.

XXVI. Περὶ διαίτης—*On Regimen.*

The evidence in favour of this large and interesting work, unfortunately, is by no means strong. It is passed by unnoticed by Erotian, and Galen expresses himself, in general, regarding the work in very equivocal terms, mentioning that some had referred it to Euryphon, some to Phaon, others to Philistion, and others, again, to Aristo.¹ In other places, however, he expresses himself less unfavorably as to the authenticity of the last two books. Haller, Gruner, Aekerman, Kühn, and, in fact, nearly all the modern authorities, reject it.² M. Littré, although he agrees with them, remarks justly that the work is one of great value, and exhibits many evident traces of conformity with the writings which are truly Hippocratic.

The nature of the work is as follows: The first book is altogether made up of abstract principles, which savour very much of the dogmata of Heraclitus. Thus, the author of it holds that there are in men, and in all other animals, two

¹ Comment. in Lib. Vict. Acut., i, p. 43; ed. Basil.

² Zuinger, however, stands up for its genuineness. Hippocratis Vigeni duo Comment., &c., p. 386. He gives a most elaborate analysis of it.

principles, different in power but consentaneous in use, namely, fire and water; that these together are sufficient for all others, and for themselves; that the one contains the principle of motion, and the other of nutrition; that these give rise to the separate existence of seeds and animals, of all varieties, shapes, and characters; that, in reality, none of those things which exist either perish or are created, but they are altered by being mixed together and separated from one another, but that men suppose that the one passes from Hades to light, and the other again from light to Hades. In a word, the contents of the first book savour more of philosophy than of practical medicine. For example, it is said, "The trainers of the *athletæ* instruct their pupils in this manner—to break the law according to law, to commit injustice according to justice; to deceive, to steal, to rob, to commit violence, in the most elegant and disgraceful manner: he who cannot do these things is bad, he who can do them is good; which is a proof of the folly of the many who, when they behold these things, decide that the one of these is good and the others bad. Many wonder, but few are judges. Men going to the market proceed thus: they deceive one another in buying and selling, he who deceives most is admired. They execute these things—they drink and become mad, they run, they wrestle, they fight, they steal, they cheat; the one is preferred to all the others. Hypocrites and deceivers! Before the spectators they say one thing, and think another.¹ The same persons creep out, and they creep in not the same persons; to one man they say one thing, and do another; the same person not always the same—sometimes he has one mind, and sometimes another. In this manner all the arts have communion with human nature." All this is too fanciful and recondite for the physician of whom Celsus says, "*primus ex omnibus memoria dignis ab studio sapientiæ disciplinam hanc separavit.*" It is clearly the production of a philosopher and not of a practical physician, such as we know Hippocrates to have been. The latter part of this book, however, is of a more practical nature, and treats of many things relating to regimen and dietetics, such as the arrangement of meals, of exercises, &c.

¹ These dreary views of human life look very much like an anticipation of the Fourierism of the present day. So true is the hackneyed saying, "there is nothing new under the sun!"

The second book is a regular work on Dietetics, and exhibits this branch of medicine in a more advanced state than might have been expected, considering the time it was written. After some preliminary observations on climate, which bear a great resemblance to those contained in the treatise 'On Airs,' &c., the author treats, in a very scientific and methodical manner, of the various animal and vegetable substances which are used as articles of food. It concludes with a discussion on certain matters connected with regimen, such as exercises, baths, sleep, and so forth. Foës remarks that a great portion of the opinions advanced by Celsus on the head of Dietetics is borrowed from this book.

The third book treats again of various subjects connected with Dietetics, such as exercises, the arrangement of meals, the administration of emetics, the use of venery, and the like. It is full of important matter, but looks like a distinct treatise from the two preceding books, for one cannot conceive that the author of one work would have twice resumed the consideration of the same subjects. Le Clerc, with considerable appearance of reason, ascribes the book to Herodicus, the master of Hippocrates in the gymnastic art.¹

Altogether, the work is one of the highest importance in medical literature, whether we ascribe it to Hippocrates or not. On this point the evidence, both external and internal, we have seen to be very inconclusive. The most probable conclusion that can be drawn regarding it is, that the work is a compilation of important documents from a variety of sources, but who the compiler was, whether Hippocrates or one of his successors cannot be determined.²

XXVII. Περί ἐνυπνίων—*On Dreams.*

This little work is generally admitted to be a continuation of the preceding one, and consequently stands upon much the

¹ Hist. de la Méd., i, iii, 13.

² Hippocrates, in his treatise 'On Diet in Acute Diseases,' says decidedly that the ancients—that is to say, his predecessors—had written nothing of any value on the subject of Dietetics (§ 1). From this we may infer that the present work was not known in his days; for it can scarcely be supposed that he would have spoken so disparagingly of it.

same grounds as regards its authorship.¹ As Le Clerc and Gruner have well remarked, it is written with much acumen, and evinces great freedom of spirit, and exemption from popular errors and superstitions. It commences in the following strain : “ He who forms a correct judgment of those signs which occur in sleep, will find that they have a great efficacy in all respects ; for the mind is awake when it ministers to the body, being distributed over many parts ; it is not then master of itself, but imparts a certain portion of its influence to every part of the body, namely, to the senses, to the hearing, seeing, touch, walking, acting, and to the whole management of the body, and therefore its cogitations are not then in its own power. But when the body is at rest, the soul, being in a state of movement, steals over the organs of the body, manages its own abode, and itself performs all the actions of the body ; for the body, being asleep, does not perceive, but the soul, being awake, beholds what is visible, hears what is audible, walks, touches, is grieved, reflects, and, in a word, whatever the offices of the soul or body are, all these the soul performs in sleep.² Whoever, then, knows how to judge of these correctly, will find it a great part of wisdom. But with regard to such dreams as are divine, and prognosticate something, either good or evil, to cities, or to a particular people, there are persons who have the art of judging of them accurately, without falling into mistakes. But such affections of the body as the soul prognosticates, namely, such as are connected with repletion and evacuation, from the excess of customary things or the change of unusual things, on these also persons pronounce judgment, and sometimes they succeed, and sometimes they err, and understand neither how this happens, that is to say, how it comes that sometimes they are right, and sometimes they fall into mistakes ; but warning people to be upon their guard lest some mischief befall them, they do not instruct them how to guard themselves, but direct them to pray to the gods ; and to offer up prayers is no doubt becoming and good, but while praying

¹ Galen quotes it as a portion of the work on Diet. See Opera, tom. v, p. 377 ; ed. Basil.

² This idea is well explained and enlarged upon by Alexander Aphrodisiensis.—Probl. i, 118. This writer must not be confounded with the commentator on Aristotle.

to the gods a man ought also to use his own exertions. With regard to these, then, the matter stands thus: Such dreams as represent at night a man's actions through the day, and exhibit them in the manner in which they occurred, namely, as performed and justly deliberated, these are good to a man, and prognosticate health, inasmuch as the soul perseveres in its diurnal cogitations, and is not weighed down by any repletion, evacuation, or any other external accident. But when the dreams are the very opposite to the actions of the day, and when there is a conflict between them—when this happens, I say, it indicates a disorder in the body; when the contrast is great, the evil is great, and when the one is small, the other is small also." For the cure of this state, as being connected with repletion, he recommends evacuation by vomiting, active exercise, and a restricted diet. The author of the treatise proceeds to state the signification of dreams which relate to the sun, moon, and stars, of which the last are said to be connected with the external parts of the body, the sun with the middle, and the moon with the cavities. This is the nearest approach to alchemy which I have met with in the works of any of the ancient physicians. But I must not proceed much further with my extracts from this work, which there is no reason to suppose a genuine production of Hippocrates, and the substance of which would not much interest the general reader nowadays, when the interpretation of dreams has been entirely abandoned by the profession. The work concludes as follows: "He who observes these rules as laid down by us will be healthy through life. . . . The regimen, also, as far as it was possible for a man to find it out with the assistance of the gods, has been expounded by me." This looks like the conclusion of a large work, and gives probability to the supposition that this treatise originally formed a part of the work 'On Diet,' as stated above.¹

It would appear that this work, although little regarded now, was highly esteemed two hundred years ago, for we find that the celebrated Julius Cæsar Scaliger wrote an elaborate commentary on it.² On the 'Oneirocritica,' see further Vander

¹ Zuinger points out a striking mark of the connexion between it and the work 'On Diet:' op. sup. laud. p. 549.

² Amstel., 1658.

Linden, ‘*Manuductio ad Medicinam*,’ who refers to this treatise of Hippocrates, and also to the works of Scaliger, Ferrer, and Cardanus on the same subject. The only other ancient writers on this subject which have come down to us are Artemidorus, Achmet, Astrampsychus, and Nicephorus.¹ The work of Artemidorus is an elaborate production on the interpretation of all sorts of dreams; and to the sober judgment of the present generation it cannot but be regarded as a memorable instance of the misapplication of human intellect and industry. The whole subject of the ‘*Oneirocritica*,’ however, may well deserve the serious consideration of the most learned philosopher, as affording a most striking and lamentable proof how prone men, even of cultivated minds, are to view things exactly in the light in which they fancy them to exist. This truth is most strikingly illustrated by the work of Artemidorus, who first gives the theory, as it were, of dreams, and in the last book relates particular instances in confirmation of the principles previously laid down by him. No one, assuredly, can rise from the perusal of such a work without being strongly impressed with the great truth embodied in our author’s first aphorism, “Experience is fallacious, and decision is difficult.” The ‘*Oneirocritica*’ of Achmet is the work of an Arabian, and is interesting as containing all the superstitious notions of the Orientals, that is to say, of the Persians, Egyptians, and Indians, on this subject. Allusion is also made to the dreams recorded in the Jewish Scripture. The author sets out with declaring that, from the interpretation of dreams, one may acquire a certain foreknowledge of all the casualties of life, namely, of life or death, of poverty or riches, of disease or health, of joy or sorrow, of victory over one’s enemies or defeat, and this with far greater accuracy than from astronomy (astrology?), for that astronomers differed much in opinion among themselves, whereas about the interpretation of dreams there could be no doubt!!

The following list of writers on the ‘*Oneirocritica*’ previous to Artemidorus will show the attention which had been paid to this subject in very early times: Artemon Milesius, Antiphon, Apollodorus Tellmissensis, Apollonius Atalensis, Aristander Telmissensis, Aristarchus, Alexander Myndius, Cratippus, Demetrius Phalereus, Dionysius Rhodius, Epicharmus,

Geminus Tyrius, Hermippus, Nicostratus Ephesius, Phœbus Antiochenus, Philochorus, Panyasis Halicarnessensis, Serapion, Strabo. Mighty names once on a day! Now they are but "the dream of a shadow!"¹

XXVIII. Περὶ παθῶν — *On Affections.*

This treatise being passed over in silence by Erotian, and rejected as unworthy of Hippocrates by Galen, although he acknowledges that it contains many fine things,² has been generally regarded as spurious by modern critics, as for example, Foës, Haller, Gruner, Ackerman, Littré, Greenhill, and others. The work is carefully written, but seemingly without a plan, or any well-defined object. It touches, in general terms, on most of the diseases to which the human body is subject, and concludes with some general observations on regimen. All diseases are said to be derived from phlegm or bile. This seems very unlike the etiology of diseases as laid down in the true Hippocratic treatises. Pleurisy is to be treated by purgatives and soothing applications, but without any mention of bleeding. The termination of the disease in empyema is described. The symptoms of pneumonia are also given in brief but striking terms. The sputa, at first, are said to consist of phlegm, and are thick and pure, but on the sixth and seventh day they become somewhat bilious and sublivid. This disease is also said to terminate in empyema. Some of the general observations contained in this work are deserving of attention. Of all diseases the acute are the most painful and the most fatal, and they require the greatest care and the most accurate treatment. No additional mischief should, at all events, be inflicted by the physician, but he must do the patient as much good as lies in his power; and if the physician treats the case properly, and the patient sinks under the weight of the disease, it will not be the physician's fault; but if, while the physician does not treat nor understand the disease properly, the patient fall a victim to the disease, the physician will then be to blame. In treating ilcus, when a clyster fails to relieve the bowels, they are to be inflated by means of a bladder attached to a pipe, and then the pipe is to be removed, and

¹ Σκιᾶς ὄναρ ἀνθρώπων. Pind. Pyth., viii.

² Comment. in Libr. de Diet. Acut., i.

a clyster immediately injected, in which case, if the bowels admit the clyster, they will be opened, and the patient will recover, but if otherwise, he will die, especially on the seventh day. The treatise further contains some very interesting remarks on the causes and varieties of dropsy. When the water is not otherwise removed, an incision is to be made either at the navel, or behind at the loins. It deserves to be mentioned that, in this treatise, there are frequent references to a work of the author's 'On Medicines.' Whether it was the same as the treatise bearing that title which we possess cannot be determined. In the course of the work, the use of the cautery is freely recommended for the cure of diseases.

From the account which we have given of this treatise, and the paucity of evidence in favour of its genuineness, it will readily be understood that we have no hesitation in deciding that it is not one of the genuine productions of Hippocrates.

XXIX. Περὶ τῶν ἐντὸς παθῶν—*On Internal Affections.*

This treatise has but little ancient authority in support of it. Erotian has omitted it in his list of the works of Hippocrates; Palladius does not mention it; and Galen notices it in a confused manner under a variety of titles.¹ Föes, Schulze, and others, have referred it to the Cnidian school; and if this point could be made out satisfactorily, it would give the treatise a remarkable degree of interest, as furnishing us with a key to the opinions of one of the oldest sects in medicine. That the reader may be enabled to form his own opinion in this matter, we will now give a brief outline of its contents.

The work commences with a short description of hæmoptysis, which is said to originate either in ulceration or rupture of an artery of the lungs, the ordinary causes of which are held to be severe exercise, falls, blows, violent vomiting, or fevers. The symptoms are pretty well described, and a mild system of treatment recommended. Inflammation of the lungs is said to be produced principally by drinking wine, and an immoderate indulgence in eating mullets and eels. The treatment at first is like what we have described the Cnidian system to have been, consisting of milk, emetics, and purges; but if these

¹ Tom. v, pp. 306, 614, &c.; ed. Basil.

do not answer, the actual cautery is to be applied to the breast. Erysipelas of the lungs is described in much the same terms as at 'De Morbis,' i, 13; ii, 53.¹ A correct description is given of empyema as connected with tubercle of the side, for which draughts are recommended, with broth made from poppies, &c. When matter forms, it is to be let out either by the knife or the cautery.² Three species of phthisis are described, the first being derived from phlegm, the second from violent labour, and the third being the tabes dorsalis. The treatment in all these affections appears to be very empirical, and unlike the usual therapeutics of Hippocrates. Four diseases of the kidneys are described, of which the first is calculus, and the second abscess, in which case the writer recommends an incision to be made, in order to furnish an outlet to the pus. Now, it is deserving of remark, that, of all the ancient authorities which have come down to us, Ruffus Ephesius would appear to be the only other author who makes mention of this practice.³ The author of the treatise states, that if the matter of the abscess find vent by the intestinum rectum the patient may recover. The disease altogether, he adds, is troublesome, and in many cases ends in renal tabes. He most probably here alludes to what is now called Bright's disease. From disease of the kidneys is said to arise an affection of the venæ cavæ, which run from the head near the jugulars, along the spine to the malleolus externus. He says it originates in bile and phlegm which collect in the veins. Varices, I suppose, are here meant to be described. If not cured by purging with hellebore and scammony, the actual cautery is to be applied at the shoulders, below the scapulæ, at the hip-joint, at the middle of the thigh, above the knee, and at the ankle. Now it is deserving of notice, that this disease is not mentioned by subsequent authors on medicine, so that we are warranted in concluding that the treatise was not looked upon by them as being a production of the Great Hippocrates; for if it had been so regarded, we are

¹ See the Syd. Soc. edition of PAULUS ÆGINETA, Vol. I, p. 264.

² Galen, by the way, mentions that Euryphon, the celebrated Cnidian physician in the days of Hippocrates, was in the practice of treating empyema with the actual cautery.—Comment. in Aphor., vii, 44. This is a strong confirmation of the opinion that this treatise must have emanated from the Cnidian school.

³ See the Syd. Soc. edition of PAULUS ÆGINETA, Vol. I, p. 354.

sure that Galen, Aretæus, Celsus, and all the worthies of the Arabian school, would not have overlooked this description. And, moreover, the description of the disease from first to last is vague and prolix, being the very reverse of that graphic style of delineation which we find in the genuine works of Hippocrates: and yet the work contains other matters of a different stamp. For example, treating of dropsy, the author says it is sometimes connected with tubercles of the lungs, which get filled with water, and burst into the chest. In proof of this, he appeals to observations on cattle, sheep, and swine, which are said to be very subject to these tubercles (phymata); and he argues that men are still more liable to them. And in many cases, he adds, empyema originates in tubercles. In that case, when the collection protrudes externally, he directs that an opening should be made in it; but if not, he directs the patient to be shaken by the shoulders, when the sound of the fluid within will be heard. When the side in which the greater collection is situated has been ascertained, he recommends us to cut down to the third rib from the last, and then make a perforation with a trocar¹ (τρουπάνω τρουγλητηρίω), so as to give vent to a small portion of the fluid; the opening is then to be filled with a tent, and the remainder evacuated after twelve days. Four species of icterus are described: these would appear to be febrile affections. Five varieties of typhus are next noticed in rather vague terms; there can be little doubt that they were all cases of remittent fever. Several varieties of a disease which is called morbus crassus are described with much prolixity, and so vaguely, as not to convey to us a distinct idea of the disease. He says of two of the varieties, that they last for six years. Unless these were varieties of elephantiasis (and we have no evidence of its existence so early), I am at a loss to comprehend what disease is alluded to. The treatise concludes with an account of three species of tetanus.

From the analysis now given of its contents, it will be readily seen that this work abounds in interesting matter, but

¹ I presume it was the rib itself that was perforated, and not the intercostal space. The term *τρούπανον* was generally applied to the trepan. The epithet *τρουγλητήριον*, or, as Foës proposes to read it, *τροωλοειτήριον*, is probably derived from *τρούγλη*, a hole, and *δύω*, to penetrate; joined together, they would signify a trepan for boring holes.

that, at the same time, it is clearly of a different stamp from what we find in the genuine works of Hippocrates, nay, that in all probability it does not belong to the Coan school. In conclusion, I have, then, to state that I think the presumption of its being a production of the Cnidian school is very strong.

XXX. Περὶ νοῦσων—*On Diseases.*

A work with this title is cited by Erotian, Cælius Aurelianus,¹ and by Galen,² but so confusedly that we must come to the conclusion regarding these Books, that the ancient authority in support of their genuineness is by no means satisfactory. Galen evidently inclines to the opinion of Dioscorides the Commentator, that the Second Book is the work of the younger Hippocrates, that is to say, of a grandson of our author. Almost all the modern authorities, as, for example, Föes, Haller, Ackerman, Gruner, and Littré, concur in rejecting the whole four as spurious. The Fourth Book in particular is separated by M. Littré from the other three, as being a portion of the work 'On the Diseases of Women,' rather than of the work 'On Diseases.' We shall be better enabled to speak decidedly on this and the other questions regarding the authenticity of these books, when we have examined the nature of their contents.

After a very striking exordium, in which it is stated that the first object of him who turns his attention to the healing art should be to consider the causes of disease, and the natural tendencies of every one of them, that is to say, of their dispositions to death, or to loss of parts, the author proceeds to deliver his doctrine as to the causes of them, which he assumes to be either internal, namely, bile and phlegm; or external, such as labour, wounds, and excess in heat, cold, dryness, and humidity. The following accidents are said to be mortal: a wound of the brain, of the spinal marrow, of the liver, of the diaphragm, of the bladder, of a large blood-vessel, or of the heart. He ranks the following as fatal diseases: phthisis, dropsy, and, when they attack a pregnant woman, pneumonia, causus, pleurisy, phrenitis, and erysipelas of the womb. The issue of the following is set down as doubtful in ordinary circumstances: pneumonia, causus, phrenitis, pleuritis, quinsy,

¹ Morb. Acut., iii, 17.

² De Humor., Comment. in VI Epidem.

enlargement of the uvula, hepatitis, splenitis, nephritis, dysentery, menorrhagia. The following are not deadly: chronic defluxions on the joints (*κρίσματα*), melancholy, gout, ischiatic disease, tenesmus, quartan and tertian fevers, strangury, ophthalmy, leprosy, lichen, arthritis; yet even from these patients often become maimed in particular members, such as in the limbs from arthritis, or in the eyes from ophthalmy. Diseases also have a tendency to pass into one another, as, for example, pleurisy into causus, phrenitis into pneumonia, tenesmus into dysentery, and hientery; and pleurisy, and pneumonia into empyema. He makes the following curious observations on the awkward mistakes which a physician may commit in the practice of his profession: not to know when there is matter in an abscess or tubercle; not to ascertain the existence of fractures or dislocations; having probed the head in case of injury thereof, not to ascertain that there is a fracture of the skull; not to be able to introduce an instrument into the bladder, nor to be able to ascertain whether there is a stone in it or not; in the case of empyema, not to ascertain the existence of matter by succussion; and in using the knife or cautery, to apply either of them to too great or too small an extent. The treatise also contains many other general observations, which are very ingeniously stated, as, for example, the following enumeration of the untoward accidents which may occur to a medical practitioner: Having administered an emetic for the purpose of evacuating bile or phlegm upwards, to induce rupture of a vessel by the act of vomiting, although the patient had previously been sensible of no pain in the region; having given an emetic to a woman with child, to induce abortion in consequence; in curing empyema, when looseness of the bowels is superinduced, and cuts off the patient; in applying an ointment for a disease of the eyes, when acute pains supervene, which end either in rupture of the eye or amaurosis, the physician in such a case gets the blame for having applied the ointment; and when a physician gives anything to a woman in labour on account of pains in the bowels, and the woman gets worse or dies, the physician incurs censure. And in diseases and injuries, when there is a necessary succession of bad symptoms, the physician gets the blame, as men do not perceive that the aggravation of the symptoms is a necessary

consequence of the nature of the disease. And if a physician visits a patient in fever, or who has met with an injury, and if the patient gets worse after the first medicine that is administered, the physician is blamed; whereas he does not get the same amount of credit if the patient improves, as the amendment is attributed to the nature of the case. This book contains what I believe is the most circumstantial detail of the phenomena of empyema that is to be met with in any ancient work on medicine. The author ascribes the disease principally to three causes: to the termination of pneumonia, to a defluxion from the head, and to the consequences of a ruptured vessel. Whoever is acquainted with the modern literature of the subject, or possesses a practical knowledge of the disease, will not fail, from the accompanying description of the last of these, to recognise a case of cavity of the lungs produced by the ulceration of tubercles. True empyema, however, as the result of chronic inflammation, is also described in distinct terms. The never-failing test by succussion is constantly adverted to in these cases. Distinct mention is also made of the *râle*, by which the existence of matter in the lungs is ascertained. Allusion is probably made here to the well-known gurgling sound produced by matter in a cavity. There is a good deal of other important matters in this book, but these my necessary limits oblige me to pass over unnoticed. I shall merely allude to the distinct mention which is made of *ruptures*, by which was meant a severe sprain or other injury ending in suppuration, or protracted pains in the part. Fever is said to be formed in this manner: when bile or phlegm is heated, the whole of the body is heated, and they are heated either by internal things, such as food or drink, or by external, such as labour, wounds, excess of heat or cold; also from the sight or hearing, but rarely from these. In the treatment of pneumonia, venesection in the arm is recommended. Altogether this book contains much valuable matter, but mixed up with hypothesis in a way not usually met with in the genuine works of Hippocrates.

The second book, at the very commencement, betrays a strong disposition to diagnosis. Eight diseases at the head are described, but in such terms that we fail to recognise the distinguishing features of each. Besides these, a little way further

on the author describes several other diseases of the head, including hydrocephalus, the symptoms of which are given with great precision, namely, acute pain about the bregma and temples, alternate rigor and fever, impairment of the sight, double vision, vertigo, &c. He recommends errhines, purgatives, and even trepanning of the skull. Even of this disease several varieties are described in very striking terms; so that for once at least we are tempted to question the correctness of the judgment which Hippocrates pronounced against the rival school of Cnidos, for cultivating *diagnosis* to an undue extent.

Several varieties of quinsy are likewise described, including various diseases of the parts about the fauces, and among them the disease named *hypoglottis*, by which appears to be meant an abscess below the tongue, attended with swelling of that organ. Five varieties of polypus nasi are next described, and suitable plans of treatment recommended, namely, with the ligature, the knife, and the cauterly. Pleurisy and pneumonia are described, and their termination in empyema, the symptoms of which are circumstantially described again; and, moreover, three varieties of it are noticed. Here, again, we find mention made of the diagnostic method, by succussion, and a recommendation of the operation of *paracentesis thoracis*, to evacuate the fluid. Next are described several varieties of phthisis, including the *tubes dorsalis*, of which a curious description is given. An interesting account is also given of *spermatorrhœa*. The treatment consists in abstinence from immoderate drinking, venery, and excessive exercises, except walking, *for a year*, avoiding cold and the sun, and taking the tepid bath. The description of the varieties of pulmonic disease is most interesting, although some of them are not sufficiently well defined. Hydrothorax is also described, and paracentesis recommended in the treatment of it. After describing lethargy, which was clearly a species of remittent fever, he gives descriptions of certain diseases, under the names of *morbus resicatorius* (*ἀναρτή*), *Febris mortifera*, *Lividus morbus*, *morbus ructus ciens*, and *morbus pituitosus*. No one can fail to recognise in these descriptions the spirit of the Cnidian school of medicine, and one very different from that of Hippocrates. Indeed we have positive authority for referring this work to the Cnidian school,

for Galen assigns the description of the *morbis lividus* to the Cnidian physician Euryphon.¹ The author describes a singular species of melancholy, which, he says, is sometimes epidemic in spring; he calls it *cura, morbus gravis*. It appears to have been a variety of the lycanthropia. See PAULUS ÆGINETA, III, 16. The book concludes with a description of two species of *melena*, and of *sphacelotes*, the latter being a variety of the other. Now what strikes one in going over this book is, that it cannot be a portion of the same work as the First Book, for we cannot conceive it probable that an author would have treated twice of the very same subjects in one work. Moreover, as we have stated, there are evidently many things in it which are not at all in accordance with the principles of the Coan school.

In the third book very much the same ground is again gone over as in the two preceding books. In the first place, diseases of the head are described under the names of *tumor cerebri, plenitudo cerebri dolorem inferens, sydere icti, sphacelismus, lethargus* (then intervenes a brief account of *Febris ardens*, quite out of place), of *dolor capitis*, and *phrenitis*. Afterwards comes a description of *cynanche*, and *paracynanche*, next of *icterus*, and afterwards of *tetanus*, for the cure of which the author recommends the cold affusion. (On the merits and demerits of this practice, see the English edition of PAULUS ÆGINETA, III, 20.) For ileus, as in a preceding book, among other modes of treatment, it is directed to inflate the bowels by means of a pipe and bladder, and then to evacuate their contents with a clyster. Afterwards, pneumonia and pleurisy are most circumstantially described, and the treatment of them laid down with a degree of prolixity very unlike the usual manner of Hippocrates. Thus, to promote the expectoration in pleurisy, he recommends the *flos æris*, *assafœtida*, *trefoil*, *pepper*, &c.² I am not aware that any other ancient authority recommends these medicines for the cure of this disease. The symptoms and diagnosis of empyema as the consequence of pleurisy, are given in much the same terms as in the preceding book. Succussion is particularly alluded to. For empyema, burning and incision are recom-

¹ Opera, tom. v, p. 456; ed. Basil.

² The silphium, indeed, is mentioned among the remedies for this case in the treatise 'On Regimen in Acute Diseases' (7), but not the other articles.

mended. In performing paracentesis, he forbids all the matter to be evacuated at once. Altogether, a perusal of this book leads me to the positive inference that it is not the production of the same author as the two preceding books ; for what could induce the author to go over the same ground three different times in one work ?

The fourth book is manifestly the production of a different author from the others, indeed, as appears evident from the conclusion of the work, it is continuous with the treatise ‘On the Nature of Women.’ It commences with an elaborate discussion on the four humours, blood, phlegm, water, and bile, from which all diseases are said to derive their origin. The whole book is tinged with the exposition of this doctrine ; indeed all the contents of it are for the most part hypothetical, and very unlike the matter contained in the genuine compositions of Hippocrates. From first to last there is no well-defined description of disease in it. The observations on lumbrici and calculus are the portions of it which command the greatest interest.

I shall now briefly recapitulate the conclusions which I am prepared to draw from a careful examination of the contents of this work. 1. As the same diseases, for example, pleurisy, pneumonia, and empyema, are all circumstantially treated of in each of the first three books, it is impossible to suppose them all portions of the same work, or even the productions of the same author. 2. In the fourth a different hypothesis is advanced from that which is laid down in the first, and from this circumstance, joined to many other considerations already enumerated, there can be no doubt that it is the production of an entirely different author. 3. Although all parts of these books contain abundance of valuable materials, many of the principles and rules of practice which are developed in them are not akin to those of Hippocrates, but rather savour of the Cnidian school, which trusted too much to a fanciful diagnosis, instead of cultivating prognosis as the basis of its system, like the school of Hippocrates and his followers. 4. The internal evidence in the present instance against their genuineness, more than counterbalances the small amount of ancient authority which there is in support of these books.

XXXI. Περί ἑπταμήνου—*On the Seven Months' Birth.*

XXXII. Περί ὀκταμήνου—*On the Eighth Months' Birth.*

Although the genuineness of these two works is admitted by Galen¹ and by Foës,² they are not looked upon as the productions of Hippocrates by almost any other of the authorities, whether ancient or modern, and in particular, Palladius, Ackerman, Gruner, Littré, and Greenhill reject them. Yet all admit them to be of very high antiquity, so that, in this respect, they are not destitute of considerable interest. The contents of them are altogether of a philosophical nature, and such as we might expect the school of Democritus to produce. The author of them holds that fœtuses born at the seventh month survive, but not those of the eighth. It is clear that he was imbued with the Pythagorean notions regarding the mystical power of the number seven.³ Altogether, the style and matter of these treatises do not appear to me to accord well with the spirit which prevails in the true Hippocratic works, but at the same time it must be admitted that the preponderance of authority for or against their authenticity is not decided.⁴

XXXIII. Ἐπιδημιών, β', δ', ε', ζ'—*The 2d, 4th, 5th, 6th, and 7th Books of the Epidemics.*

With the exception of Erotian, who admits the whole of the seven books of Epidemics into his list of the works of Hippocrates, I am not aware that any of the authorities, ancient or modern, recognise them as genuine. Galen says that the seventh is allowed by all to be spurious; that the fifth is the work of Hippocrates, the son of Draco, that is to say, of a grandson of the great Hippocrates; and that the second, fourth, and sixth were held by some to be the productions of a son of Hippocrates, and by some they were looked upon as having been written, indeed, by Hippocrates himself, but merely as notes or commentaries. Galen himself inclines to the opinion that these four books are the production of Thessalus, the son of Hippocrates.⁵

¹ Ad Epidem., vi, 6, 27.

² Hippocrat. Opera, i, p. 318.

³ The opinions on this subject are given very fully by Aulus Gellius. Noctes Atticæ, iii, 10.

⁴ I should mention that Zuinger pronounces, without the slightest hesitation, in favour of their genuineness: op. sup. land. pp. 188, 199.

⁵ De Difficult. Respir., ii, 8; *ibid.*, iii, 1.

From what has been stated respecting these books, it will be clearly seen that, although there is no reason whatever to suppose they were published by Hippocrates, it is, at the same time, highly probable that he had something to do with the composition of them, and that, at all events, they emanated from the school upon which his name has cast so much splendour. I think myself, therefore, called upon to give a condensed view of their contents; and in doing so, I shall not scruple to avail myself of the very important annotations made on them by M. Littré, in his recent edition of this portion of the Hippocratic treatises.

With regard to these books, in general, he observes that they are naturally divided into two groups, the one containing the second, fourth, and sixth books, and the other the fifth and seventh. The correctness of this division is quite evident from a comparison of the contents of the different books, and, to a certain extent, it is recognised by Galen.¹

As to the locality of these observations, M. Littré shows that the spot of their greatest activity is Thessaly and Thrace, although mention of Athens, and of certain cities of the Peloponnesus occasionally occurs. He traces with much minuteness the connexion of these books with the other works in the Hippocratic Collection. For example, he shows the connexion between those in the first group, with the 'Aphorisms,' in particular, but also with the treatises, 'On Airs,' &c., 'The Mochlicus,' 'The Surgery,' &c., and of those in the other group, with the work 'On Wounds of the Head' in particular. I will now offer a few remarks on the contents of each of these books.

M. Littré, in his argument prefixed to the second book, treats of various matters contained in it, the most interesting of which is his elaborate disquisition on the nature of the carbuncles (*ἀνθράκες*) described in his book, during the course of which he brings into review various collateral passages from the works of subsequent authors, and discusses the question at considerable length whether or not they apply to smallpox. I am free to admit that it would have been to my advantage if I had seen this part of the writings of M. Littré before

¹ Comm. Epid., vi, 2, 15.

piling my commentary on PAULUS ÆGINETA, B. IV, 25. I must be permitted to say, however, that I see no reason for changing my opinions with regard to the anthrax of the Greek writers on medicine. I certainly cannot agree with M. Theod. Kauser, in setting down the ancient descriptions of the anthrax and plague (λοιμὸς) as applying to the smallpox. Having diligently studied the minute descriptions which the ancient medical authors give of the different varieties of cutaneous disease, I am confident that if the smallpox had actually existed in their days, they would not have passed over the disease with a vague and casual notice, but would have given us such a sketch of its appearances that no one could have failed to recognise its features. The carbuncles, then, which are incidentally mentioned by Hippocrates at the beginning of this book, I am disposed to look upon as one of those anomalous phases of disease which are every now and then making their appearance, and I cannot persuade myself that they had anything to do with smallpox.

Among the important matters contained in this book may be noticed the remarks on deposits, an interesting subject, often alluded to in the Hippocratic treatises, § 7. At § 22 a case is obscurely noticed, which M. Littré concludes, but upon very slight grounds, to have been a case of purulent infection. At § 24 spontaneous luxation of the cervical vertebræ is described, as M. Littré, in his argument, remarks, with admirable judgment. It is also alluded to at 'Aphoris.' iii, 26, and 'De Articulis,' tom. iv, p. 179, ed. Littré. This affection, which came afterwards to be overlooked, has been redescribed of late years. In the third section there is given an interesting account of *causus*, the remittent fever of hot climates, so admirably described afterwards by Aretæus. The fourth section is occupied with a description of the veins of the body, which is certainly confused, and yet we find in it the distinction between the nature of the arteries and veins clearly pointed out. It is curious, moreover, that Galen, in one place, stands up for this part as being genuine and accurate.¹ See also b. v, § 46. The last two sections treat professedly of physiognomy, but contain other detached and unconnected observations on medical sub-

¹ Opera, tom. v, p. 21; ed. Basil.

jects. Altogether, the impression which a careful perusal of this book conveys to one is, that it is a compilation of the most incongruous matters, strung together without any plan; but, at the same time, one cannot fail to detect in it traces of no contemptible talent for observation and description.

The fourth book, of the whole number, is the one which is written with the least unity of design. Yet, as M. Littré remarks, it is interesting as containing the history of an epidemical *causus*, complicated with jaundice and ophthalmia, which would appear to have been very similar to the febrile epidemic which prevailed in Scotland a few years ago. With this opinion I entirely acquiesce, after having had a good deal of experience in the treatment of that epidemic. It was decidedly of the remittent type, was frequently accompanied with jaundice, and the patients were very subject to relapses and affections of the eyes.¹ For Hippocrates's description of it see tom. v, p. 169, ed. Littré. M. Littré also makes the important remark that, of late years, proper attention has not been paid to the state of the urine at the epoch of a crisis in fevers. He mentions that M. Martin Solon holds that, at the resolution of diseases, the urine is apt to become albuminous; but that, in a true crisis, the precipitate is generally composed of urate of ammonia. M. Zimmerman found the urinary deposit composed of the urate of ammonia, with the triple phosphates and the crystals of uric acid. Certain observations on this critical deposit occur in this book of the Epidemics, but they are met with more frequently and more distinctly expressed in the genuine books, I mean the first and third. It appears to me most remarkable that the important observations made by Hippocrates on the state of the urine in febrile diseases should have been lost sight of in an age when the chemical characters of the urine have been so much studied; for I am fully satisfied, from my own practical acquaintance with fevers, that in most cases the febrile crisis is marked by a copious sediment in the urine. An interesting case of empyema, which was treated by the cauterly, is related at § 4. A case is related at § 19 of a singular affection of the mouth in two children,

¹ See a series of papers in illustration of it, published in the Medical Gazette for the year 1847, by Dr. Wardel. On one point I cannot agree with this writer; he says, the fever was of a continued character, whereas in all the cases which I met with it was decidedly remittent.

attended with necrosis and exfoliation of the bones. At § 39 there is a case of metastasis of purulent matter from the hand to the lungs. At § 11 a case is related of a child who sustained an injury in the head from another child, was trepanned, and died on the twenty-fourth day. We shall see in the work 'On Injuries of the Head' that the ancients were very free in the application of the trepan to the skull. Cases of nyctalopia are alluded to at § 52, and at § 58 a case is related of mania supervening on the cure of hemorrhoids. But, upon the whole, the most interesting part of this book is that which contains the narratives of febrile cases, and the remarks on relapses, § 28.

Though the fifth and seventh books of the Epidemics are pronounced by Galen to be unworthy of the Great Hippocrates, they contain detached observations of much interest, insomuch that Haller was almost disposed to admit the genuineness of the fifth. Lemos and Mercuriali, on the other hand, hold them to be wholly removed from all connexion with the genuine remains of Hippocrates. It is remarkable, however, that the fifth is referred to by Celsus,¹ Quintilian,² and Plutarch.³ This, in fact, is the book which contains the memorable passage in which the author admits, that in a case of injury of the head he mistook a fracture for a suture of the skull,⁴ and for this candid admission Hippocrates is highly lauded by the authors we have just quoted. The Hippocratic treatises also contain many other instances in which the author admits having committed mistakes. How much might the medical art not have advanced before this time, if the example thus set of recording for the benefit of posterity, the mistakes which one commits had been more generally followed?⁵ The first paragraph con-

¹ VIII, 4.

² Institut., Orat. iii.

³ De Perfect. in Virt.

⁴ § 27.

⁵ It cannot but appear singular that so distinguished a person as Robert Boyle should have found fault with Hippocrates for relating so many cases of which the issue was fatal. He says, "Revera penes me non parum Hippocratis auctoritate deccedit, quod in scriptis suis tot aegrotorum epiphonema *ipsos mortuos esse* legerem."—Exer. v, de Utilitate Philosoph. Exper., p. 192. On the other hand, Mart. Lister justly defends Hippocrates: "A me sane absit illa quorundam nuperorum scriptorum jaectantia, qui nihil exhibent, nisi quod bonum eventum habuit; errores et infortunia caute abscondunt, aliter autem nobis profuit magnus Hippocrates, apud quem fere non nisi casus funesti occurrunt, ac si iidem potioris doctrinae essent."—Exercit. de Hydrope.

tains the case of a woman who had fever and took medicine which did her no good; a hard swelling, accompanied with severe pains, seized her below the navel, which were removed by strongly rubbing in oil with the hands, after which she had a copious discharge of blood downwards, and recovered. M. Littré, from a comparison of this passage with Epidem. ii, 6, 26; iv, 45, 56, draws the conclusion, that reference is here made to the practice of compressing the bowels with the hands in cases of ileus, for which Praxagoras, the master of Herophilus, is censured by Cælius Aurelianus.¹ At § 9 there is the case of a man affected with prurigo, and a condition of the skin resembling leprosy, which nobody could remove. He then went to the hot baths in the island of Melos, and was cured of his cutaneous affection, but soon after became dropsical and died. In § 10 there is related a case of cholera, treated with hellebore, which produced great evacuations upwards and downwards, and the patient recovered. This mode of practice is animadverted upon by Cælius Aurelianus. (Morb. Acut. iii, 20.) § 12th contains an instructive history of headache in a woman, which nothing relieved but free menstruation, and afterwards conception. At § 15, there is a very interesting case of necrosis or caries at the hip-joint, for the relief of which a large incision was made down to the bone and the cautery applied; on the eleventh day tetanus supervened, and proved fatal on the eighth day afterwards, although treated by embrocations, fomentations, and strong purgatives. The author remarks in conclusion, that the patient would have lived longer, if the purgative medicine had not been administered. At § 16 there is a case of injury of the head, where the surgeon at first sawed the bone down to the diploe, a practice alluded to in the treatise 'On Injuries of the Head,' § 21. In this case erysipelas came on, and yet the patient recovered. It is to be regretted that the text here is in a corrupt state. At § 18 there is a case of pregnancy in which the administration of a strong purgative was followed by fatal results. At § 20 there is related a case of hemorrhoids, seemingly *mali moris*, which proved fatal in consequence of an operation having been performed upon them. § 24th contains the history of a case of hæmoptysis, which ended in phthisis. The author makes the shrewd remark that the

patient was indisposed before the vomiting of blood commenced. I may here remark, how well this accords with the doctrine of Louis, that hæmoptysis is rather the consequence than the cause of tubercular disease. At § 38 there is another case of hæmoptysis in which the patient was choked by a large quantity of blood which he was bringing up; the spleen also, in this case, was affected, and there were bloody discharges downwards. This book contains a great variety of serious cases connected with accidents. At § 50 is a fatal case of concussion of the brain. At § 74 there is a fatal case of tetanus supervening upon a slight injury of one of the fingers; and in the following section there is a case of tetanus arising from a strain of the thumb and proving fatal. In the next section there is a case of fatal tetanus from the injudicious healing of a sore on the leg.

Though Galen refuses to sustain the sixth book as genuine, he has written an elaborate commentary upon it, and mentions at the commencement that commentaries had been written upon it before his time by Zeuxis of Tarentum, the Erythræan Heraclides, and before them by Bacchius and Glaucias. It is a large work, being divided into eight different sections, which have little or no connexion with one another. Upon the whole, as M. Littré remarks, the most interesting portion of it is the part in which are described the phenomena attending an epidemic cough, or influenza, which reigned in Perinthus. See § vii. It broke out in winter about the solstice, and was preceded by great changes of the winds. There was a great tendency to relapses, and it was further complicated with pulmonic affections, nyctalopia, angina, paralysis, &c. It was observed, that any member which was much exposed to fatigue was the part most liable to be attacked. All these complications occurred in the relapse, and never in the original attack. Women were less liable to be affected than men, the reason of which is supposed to have been, that they do not expose themselves so much to the air as men do. In women, too, all the attacks were mild; but in the men some were mild and others fatal. When a febrile rigor supervened, the attack speedily was mortal. The usual remedies were tried, namely, purging, venesection, bleeding by the ranal vein, and emetics; but none of them did any good. M. Littré

remarks, that in the course of his reading he has never met with an example of an epidemic exactly resembling the one here described. It is, therefore, an interesting picture of a disease not otherwise known. The sixth section begins with the announcement of the physiological doctrine so frequently quoted with approbation, namely, that "the fleshy parts attract both from the bowels and from without, and that the whole body inspires and expires." This doctrine is fully expanded and illustrated in an interesting volume by Abraham Kaaui.¹ The fifth section opens with another philosophical tenet, which Sydenham often quotes with approbation, namely, that "Nature is the physician of diseases." "Nature," the writer adds, "although untaught and uninstructed, does what is proper." Galen's Commentary on this passage contains much interesting matter, and is a fine specimen of the medical philosophy of the ancients.²

The seventh book, as we have already remarked, is closely allied to the fifth. Galen pronounces it to be universally condemned as being spurious, and of more recent origin than the others; but Littré, although of course he does not stand up for its genuineness, justly contends that it is replete with valuable matter. Grimm holds, from the nature of its contents, that it must have derived its origin from the Cuidian school, whereas the fifth sprung from the Coan. I must say, however, that I cannot see any good grounds for this opinion. According to M. Littré, it is a *recueil* of particular facts superior to anything of the kind left to us by antiquity, and such that its equal can scarcely be found in modern times.

¹ Perspiratio diæta Hippocrati.

² By Nature, the ancient philosophers understood an immaterial principle diffused through all the works of creation, that is to say, an internal principle of motion and of rest, which presides over the growth and nourishment of all substances. It is well defined by Aristotle in different parts of his works. See *De Anima*, ii, 4; and *Auscultationes Naturales*, pluries. That truly learned and ingenious author Bishop Berkeley, in his '*Siris*,' describes nature as being mind so fuddled with matter as to have lost its consciousness. Probably, the distinction between a material and immaterial principle as the cause of the vital phenomena was not so well understood until after Plato and Aristotle had cultivated mental philosophy with so great success; for, as we shall see in the next section, Hippocrates seems to identify mind with heat, that is to say, he confounds the cause of motion and of change with its first instrument, or co-cause (*συνάιτιον*).

The cases being for the most part of an isolated nature and not susceptible of any arrangement, it is not possible within my narrow limits to give any general idea of the contents of this book. I shall be content, therefore, with a very few extracts as a specimen of it. It opens with two very interesting cases of fever, accompanied with sweats, which were treated mildly by purgatives and clysters, and terminated favorably. It strikes me as singular in reading these cases, that the characters of the urine are not distinctly given, as in the cases related in the first and third Epid. All that is said on this score is, that "the urine was like that of chronic diseases." The tenth is a case of ardent fever proving fatal by intestinal hemorrhage. Some of the fatal cases of dropsy following fever are very instructive, as §§ 20, 21. Two cases of empyema (so they are marked by M. Littré) would appear to have been phthisis with cavities in the lungs. In both, mention is made of *râles*. See §§ 26, 27, and also 93, 107. In the 29th and six following sections there are reports of cases of severe wounds. Apparently they must have occurred in the time of war. The 36th, 37th, and 38th, are cases of tetanus supervening upon very slight wounds. A good many cases of phthisis are reported, as at §§ 49, 50, 51; in the last of these the pectoral *râles* are particularly noticed. In the 49th the disease is ascribed to the woman having been injured by succussion in order to procure the expulsion of the after-birth. (On this case see the interesting remarks of M. Littré, tom. v, p. 359.) At § 52 are the cases of two children who died of disorder of the bowels, complicated with an affection of the head, as indicated by their constantly pressing on the part with the hand; and it is remarked, that after death there was a hollow in the seat of the bregma. Every experienced physician must have met with such cases. M. Littré refers an illustration of the disease here treated of to an analysis of a work by M. Elsässer, in the 'Archives Générales de Médecine,' March, 1845, p. 346; on *ramollissement* of the occiput. The cases of phrenitis, here related, are evidently febrile affections, as at §§ 79, 80. At § 102 a case is related in which serious symptoms supervened on the eating of a raw mushroom. The patient being treated by emetics and the hot bath, recovered. At § 121 is related the case of a person who had convulsive

laughter connected, as was supposed, with a wound of the diaphragm.

And now, having concluded my review of these Books of Epidemics, I will venture to affirm, without fear of contradiction, that when we look to the importance and rarity of the matters contained in them, the work, even at the present day, is perfectly unrivalled. That the books are the composition of different hands must be admitted, but altogether the contents of them bear the imprint of the mind and spirit of Hippocrates, and evince a talent for the cultivation of medicine which has never been surpassed. What a noble people the Greeks must have been in the days of Themistocles and Pericles !

XXXIV. Περί χυμῶν—*On the Humours.*

It must be admitted that there are few treatises in the Hippocratic Collection which unite such a concurrence of high authorities, both ancient and modern, in their favour as this work, and yet there seems good reason for joining the later critics in refusing its claims to be received as genuine. In favour of it may be quoted Erotian, Palladius, and Galen, among the ancient, and Foës, Zuinger, and Haller, among the modern authorities. Against it are ranged several of the older authorities, namely, Zeuxis, Heraclides, and Glaucias, some of whom refer it to a younger Hippocrates, some to Thessalus, others to Polybus, and others again to Democritus.¹ Accordingly, the highest modern authorities, as Mercuriali, Gruner, Ackerman, Kühn, and Littré, refuse to receive it into the list of genuine works; and the last of these seems to make it out pretty clearly that the treatise is composed of detached observations extracted from the other Hippocratic works. After repeated perusals of it, what strikes myself is, that it bears a close resemblance to the treatise 'On the Surgery,' that is to say, that it is a recapitulation of the conclusions arrived at in certain of the other works of Hippocrates. Perhaps, then, it must be admitted that there is some inconsistency in allowing the one a place among the genuine works of Hippocrates, and refusing the similar claims of the other. That the work in

¹ See the references given by Gruner, Ackerman, and Littré.

question contains a most interesting summary of what were regarded, in ancient times, as great medical truths, cannot be doubted. From the condensed form in which the subject matters of it are presented, it will readily be apprehended that they do not well admit of being given in the form of an abstract, and that any specimens of its contents will afford but a very imperfect idea of its value as a whole. I would remark, at the outset, that the title of the work, 'On the Humours,' appears not very applicable, since very few of the paragraphs relate to the humours; in fact, as already hinted, the treatise may be said to be a *recueil* of various observations gathered out of other works. I also feel at a loss to account for M. Littré's disposition to rank it as the eighth book of the Epidemics, as it bears no resemblance either in form or matter to that work: the one consisting of isolated observations and of particular facts, and the other of general principles; and the style of the one being comparatively full, whereas the other is remarkably succinct, so as to be nearly unintelligible in many places. Take the following as a specimen of it: "The earth is to trees what the stomach is to animals; it nourishes, heats, and cools; cools when emptied, heats when filled, as the earth when manured is hot in winter, so is it with the stomach." This important observation, that the earth, in connexion with the vegetable productions, is analogous to the stomach in animals, is repeated by Aristotle and other of the ancient philosophers.¹ The author makes the important remark, (§ 14,) that we ought to study the condition of the body previous to the season in which the disease broke out; in confirmation of which M. Littré, in his argument, gives some very interesting observations by M. Forster.² In the paragraph on deposits, the author remarks, that in fevers attended with a feeling of lassitude, the deposits generally take place to the joints and jaws. It is afterwards stated—and if confirmed by experience, as I think I have observed it to be in many cases, it is an important remark—that "when the feet are hot, the depositions point downwards, but when cold, upwards." § 7. In § 12 diseases are thus classified: "with regard to the modes of diseases, some are congenital, as may be learned

¹ See Musonius, Ap. Stobæi Sentent., xviii. It occurs frequently in Galen.

² Des Maladies de la France dans leurs Rapports avec les Saisons, p. 193. Paris, 1840.

upon inquiry; some are connected with the nature of the locality, (for many are affected, and therefore many are acquainted with them); some with the condition of the body and the diet, the constitution of the disease, and the seasons. The localities which are ill situated in respect to the seasons engender diseases similar to the season; in like manner, irregularities as to heat and cold in the same day when it has such effects, produce autumnal diseases in the locality, and in the other seasons likewise. The diseases which are engendered by fetid and marshy waters are calculus and splenic diseases, and such are influenced by good or bad winds." Altogether, as will be readily seen, it is a work of great ability, and will amply repay a diligent perusal. Galen esteemed it very much, and did not hesitate to declare that, not only Plato, Aristotle, and Theophrastus, but also several of the most distinguished medical authors had copied freely from it.¹

XXXV. Περὶ χροῆσιος ὑγρῶν—*On the Use of Liquids.*

This would seem to be the work which appears in Erotian's list under the title of 'On Waters' (περὶ ὑδάτων); and, contrary to what is stated by Foës and Gruner, it is quoted by Galen in two places;² and it is further referred to by Athenæus, under the same title as that given to it by Erotian.³ Foës pronounces it to be a mutilated work, and one which is wanting in many of the MSS. of the Hippocratic treatises; and all the modern critics, from Lemos and Mercuriali down to Littré and Greenhill, regard it as spurious. Gruner speaks of it as being a work of little importance, and Ackerman as being a mere compilation from the Aphorisms.⁴ Gruner further remarks, that the title does not suit well with its contents, and this is in so far correct, for undoubtedly the title given to it by Erotian is more suitable, as it treats almost exclusively of the medicinal properties of waters; and this it certainly does in a fuller and more interesting manner than they are treated of in any other ancient, and, I may almost venture to add, any modern work with which I am acquainted. I look upon its contents, then,

¹ Natural. Facult., ii, 8; de Placit. Plat. et Hippocrat., viii, 5.

² Opera, tom. v, pp. 257, 479; ed. Basil.

³ Deipnos, ii, 46.

⁴ Zuinger considers it in the light of extracts from the Note-book of Hippocrates (or Hippocratea Adversaria).

as being extremely valuable, even as the work has come down to us, but it is to be regretted that the text is in a very unsatisfactory state. Water the author of the treatise recommends as a fomentation to the eyes, when applied with a sponge; and further, as a general or local fomentation, for producing relaxation of any part when contracted. When poured over the head, and other parts, it is said to induce sleep, is useful in convulsions, and relieves pains of the eyes and ears. Cold water inflames ulcers, except such as have a tendency to hemorrhage, and also fractures, luxations, &c. In applying water to the body, the author recommends the feelings of the patient to be consulted, unless he be in a state of paralysis or of stupor, or be suffering from exposure to great cold, or be in great pain. In these cases, he adds, the patient may be insensible, and instances have occurred of persons having their feet congealed by cold, which have dropped off upon the affusion of hot water. The immoderate use of hot water induces relaxation of the fleshy parts (muscles?), weakness of the nerves, torpor of the understanding, hemorrhage, and deliquum animi, so as even to prove fatal; and much cold water will occasion spasms, tetanus, lividity, and febrile rigors. The parts of the body which are usually covered endure the cold water worst, and are most refreshed by hot. Cold water disagrees with the brain and its processes, the bones, the teeth, and the nerves; and hence, it is added, convulsions, distensions, and febrile rigors, which are induced by cold, are relieved by hot water. Hot water occasions delight and determination (to the skin?); cold, on the other hand, pain and determination inwardly: wherefore the loins, the breast, the back, and the hypochondriac region, are injured by cold applications, but delight in warm. Cold water, thrown on the extremities, relieves lipothymia, the reason of which he states, but the text is so corrupt that I dare not undertake to translate the passage. Ulcers, excoriated parts of the body, and burns, bear cold ill. The extremities, the bladder, and the organs of generation, delight in warm water. Salt water is proper to itchy parts, and to parts affected with pungent humours, but disagrees with burns, and abraded surfaces. Vinegar is said to have much the same properties as salt water in the cure of these complaints. Warm water, in which salt has been melted, is beneficial in lichen, leprosy, alphas,

and other complaints of a like nature. The lees of vinegar (*caustic potass*?) also answer in these cases. The astringency of cold water is increased by having beet leaves, ivy, bramble, sumach, sage, &c. boiled in it. Red pustules, like lentils, are benefited by cold things, but eruptions arising from cold, and resembling millet, are improved by hot. There are certain cases in which both hot and cold are applicable, such as gouty affections, and most sprains: in these, cold applications deaden the pain, and warm soothe it. Indurations and ancyloses of a joint are to be removed by pouring warm water out of a vessel upon it. Rheums of the eyes are relieved by rubbing them with some fatty substance, to obtund the acrimony of the tears. In pains, suppurations, pungent tears, and deep ulcers of the eyes, hot water is most expedient; when the eyes are merely red, and free of pain, cold is to be preferred. Cold does not agree with complaints of the rectum and uterus, nor with cases of bloody urine. Cold raises pain when it is applied to ulcers, hardens the skin, renders it painful, suppresses suppuration, renders parts livid and black, is injurious in febrile rigors, spasms, and tetanus. But, he adds, sometimes in a robust young man, in the middle of summer, when labouring under tetanus not connected with a wound, the affusion of cold water brings back the heat. (See Aphor. v, 21, and PAULUS ÆGINETA, B. III, 20.) Hot water does the same. It promotes ulceration in all cases, softens the skin, attenuates it, is anodyne, and soothes rigors, spasms, and tetanus, and removes heaviness of the head. It is most particularly applicable in fractures, when the bone is laid bare, and especially in injuries of the head. Hot water agrees with all ulcerations, whether innate or produced by artificial means, in herpes exedens, in blackened parts, and in diseases of the ears, anus, and womb. But cold water is inimical in all these cases, except when hemorrhage is apprehended.

The above is a brief summary of the matters contained in this little treatise. That they are highly important, and evince an extraordinary talent for apprehending the true bearing of practical points in medicine, will hardly be denied by any person who is a competent judge. Many of the rules and observations contained in it are, no doubt, the same as those found in the Aphorisms (see Section v), but there is also no

lack of valuable matter in it, which is not to be found elsewhere. Though I am disposed, then, to agree with the authorities who exclude it from the list of genuine works, I do not hesitate to declare it as my decided opinion, that it is not unworthy of the reputation of the great Hippocrates, and that, if not written by him, it must be the production of some person who thoroughly apprehended his high principles and discriminating views. How much, then, is it to be regretted, that this treatise should have come down to us in so mutilated a state that the meaning, in many places, can only be guessed at with considerable hesitation!

XXXVI. Περὶ γονῆς—*On Semen.*

XXXVII. Περὶ φύσεως παιδίου—*On the Nature of the Infant.*

That these two treatises originally constituted one work, has been remarked by Foës, Gruner, Ackerman, Littré, and others. Indeed, this will be made sufficiently obvious, upon comparing the conclusion of the one with the beginning of the other. Galen, in one place,¹ quotes the former of these as if he held it to be a genuine work of Hippocrates, but elsewhere he mentions that it had been referred to Polybus.² Erotian mentions, among the works of Hippocrates, a treatise bearing the title of the latter, under which he probably comprehended both treatises. It is also noticed as a Hippocratic treatise by Palladius,³ and by Macrobius.⁴ Both are rejected by Haller, Gruner, Ackerman, Kühn, Littré, and Greenhill. Indeed the story of the female musician, whom the author gravely admits that he taught the way how to get rid of a conception,⁵ is so alien to the morals of Hippocrates, as declared in 'The Oath,' that it is impossible for a moment to suppose him guilty of such an act of flagitiousness. Moreover the treatise so abounds in little subtleties and conceits, especially in reference to the Pythagorean doctrine of numbers, that no competent judge will hesitate for a moment in pronouncing it not to be the production of the Great Hippocrates.⁶ Without doubt, however, these treatises are of

¹ Ad Aphor. v, 37.

² De Fœtus fabricat.

³ Comment. in Libr. de Fract. ap. Foës, p. 147.

⁴ Somnium Scipionis, i, 6.

⁵ Vol. i, p. 386: ed. Kühn.

⁶ Even Zuinger admits that, both in style and matter, these treatises are unlike the genuine works of Hippocrates.

great antiquity, and are valuable as containing the hypotheses with regard to the origin of the fœtus which prevailed in the schools down to the days of Harvey; that is to say, that the embryo is formed from the male semen, into which the uterine vessels enter, and form the cotyledones (*or* placenta). It contains, moreover, an hypothesis adopted by Aristotle in several of his physiological works regarding the semen, namely, that it is collected from all parts of the body; and hence, if any part be mutilated in the parent, it is so likewise in the fœtus.¹ The author moreover holds, that the fœtus breathes, and is nourished by the umbilicus,² which may be looked upon as an anticipation of the modern doctrine, that the placenta performs the function both of a lung and of an intestine. It contains a statement regarding the incubation of the egg, which has been often repeated in modern times, but which, from personal observation, I can affirm not to be true; namely, that the hen chips the shell to let out the chick.³ Presentations in delivery are divided into those by the head, the feet, and crossways. I would mention, in conclusion, that these works abound in repetitions, and are written in a diffuse style, very unlike that of Hippocrates. Altogether, then, I can have no hesitation in pronouncing both treatises to be spurious. From what has been stated of them above, it must be obvious, however, that to the student of ancient anatomy and physiology they are very interesting, and will repay a careful perusal. Although, probably, later productions than the age of Hippocrates, there can be no doubt that they are anterior to the memorable epoch of Herophilus and Erasistratus.

XXXVIII. Περὶ γυναικείων—*On the Diseases of Women.*

We have already stated in our critical remarks on the fourth book, 'On Diseases,' that it and the present treatise are evidently the productions of the same author. Although Erotian and Galen⁴ make references to it, as if acknowledging it to be the production of Hippocrates, its claim is rejected by Foës, Schulze, Gruner, and Ackerman, and all the modern authorities of any note. Its connexion with the treatises 'De Genitura' and 'De Natura Pueri,' is pointed out by Foës and

¹ Vol. i, p. 371; ed. Kühn.

² *Ibid.*, p. 387.

³ *Ibid.*, p. 420.

⁴ In Gloss. in voce ἀλφίτα, &c.

Græmer; and Littré does not hesitate to refer to the same author the whole of the following treatises, 'De Genitura,' 'De Natura Pueri,' 'De Morbis,' iv, 'De Morbis Mulierum,' 'De Morbis Virginum,' 'De Sterilibus.' Although not the composition of Hippocrates, all these treatises are, without doubt, of high antiquity, and were anterior to the age of Aristotle.

The work now under consideration contains much valuable matter, and deserves a careful perusal. I feel rather at a loss what selections to make from it, as a specimen of its contents, but shall be brief on the present occasion, more especially as I have no difficulty in establishing the point, that the treatise in question is not one of the genuine works of Hippocrates.

The observations contained in the first part of it, on menstruation and the causes of sterility, are ingenious. For the cure of sterility, fumigation of the uterus is recommended, and a minute description is given of the mode of performing this process, by means of a tube introduced into the os uteri, and connected with a vessel which emits aromatic fumes. When sterility is connected with the shutting up of the os uteri, the author gives directions for expanding it by means of a wooden or leaden pipe. We need scarcely remark, that this practice has been revived of late years. A minute description is given of a malformation of the vagina, in which the passage is nearly obliterated by a membrane. Allusion is probably made here to a preternatural rigidity of the hymen. The author directs the membrane to be fairly torn, and the part dressed with wine and myrrh. In transverse and footling presentations of the child it will be best, he says, to bring it down by the head. Both cases are said to be dangerous, so that either the mother or child is lost, and sometimes both. Treating of retention of the placenta, the author remarks, that if it is not cast off it becomes putrid, and thus comes away on the sixth or seventh day, or later. To promote its expulsion, he recommends southernwood, dittany, the flowers of the white violet, and assafœtida. The process of abortion, and the unpleasant circumstances connected with retention of the placenta in this case, are given with much accuracy. Hydrops uteri is described at considerable length. For an account of it, see PAULUS ÆGINETA, Vol. I, p. 573, Syd. Soc. edition, and the modern authorities there referred to. For ulcers of the womb,

he recommends applications consisting of many stimulating ingredients, such as the flos argenti, &c. The subject of difficult delivery is resumed; when the arm or leg of a living child is protruding, it is directed to be pushed back, and the child turned to the head; and if the fœtus be dead, either the same thing may be done, or the projecting part may be cut off, and the head opened with a sharp knife, and the bones thereof extracted, and the body brought along. The chest also may be opened, if there be any difficulty in extracting the body. The author expresses himself strongly in regard to the danger of abortions. All abortions, he says, are attended with more danger than deliveries at the full time. Artificial abortion never takes place without violence, whether produced by medicine, a draught, or food, or a suppository, or any other means.

The second book commences with a description of fluor albus, an affection to which the old are stated to be more subject than the young. It arises from suppression of the menses, from parturition, or a fever. Among other means which he speaks of for the cure of it, he mentions the application of cupping-instruments to the mammæ. Astringents from the vegetable kingdom are to be administered, such as sumach boiled in vinegar, mulberries, or the like. A full account of the red fluor, or uterine hemorrhage, is also given. It is said to be connected principally with parturition. The treatment which is recommended can scarcely be improved upon, even after the lapse of two thousand years: a sponge is to be wetted and applied to the pudenda; soft garments are to be moistened with cold water, and laid on the belly; and *the foot of the bed is to be raised*. When the hemorrhage is connected with putridity many women thus perish, indeed few recover. A long description is given of the hysterical convulsion which is said principally to attack antiquated maids and widows. It is remarked that hysterical complaints bring on cough, and other pectoral complaints. A very striking and accurate description is given of procidentia uteri. Inflation of the womb is also described. On it see PAULUS ÆGINETA, Vol. I, p. 632, Syd. Soc. edition. There is also a curious description of the mole. The clitoris is described under the name of columna.¹

¹ See Foës, *Econom. Hippocrat.* in voce κλώρ.

From the extracts now given, it will be seen that these Books contain a great variety of most important matter. Indeed, there are few treatises in the Collection more deserving of an attentive perusal. They furnish the most indubitable proofs that the obstetrical art had been cultivated with most extraordinary ability at an early period. Beyond all doubt the complaints of women, and the accidents attending parturition, must at that time have come under the jurisdiction of the male practitioner. But, considering the wandering life which Hippocrates led, and that during the best part of it he must have been what is now called a consulting physician, it is not at all likely that he could have acquired that acquaintance with the minutiae of obstetrical practice which this work displays. It is not, then, at all probable that he can be the author of it.

XXXIX. Περὶ ἀφόροων—*On Sterile Women.*

This treatise is closely connected with the preceding one, both in matter and style. It relates to a subject which, as we have shown, is also treated of in the other work, I mean sterility, the most common cause of which is held to be the state of the os uteri, when it is oblique to the passage of the vagina, constricted from cicatrices, or otherwise diseased. Distinct directions are given for opening the mouth of the womb, after which a cleansing application, composed of cantharides and myrrh, is to be made to it. The mole, and procidentia uteri, are described in nearly the same terms as in the preceding treatise. Though it bears a great resemblance, then, to the work 'On the Diseases of Women,' it is not likely, as suggested by Albertus Fabricius,¹ that it is an appendix to it, for why should an author treat twice of the same subject in the same work?

XL. Περὶ παρθενίων—*On the Complaints of Young Women.*

Foës looks upon this little tract as being the prelude to the greater work 'On the Diseases of Women.' It is destitute of all claims to be held as genuine, and accordingly no critic, ancient or modern, stands up for it. Gruner is inclined to ascribe it to the author of the treatise 'On the Sacred

¹ Bibl. Græc., ii, 24, p. 801.

Disease,' but I see no grounds for this opinion, except it be that, in the two treatises, there is a certain similarity of views with regard to the nature of the hysterical convulsion. This, however, is not a sufficient reason for deciding that they both must have come from the same source, for all the ancient authorities, from Hippocrates to Actuarius, held pretty much the same ideas regarding the nature of "Uterine suffocation." See PAULUS ÆGINETA, III, 71. The author of this little fragment gives a very naïve advice to virgins who are subject to hysterics; instead of making costly oblations of garments and the like to Diana, as recommended by the prophets, he gravely advises them *ὡς ταχίστα συνοικῆσαι ἀνδράσι!!*

XLI. Περὶ ἐπικυήσιος—*On Superfætation.*

This treatise, I believe, is not mentioned by any one of the ancient authorities, and it is almost universally rejected by the modern.

I need scarcely remark that it relates to a very curious subject, and that great doubts are now entertained whether or not superfætation in women ever actually takes place. I can state, however, that two trustworthy persons, the one a surgeon and the other a *sage femme*, informed me, some years ago, that they once attended together a case in which a woman was first delivered of a fœtus about four months old, and, about thirty-six hours afterwards, of a full grown child. The ancient *savans* all believed in the occurrence of superfætation. See in particular Aristotle (*Hist. Anim.* vii, 5); and Pliny, (*H. N.*, vii, 11.)

The following are a few of the most interesting observations which I have remarked in perusing this treatise. When the secundines are evacuated before the child, they cause difficult parturition, and the case is dangerous unless the head present. Presentations of the hand and foot are directed to be replaced. When the placenta is retained after the expulsion of the child, the child is to be laid upon wool, or upon two bladders filled with water, either of which is to be pricked, so that the water may run off gradually, and thus draw down the placenta. When there is a copious discharge of blood before labour, there is a risk that the child may be dead, or at least not viable. When women with child long for coals, the appearance of

these things is to be seen on the child's head. (For the opinions of the ancients on the effect of imagination on the fœtus in utero, see the commentary on B. I, § 1, of PAULUS ÆGINETA, Syd. Soc. edition.) Some ridiculous things are contained in this work, such as the following; when a man wishes to beget a male child let his left testicle be tied, and when a female the right.¹ The composition of suppositories for cleansing the uterus is described at considerable length towards the end of the treatise. Altogether, the work is by no means devoid of interest, but, as I have already said, it is certainly not the composition of Hippocrates. Littré, on the authority of the passage quoted from Aristotle on this head, refers the treatise to Leophanes. From the account which we have given of its contents, it will be remarked that the title and contents of it do not well accord together. This remark, however, applies to other of the Hippocratic treatises besides the one we are now treating of.

XLII. Περὶ γυναικείης φύσεως—*On the Female-Nature.*

As Foës remarks, this work is mostly made up of excerpts from the treatise 'De Muliebribus.' I need not, therefore, occupy time in discussing its claims to be regarded as genuine, nor in giving an outline of its contents.

XLIII. Περὶ καρδίας—*On the Heart.*

Galen, in one place, appears to cite a passage in this treatise, but without naming it.² It is not found in Erotian's list, and all the modern authorities, including even Foës, who is more disposed than most of the others to deal leniently with the claims of the treatises which bear the name of Hippocrates, concur in refusing to admit it as genuine. Still, however, there can be no question as to its being a work of very high antiquity. It is to be regretted, then, that the text is in a very unsatisfactory state. It contains, upon the whole, a wonderfully accurate description of all the parts about the heart—of its substance, which is said to be a strong muscle; of its pericardium, which is described as being a smooth tunic, containing a little fluid

¹ Aristotle refers this opinion to Leophanes, De Generatione Animalium, v, 1.

² De Placit. Hippocrat. et Plat., ix.

resembling urine; of its ventricles (γαστέρες); of its auricles (ὄνυατα); of the origin of the veins from it; of its sigmoid valves; of its office, to be, as it were, the fountain head, from which all parts of the body are irrigated, and the seat of the understanding, which is said to be in the left ventricle. The understanding, it is added, is not nourished by the blood, but by a pure and luminous (φωτεινὴς) superfluity from it. Altogether, this little treatise bespeaks much practical acquaintance with human anatomy, and, considering the age in which it was written, must be the production of a very superior mind. It contains an account of an experiment which has been much animadverted upon, both by ancient and modern authorities. The writer says, if a coloured fluid be given to an animal, such as a sow, to drink, and if its throat be cut while it is in the act of swallowing, it will be found that part of the fluid has passed down by the gullet to the lungs. See in particular Aulus Gellius (Noctes Atticæ, xvii, 11); Macrobius (Saturnal. vii, 15); and Plutarch (Sympos. vii, 1.) Aulus Gellius says decidedly that Plato had adopted this opinion from Hippocrates. Aulus Gellius and Macrobius also quote Plutarch as having stated, in his ‘Symposiæcon,’ that Hippocrates is the author of this opinion; but the text of Plutarch (l. c.) is in an unsatisfactory state. See Schulze (Hist. Med. i, iii, vi, 12.)

XLIV. Περί τροφῆς—*On Aliment.*

It must be admitted that this treatise has very high authorities in favour of its authenticity, such as Erotian, Galen,¹ Aulus Gellius,² Palladius,³ Stephanus;⁴ and, in modern times, Mercuriali, Foës, Haller, and Le Clerc.⁵ It is rejected by Casper Hoffman,⁶ Gruner, Aekerman, Kühn, Littré, and Greenhill, though, by the last two, not in decided terms. Considering the respectability of the external evidence in its favour, I should certainly not have hesitated in admitting it as genuine, had not a careful examination of its contents led me to form the

¹ Comment., tom. xv, p. 224; ed. Kühn.

² Noct. Attic., iii, 16.

³ Ap. Foës; ed. Hippocrat.

⁴ Comment. in Galen; ed. Dietz.

⁵ Hist. Med., P. i, iii, 2, 257.

⁶ In Boerhaav. Meth. Stud. Med., i, 3, p. 594.

unbiassed decision that it must be the production of some metaphysician, rather than of a medical practitioner, such as we know Hippocrates to have been. The physiological dogmata with which it abounds are announced in so antithetical, not to say paradoxical, a manner, that I can conceive nothing more foreign to the style and character of the true writings of Hippocrates. I shall give a few specimens :—“The species of aliment is one and many ; all these (kinds of aliment ?) are one nature and not one. Purging is upwards and downwards, and neither upwards nor downwards. Purging in aliment is excellent, purging in aliment is bad. Aliment not aliment, unless it conveys nourishment ; it is aliment in name but not in deed : aliment in deed and no longer in name only. Sweet and not sweet ; sweet potentially, as water, sweet to the taste, as honey. Things not animals are animated ; animals are animated, the parts of animals are animated. It (the embryo) is and is not.” Now, I must say, that all this appears to me to savour more of the tastes of Democritus than of Hippocrates himself. It may be said, indeed, that the very circumstance of Galen’s having admitted the work as genuine, and having composed an elaborate commentary on it, is a most presumptive proof of its authenticity ; for where shall we find so excellent a judge of the doctrines of Hippocrates as his great commentator ? But then it must be taken into account that Galen himself had a great *penchant* towards metaphysical subtleties, and this would lead him to believe that what was in accordance with his own tastes must have been in accordance with those of his great professional hero. But, notwithstanding the doubts which hang over the question of its authorship, it may be confidently affirmed regarding this treatise that, illustrated as it is by Galen’s commentary (even although it has come down to us in a mutilated state), few works in the Collection are more suggestive than the present one. I shall merely give a few more specimens of it :—“The root of the veins is the liver, and the root of the arteries is the heart ; and from them blood and spirits are carried to all parts, and heat passes to the same.” This passage is frequently quoted and commented upon by ancient authors ; as by Galen,¹ and Aretæus.² We have seen

¹ De Placit. Hippocrat. et Platon.

² De Acut., i, 7 ; de Chron., i, 13.

it stated in the preceding treatise that the heart is the place from which both veins and arteries originate. This seems a presumptive proof that these two treatises must have had a distinct authorship. "The aliment reaches to the hairs, the nails, and the outer surface from within; and aliment from without passes from the most external to the most internal parts, there is one conflux and one conspiracy (ξύρροια μία, ξύμπνοια μία). All parts sympathise throughout the whole frame, but in so far every part has its own peculiar action." This passage, also, is very celebrated and frequently quoted.¹ I need scarcely remark that it embraces a grand and most important view of the animal economy. "Milk is food to some with whom it agrees, and to others not. To some wine is food, and to others not; and so with flesh and many other kinds of aliment. We must look to situation and habit. Humidity is the vehicle of food. The natures (instincts?) of all things are untaught. Persons who perspire freely are weak, more healthy, and have easier recoveries than others. Those who perspire ill are stronger than others before they become indisposed, but being indisposed have more difficult recoveries. These remarks apply to the whole and to the parts."

From these specimens it will be readily seen that the work abounds in curious matters, but of a very different stamp from those which the true Hippocratic treatises contain. Contrary, then, to my general rule, I certainly feel disposed in the present instance to reject, upon internal evidence, a treatise which has the most unexceptionable external evidence in its favour.

XLV. Περί σαρκῶν, ἢ ἀρχῶν—*On Fleashes, or Principles.*

This treatise does not appear in Erotian's list of the Hippocratic works, and it is rejected by all the modern authorities, from Mercuriali downwards. Galen is inconsistent in his notice of it.² Some of the philosophical dogmata which it contains are curious, such as the following specimen: "It appears to me that what we call heat is immortal, and that it knows all, sees, hears, and perceives all things that are and will be."³

¹ See Galen, de Facult. Natural., i; de Diff. Febr., ii; de Usu Pulsuum, i; and Alexander Trallian, i.

² In Epidem. Comm., iii, 29, &c.

³ See the remarks on this passage in the next section.

When things, then, were thrown into confusion the greater part of this passed off to the highest circle, and this it is which the ancients called ether." The following extract is held by Gruner, but probably without any good reason, to evince a degree of anatomical knowledge in advance of the age of Hippocrates: "There are two hollow veins from the heart, the one called the artery, and the other the vena cava. The artery has more heat than the vein." The other veins are also described with considerable accuracy. It is stated that the fœtus in utero sucks in fluid (liquor amnii?) by its lips, and in proof of this the author remarks that the child voids fœces soon after delivery, which, it is argued, must be derived from food. The opinion thus stated has been often maintained in modern times, but does not appear to be well founded. The author mentions correctly that persons in attempting to commit suicide open the trachea, in which case, he adds, the patient lives, but loses his voice until the opening be closed. Conringius and Haller, with considerable plausibility but yet without any direct proof, attribute this treatise to Democritus.

XLVI. Περὶ ἑβδομάδων—*On Hebdomads.*

This treatise exists now only in the Latin translation, which M. Littré has discovered in the Royal (*National*, it is now called!) Library in Paris, and will be published in his edition of the works of Hippocrates. M. Littré gives an elaborate and most interesting disquisition on it, and seems to make out clearly that it is the production of the same author as the treatise 'On Fleashes,' which we last noticed. It is cited by Philo Judæus,¹ and several other writers of antiquity. Galen, however, held it not to be the production of Hippocrates. A considerable extract from it is contained in the tract 'On Critical Days,' and the eighth section of the Aphorisms, which has always been looked upon as spurious, is said by M. Littré to be mostly taken from this treatise.

XLVII. Περὶ ἀδένων—*On the Glands.*

Erotian makes no mention of this treatise, and Galen pronounces it to be the work of the recent Hippocratists.² M. Littré

¹ De Cosmopœa.

² Opera, tom. v, p. 594; ed. Basil.

remarks, and with great truth, that it is difficult to find out the grounds upon which the ancient critics have rejected this work. Certain it is that it contains a goodly store of interesting matters, none of which, as far as I can discover, are inconsistent with the true doctrines of Hippocrates. In it a pretty correct description is given of the glands, including those of the mesentery. The brain itself is said to be of a glandular nature, and also the kidneys. An ingenious account is also given of the origin of scrofula, which is said to be produced by the lodgement of humours in the glands of the neck, which get into a state of slow inflammation. Glands, the author says, are seated mostly in parts of the body which most abound in humidities, such as the armpits and groins, and hence such parts produce hairs. In the case of the mesentery, however, no hairs are produced, because the humidities there are excessive, and choke up, as it were, the seeds of the hairs; in like manner as seeds sown in marshy grounds perish. A very ingenious account is given of the origin of phthisis, which is said to spring from tubercles in the lungs and matter (pus), which corrodes the lungs when "the patients do not readily recover." A curious description is next given of the *tabes dorsalis*, "in which disease the patient does not wish to live." How expressive this language is of the state of mind in the case of the unfortunates who are subject to spermatorrhœa! The treatise concludes with some striking remarks on the sympathy between the *mammæ* and uterus, and on the influence which both exercise on the development of the female character. Altogether the contents of this treatise are most valuable, and may suggest important views to the medical practitioner and physiologist, even at the present day. We need have no hesitation in pronouncing, with regard to it, that it reflects infinite credit on the school from which it emanated, and that it is not unworthy of Hippocrates, although we have reason to believe that he was not actually the author of it.

XLVIII. Περὶ φλεβῶν—*On the Veins.*

This is merely an excerpt from the treatise 'On the Nature of the Bones.'

XLIX. Περὶ ἰητροῦν—*On the Physician.*

I may mention in this place, generally, that the treatises which follow have no ancient authority in support of them, and that, with very few exceptions, they are also rejected by all the modern critics. Their contents, moreover, are not of much practical importance, and therefore I shall be very brief in my analysis of them.

The treatise in question is held to be genuine by no one critic, as far as I know, with the exception of Foës, who appears, in part, to sanction its claims. The object of the author is announced to be in order to instruct the physician how to conduct matters connected with the iatrium, that is to say, with his establishment or surgery. Mercuriali, I may mention, is unjustly severe in his animadversions on the exordium. (See Conringius, *Introd.* p. 120.) The physician should have a healthy look himself, for the writer says, people fancy that a person who does not keep himself in good health is not qualified to take charge of the health of others. He should be of a prudent disposition and a gentleman in morals.¹ Minute directions are given respecting the site and other circumstances connected with the iatrium; clean and soft towels are to be at hand, linen is to be used for the eyes, and sponges for the sores. In applying bandages, attention is to be paid to utility rather than to display. The surgeon should pay great attention to all matters connected with his operations; for it is attended with much disgrace when any manual operation does not succeed. Minute directions are given about the performance of venesection at the arm, and mention is made of several untoward accidents connected with it, such as the blowing up of the vein, whereby the flow of blood is stopped; and supuration following as a consequence of the operation. In order to acquire dexterity in the treatment of accidents, the author recommends the young physician to attach himself to some foreign army; and from this Gruner infers, that the work cannot belong to Hippocrates, as domestic wars were but too common in his time; and there could have been no necessity

¹ Καλὸν καὶ ἀγαθόν. See the Annotations on Mitchell's Aristophanes as to the import of this expression. I quote from memory.

for the surgeon's seeking foreign service in order to gain experience. It does not occur to me, however, that there is much force in this argument; for intervals of peace were just as common during the long life of Hippocrates, as during the interval between his death and the time when the Collection was made. But, in fact, there is no necessity to seek recondite reasons for rejecting a treatise which has no proper authority in support of it.

L. Περὶ εὐσχημοσύνης—*On Decorum.*

This work, like the last, has not the slightest claim to be looked upon as genuine. Moreover, it has come down to us in a very unsatisfactory state as regards the text, so that the meaning is often very dark and uncertain; and I must confess that, as a general rule, I have little inclination to spend much time in searching out a meaning, in obscure writings, when, after it is discovered, it is not likely to repay the exertions made in discovering it. I am always disposed to remember the advice which Galen repeatedly gives to the student of medicine, "to concern himself more about things than about words."¹ The object of the author seems to be to give general directions with regard to decorum in the physician's communication with the sick. It is evidently the production of some sophist, according to Bernard, of some one belonging to the Stoical sect. I shall be brief in my abstract of it. A philosophical physician is equal to a god. In the practice of medicine all the virtues relating to wisdom are exercised; namely, contempt of money, decency, modesty, simplicity in dress, character, judgment, quietness, accessibility, purity of life, sententious maxims, knowledge of the purifications which are proper and necessary in life, abstinence from lucre, freedom from superstition, divine excellence. The physician should keep himself aloof, and not hold much converse with the common people, unless when necessary. The surgeon should be well provided with all the means required in the practice of his profession, such as dressings, medicines, instruments, and so forth, as any deficiency in these might produce serious results. Minute

¹ I quote here from memory, not having leisure to search the passages in Galen's works where this saying occurs. It is a maxim, however, which he frequently repeats.

directions are given for the regulation of the physician's address in entering the chamber of the sick, and his conduct while there.

LII. Παραγγέλαι—*Præcepta.*

This little tract stands altogether in much the same circumstances as the preceding one, that is to say, it is wholly destitute of all good authority in its favour, and the nature of its contents is what might rather be expected from a sophist than a practical physician. The text, moreover, is in a most unsatisfactory state. I shall dismiss it then with a very brief notice. It opens with an advice to the physician not to trust to speculation but to rational experience. He ought to learn remedies from all quarters, even from the vulgar, and not be avaricious in his dealings with the sick, more especially if strangers and needy. The author alludes, as Schulze thinks, to the practice then followed by the physicians of migrating from one city to another, and of making a public declaration of their pretensions at their first entry into any place. These physicians were called *periodeutæ*. The author of this tract advises the physician, in such a case, not to make any vainglorious or inflated profession of his abilities. He also enjoins the medical practitioner to look to the health of those who are free from disease, as well as those who are indisposed.

LIII. Περί ἀνατομῆς—*On Dissection.*

This small fragment of ancient anatomical science has no claim to be regarded as the work of Hippocrates. Neither Erotian nor Galen, nor any other ancient critic holds it as such, and the modern authorities are unanimous in rejecting it. That it may have been the composition of Democritus, as suggested by Gruner, seems not unlikely. It abounds in harsh and obsolete terms, which have never been satisfactorily explained. Some parts of the anatomical description are difficult to determine, as for example, "the large bronchia which extend from the heart to the liver;" "the vena scalena, which extends from the liver to the kidneys." The latter passage, however, may be supposed to refer to the emulgent vein.

LIII. Περί ὀδοντοφυΐης—*On Dentition.*

This little tract is destitute of any competent evidence of its authenticity. Some of the observations contained in it bespeak a familiar acquaintance with the diseases of infancy. Thus it is said, that when the bowels are loose at the term of dentition, if the digestion be good, the children thrive and are not subject to convulsions. When children at the breast vomit up their food, the bowels are constipated. When there is fever accompanying dentition, children are seldom attacked with convulsions. But when there is heavy sleep along with dentition, there is danger of convulsions. All the children that are seized with convulsions at the time of dentition do not die. Children that take food during dentition bear vomiting best. Ulcers on the tonsils are attended with danger.

LIV. Περί ἐγκατοτόμης ἐμβρύου—*On Excision of the Fœtus.*

No one stands up for the genuineness of this treatise,¹ which, however, is not wanting in interesting matter relative to the extraction of the fœtus in cross-presentations. For an abstract of the practice there recommended, see PAULUS ÆGINETA, Vol. II, p. 389, Syd. Soc. edition. A circumstantial description is also given of the process of *succussion*, the dangerous effects of which, in certain cases, are related in the Epidemics.

LV. Περί ὄψις—*On Vision.*

This little fragment is admitted by all the authorities to be spurious. It contains a description of glaucoma, for which purging of the head and the application of the actual cautery are recommended, and also in certain cases venesection. In epidemic ophthalmia, purging both of the head and bowels is recommended.

LVI. Περί ὀστέων φύσις—*On the Nature of the Bones.*

M. Littré has very ingeniously shown that this work is a compilation made up of fragments of other works, and thus he has announced his intention of excluding it altogether from

¹ One word (*ιχθύη*) which occurs in this work is in the Glossaries of Galen and Erotian. This is likely to be an interpolation.

the Hippocratic Collection. Certain it is, beyond all dispute, that the treatise is not the production of Hippocrates himself. The following are a few of the most notable things which I have observed in it. "It appears to me that what we call heat is immortal, and that it understands, sees, hears, and perceives all things that are and will be." The heat, it is further said, is the origin of all movement in animals. This will be recognised as the original of the doctrine of the *Calidum innatum*, which figures in the works of our earlier physiologists in modern times. See the works of Harvey and the other physiologists of the seventeenth century; also what is said on this subject in the next section. The aorta and vena cava are correctly described, the one as an artery, the other as a vein; and their origin from the ventricles of the heart is noticed. The author states, (p. 440, ed. Kühn,) that he had known cases of attempted suicide in which the windpipe had been opened, and yet death did not ensue; only while the opening remained the person lost the power of speaking. See No. XLV.

LVII. Περὶ κρίσεων—*On the Crises.*

This tract has no ancient authority whatever in support of it, and Foës, Gruner, and Littré concur in holding it to be a compilation from other Hippocratic treatises, more especially the Aphorisms and Prognostics. This, indeed, must be obvious to every person who reads it with any attention.

LVIII. Περὶ κρίσιμων—*On Critical Days.*

This treatise stands in the same predicament as the preceding one, that is to say, it has no ancient authority in support of it; indeed Galen declares against it when he says that Hippocrates had not given any work on the Critical Days. (Tom. iii, p. 440; ed. Basil.) It is manifestly a compilation from the other treatises, more especially from those 'On Internal Diseases' and 'On Diseases.' Still it appears to me to be an interesting and well-written compilation. For example, it would be difficult to point out in any other work, ancient or modern, a better description of pneumonia than is given towards the conclusion of it. Tetanus also is accurately described. To be sure, Gruner infers, from the circumstance that three varieties of this disease are described, that the work in question must have emanated

from the Cnidian school. But Aretæus, and, indeed, all the ancient authorities that treat of tetanus, describe three varieties of this disease; and therefore this is no good reason for excluding it from the Coan school.

LIX. Περὶ φαρμάκων—*On Purgative Medicines.*

Though it must be admitted that this little fragment can boast of no competent authorities to establish its claim to be placed among the genuine works of Hippocrates, it bears undoubted marks of having been written by some person well acquainted with his principles, and having no ordinary acquaintance with professional matters. Thus the author states very correctly the effects of idiosyncrasy in modifying the operation both of purgatives and emetics, and advises the physician to make inquiry beforehand what effects such medicines, if formerly taken, had produced on the patient; for, he adds, it would be a disgraceful casualty to occasion a man's death by the administration of a purgative medicine. He also interdicts the administration of purgatives during the heat of a fever, and during the very hot seasons of the year. These practical rules appear to me to be highly important, and yet how frequently do we see them disregarded! At the time we have mentioned, the author prudently remarks that it is safer to administer a clyster.

LX. Περὶ ἐλλεβορισμῶν—*On the Administration of Hellebore.*

This little tract is usually published among the *Epistolæ*, and, as a matter of course, it has no evidence in support of its genuineness further than they have, which, as we shall presently see, is very slender. It contains, however, very acute and important observations on the administration of hellebore, to which it is well known that the Hippocratists were very partial. But these are mostly extracted from the Aphorisms, and need not be noticed in this place. The Book of Prognostics also is quoted, but seemingly by mistake.

LXI. Ἐπίστολαι—*The Epistles.*

No scholar can require to be informed that, since the memorable controversy in this country between the Honorable C. Boyle and the celebrated Dr. Bentley, respecting the authen-

ticity of the Epistles which bear the name of Phalaris, the whole of the 'Epistolæ Græcanicæ' have been generally condemned as spurious. Against this judgment I have no intention to protest; but I may be allowed to remark that many ancient works which are usually acknowledged as genuine have not so much external evidence in their favour as these Epistles possess. The Epistles ascribed to Plato, for example, are quoted as genuine by Cicero,¹ and by Diogenes Laertius.² Those of Hippocrates, too, are quoted and recognised by Erotian, Soranus, and other ancient authorities. Still, however, as I have stated, I have no intention to stand up against the general opinion of scholars from the Scaligers down to the present time, by which they have been condemned as supposititious; only I contend that, as it is admitted on all hands that they are very ancient,³ that is to say, that they must have been composed within less than a hundred years after the death of Hippocrates, it is utterly incredible that the Sophists who wrote them, whether for a fraudulent purpose that they might derive profit from them by passing them off for the productions of the great name they bear, or whether for the purpose of displaying their own skill in sustaining an assumed character, should have made them turn upon alleged occurrences in the life of Hippocrates which every person at that early period must have been able to judge whether they were fictitious or not. I see no reason, then, to doubt that the main facts to which these Epistles relate are real, although the Epistles themselves be supposititious.⁴

Having thus stated my opinion of these Epistles in general terms, I shall now dismiss them with a very brief notice.

¹ Tuscul. Disputat., v, 35.

² In vita Platonis.

³ I have always looked upon the 'Epistolæ Græcanicæ' as being a species of literary composition allied to the *Declamations* of the Romans, that is to say, that they were mere exercises in composition. On the latter, see Quintilian, *Instit. Orator.*, iv, 2. We possess a volume of these Declamations under the name of Quintilian, but they are not generally admitted to be genuine. They are exercises on themes prescribed in the schools of rhetoric. The subjects were sometimes historical events, connected with the lives of distinguished personages. The poet Juvenal alludes to Declamations in several places, as in *Satir.* i, 16; x, 167; vi, 169; vii, 161. The *Satyricon* of Petronius Arbiter opens with a powerful invective against the declaimers of the day, whom the author holds to have been the corrupters of all true eloquence.

⁴ Scaliger, Menage, Gruner, and Littré, although they regard the Epistles as spurious, admit that they are "very ancient."

They are differently arranged by modern authorities ; I shall follow M. Littré in the few remarks which I have to offer upon them.

The first series of these Epistles relates to the services which Hippocrates is said to have rendered to the people of Athens during the time of the memorable plague. The spuriousness of these, it is generally held, is proved beyond all doubt by the silence of Thucydides with regard to any such professional services rendered by Hippocrates on the occasion ; and no doubt if it were maintained that these took place at the outbreak of the disease in Greece, that is to say, at the commencement of the Peloponnesian war, the inference would be most legitimate. But if we be permitted to suppose that, as the plague is known to have lurked about in different parts of Greece for a considerable time, the services of Hippocrates did not take place until several years afterwards, there is nothing in the story which bears the slightest air of falsehood, even if we adhere to the common chronology respecting the birth of our author. Indeed, I repeat, if the Sophist who composed these letters had founded them on tales which everybody knew to be false, he could never have hoped to impose upon the learned men of the next generation, and make his forgeries pass for genuine.

The second series relates to Democritus, and these must be admitted to be the most interesting of the whole group. Now that Hippocrates visited Abdera, and that he was familiarly acquainted with Democritus, are facts which the most sceptical critic will hardly venture to call in question.¹ But that the Epistles themselves were not written by the physician and philosopher whose name they bear, I readily admit to be probable. Most undoubtedly the letter of Hippocrates, in which he is made to describe his visit to Democritus, however full it may be of curious matters, is written in a style and manner very unlike the well-known characters of the true writings of Hippocrates.

Third. The short letter inscribed from Hippocrates to his son Thessalus, contains nothing from which its authenticity or the contrary could be legitimately inferred, only it is destitute of all ancient authority in its favour. In it the father recom-

¹ See Diog. Laert. ix. Ælian. Var. Hist. iv, 20.

mends to the son the study of geometry and arithmetic, as a proper preparation to the study of medicine.

Fourth. This series, consisting of 'The Oration at the Altar,' 'The Decree of the Athenians,' and 'The Oration of Thessalus, son of Hippocrates,' although now generally regarded as spurious, possess more direct evidence in their favour than any of the others. In fact, they are decidedly recognised as genuine by Erotian. The documents in question have all reference to the services of Hippocrates and his disciples in the pestilence which pervaded Greece during the Peloponnesian war. These services are alluded to by many ancient authorities, as we have shown in the Commentary on PAULUS ÆGINETA, Book II, § 35. In conclusion, I repeat that, supported as the main facts referred to in these documents are by the highest testimony which antiquity can furnish, I cannot but regard the facts as true, although the documents themselves be given up as supposititious.

I will now briefly recapitulate the general results of the investigations on which I have been occupied in the present section :

1. That all the authorities, ancient and modern, who have investigated the question regarding the genuineness of the works which have come down to us under the name of Hippocrates, are agreed that a considerable portion of them are not the productions of the author himself.

2. That it is almost universally admitted that the following treatises are genuine, viz. :

The Prognostics.

On Airs, &c.

On Regimen in Acute Diseases.

Seven of the Books of Aphorisms.

Epidemics I and III.

On the Articulations.

On Fractures.

On the Instruments of Reduction.

The Oath.

3. That the following treatises may be pretty confidently acknowledged as genuine, although the evidence in their favour is not so strong as it is with regard to the preceding list:—

On Ancient Medicine.

On the Surgery.

The Law.

On Ulcers.

On Fistulæ.

On Hemorrhoids.

On the Sacred Disease.

4. That as it certainly appears that the Book of Prognostics is composed, in a great measure, from the contents of the First 'Prorrheties' and the 'Coacæ Prænotiones,' there can be little or no doubt that these two treatises are more ancient than the time of Hippocrates.

5. That although the exact time at which the Collection, as it now stands, was made out has never been determined in a very satisfactory manner, an examination of the contents of the different treatises leads to the conclusion that most of them represent pretty faithfully the opinions held by the family of Hippocrates and his immediate successors in the Coan school of medicine.

6. That a few of them, and more especially the two important works 'On Internal Affections' and 'On Diseases,' would appear to bear distinct traces of having emanated from the contemporary school of Cnidos.

7. That although the Epistles and certain public documents usually published at the end of the Collection may justly be suspected of being spurious, there is undoubted evidence that they are of very ancient date, and were composed, most probably, within less than a hundred years after the death of Hippocrates, so that there is every reason for believing that they relate to real events in the life of our author, and not to fictitious as some have supposed.

SECTION III.

ON THE PHYSICAL PHILOSOPHY OF THE ANCIENTS, AND MORE
ESPECIALLY THEIR DOCTRINES WITH REGARD TO THE
ELEMENTS.

As it is impossible to understand properly the medical theories which occur in the Hippocratic treatises without a competent acquaintance with the Physical Philosophy of the ancients, I have thought it necessary to devote an entire chapter to an exposition of the tenets held by the philosophers regarding the elements of things. I might have been able to dispense with this labour provided there had been any modern publication to which I could refer the reader for the necessary information on the subject in question; but, unfortunately, there is no work in the English language, as far as I am aware, in which the nature of the ancient doctrines is properly described. To give an example in point: Dr. Watson, the bishop of Llandaff, in his essay 'On the Transmutability of Water into Earth,' makes the following remarks on the ancient doctrine concerning the elements: "If but one particle of water can, by any means, be changed into a particle of earth, the whole doctrine of the Peripatetic sect concerning the elements of things will be utterly subverted: the diversities of bodies subsisting in the universe will no longer be attributed to the different combinations of earth, air, fire, and water, *as distinct, immutable principles, but to the different magnitudes, figures, and arrangements of particles of matter of the same kind.*"¹

Now it will at once be perceived by any person who is at all acquainted with modern science, that if the ancient dogmata be as here represented, they are altogether destitute of any solid foundation in truth and nature, and we may well wonder that such a baseless structure should have endured for so long

¹ Chemical Essays, vol. iv, Essay 7.

a period. But before passing this severe judgment on the tenets of our great forefathers in philosophy, it will be well to investigate their doctrines more accurately than Dr. Watson appears to have done in this instance.

In pursuing the present investigation, I shall, in the first place, give literal translations of extracts from the works of the most celebrated sects of philosophers; namely, the Pythagoreans, Platonists, Peripatetics, Stoics, and Epicureans. It will, of course, be readily perceived, from what I have now stated, that I do not mean to confine my inquiry to the period of ancient philosophy which preceded Hippocrates, but that I am to bring it down to a pretty late age. This course I find it indispensably necessary to follow, as I could not derive sufficient illustration of the subject were I to restrict myself to the works of the earlier philosophers, who either preceded our author or were his contemporaries. I shall first give the extracts by themselves, and then make some remarks in illustration of the doctrines which they expound. I think it proper to mention further, that I am answerable for the correctness of the translations in all cases, unless where it is otherwise stated.

THE PYTHAGOREANS.

“Fire being compressed produces air, and air water, and water earth: and from earth the same circuit of changes takes place till we come to fire.”¹

“In that part of the universe where Nature and Generation exert their powers, it is necessary that there should be these three things: In the first place, that thing which being tangible furnishes a body to everything which comes into existence. This is the universal recipient and substance of impression for things generated, bearing the same relation to things which are generated from them that water does to juice, and silence to sound, and darkness to light, and materials to the things fabricated from them. For water is void of taste and quality, bearing the same relation to sweet and bitter, and to sharp and salt. The air is unformed as to sound, or speech, or melody. And darkness is devoid of colour and shape, and bears the same relation towards bright, and yellow, and white.

¹ Ocellus Lucanus, On the Universe.

But white bears reference also both to the statuary art and that which forms figures of wax. But matter admits of another comparison with the art of statuary. For all things exist in it *potentially* before they are made, but *actually* after they are made and have received their nature. In order, therefore, that there should be generation, it is necessary that there should be some one substance as a substratum. In the second place there are the *contraries*, in order that there may be changes and transmutations, the primary matter undergoing passion and affection, in order that the qualities (*or* powers, *δυνάμεις*), being mutually passive, may not destroy, nor be destroyed, by one another. These (the contraries) are, heat and cold, moisture and dryness. In the third place are those substances in which these powers reside, namely, fire and water, air and earth. For these differ from the powers (qualities?). For the substances are consumed in place by one another, but the powers are neither consumed nor formed, for they are the incorporeal reasons of these.¹ Of these four, heat and cold are causes, and active; but dryness and humidity are as the materials, and passive. In the first place there is matter, the universal recipient, for it is the common subject (*or* substratum) of all things, so that it is the first sensible body in potentiality, and the original of all things: next are the contraries, such as heat and cold, moisture and dryness; and in the third place there are fire, water, earth, and air: *these all change into one another, but the contraries do not change.*"²

The primary matter is afterwards defined to be "the subject body, that which receives all the changes, the universal recipient, and that which potentially is the first to the touch."³

"The first principles of all created things are the substratum, matter, and the reason of shape; namely, form. The bodies are their offspring, namely, fire, air, earth, water."⁴

"Pythagoras taught that the original of all things is the monad, that from the monad sprung the duad, which is the subject matter to the efficient monad: that from the monad and infinite duad were formed the numbers; from the numbers

¹ Λόγοι γὰρ ἀσώματοι τυγχάνουσι τούτων.

² Ocellus Lucanus, On the Universe.

³ Ibid.

⁴ Timæus Locrus, On the Soul of the Universe.

the points; from them the lines, from these the figures of superficies; from the superficies the solid figures; from these the solid bodies, of which are the elements, fire, water, earth, air:—*that from these, changed and converted into every shape, is formed the world, which is animated, intelligent, of a spherical shape, comprehending in its middle the earth, which also is spherical and inhabited all around.*¹

“Pythagoras said, that none of the elements is pure, for that earth contains fire, and fire air, and water air, &c.”²

“Nor those which elements we call abide,
Nor to this figure, nor to that are ty'd:
For this eternal world is said of old
But four prolific principles to hold,
Four different bodies: two to heaven ascend,
And other two down to the centre tend;
Fire first with wings expanded mounts on high,
Pure, void of weight, and dwells in upper sky:
Then air, because unclogged, in empty space
Flies after fire, and claims the second place;
But weighty water, as her nature guides,
Lies on the lap of earth; and mother Earth subsides.
All things are mixed of these, which all contain,
And into these are all resolved again:
Earth rarifies to dew; expanding more
The subtile dew in air begins to soar:
Spreads as she flies and weary of the name,
Extenuates still and changes into flame.
Thus having by degrees perfection won,
Restless they soon untwist the web they spun,
And fire begins to lose her radiant hue,
Mix'd with gross air, and air descends in dew:
*And dew condensing does her form forego
And sinks a heavy lump of earth below.*
Thus are their figures never at a stand,
But changed by Nature's innovating hand.”³

¹ Diogenes Laertius, Life of Pythagoras. That Monad and Duad, in the symbolical language of Pythagoras, signified Mind and Matter, is positively stated by Philo Judæus. Ἐπόμενος δ' ακολουθία φύσεως κακῆινο λέξω ὅτι μονὰς μὲν ἔστιν εἰκὼν αἰτίου πρώτου, δυὰς δὲ παθητῆς καὶ διαρετῆς ὕλης.—De Specialibus Legibus. It may be proper to mention here that it is not true, as has been often stated in modern works, that Pythagoras himself taught the same system of the world as Copernicus; the first person who did so was Philolaus the Pythagorean philosopher. See Diogenes Laertius.

² Jamblichus, Life of Pythagoras, § 27. I have adopted the emendation of the text proposed by Obrechtus.

³ Ovid's Metamorph., translated by Dryden, Book xv.

THE PLATONISTS.

“Let us therefore say that the mother, or receptacle of every visible, nay of every sensible production, is neither earth, nor air, nor fire, nor water, nor any of the things which arise out of these, nor out of which these arise, but a certain invisible and formless being, the universal recipient, concerning which being, if we say that it is in a very dubious way intelligible, and something most hard to be apprehended, we shall not speak false.”¹

The primary matter “admits of everything, but partakes of no shape nor resemblance to anything which enters into it. It is the substance of impression² to everything in nature, being moved and altered by those things which enter into it, (*the forms?*), and by their means it appears sometimes one thing and sometimes another.”³

“In the first place, we see that which we call water, being compressed, become stones and earth. But being dissolved and expanded, it becomes breath and air. Air, by combustion, is converted into fire, which, being compressed and extinguished, assumes its original form. Fire and air meeting together, and being condensed, become cloud and vapour; and from the condensation of these, running water is formed. *And from water again, earth and stones are formed.*”⁴

Plato taught “that God, matter, and form, are the originals of all things:—that matter is increate and incorruptible, neither fire, nor water, nor any of the principles nor elements, but a substance capable of form and subject to fabrication:

¹ Plato, in his *Timæus*.

² *Ἐμπαγῆιον*. Harris, in his *Philosophical Arrangements*, translates this word by “impression;” but it does not, strictly speaking, signify impression, but the substance which receives the impression. Wax, for example, is not the impression of the seal, but the substance which receives the impression. Matter, in like manner, is not the impression of forms, but the substance which receives the impression.

³ Plato, in his *Timæus*.

⁴ *Ibid*. These opinions regarding the elements and the first matter are expressed with much precision and clearness; but, in other parts of his *Timæus*, it must be admitted that he betrays some confusion of ideas on this subject, as is remarked by his illustrious pupil Aristotle (*De Ortu et Interitu*, ii, 1). A translation of part of Plato's *Timæus* regarding the elements, may be seen in the *Somnium Scipionis* of Macrobius, lib. i.

that when rude and deprived of every quality of configuration, God, the artificer, formed the universe from it. He taught, that matter is the original of all bodies, that it was stamped with the impression of forms, and hence were produced the elements, namely, fire, water, earth, and air.”¹

“Earth contains water, and water, as some suppose, carries earth: air is formed from water, and from dense air fire is formed.”²

“There being four kinds of bodies, by the mutual changes of them the nature of the world is preserved. *For water is formed from earth, and air from water, and ether from air: and then inversely, from ether, air; from air, water; and from water, earth, which is lowest in the scale.*”³

“Those who have investigated matter, if they have formed any right conception of it, have agreed in considering it as the subject and receptacle of forms.”⁴

“Concerning the receptacle of bodies this may be said. In the first place, that there must be a certain substratum to bodies different from themselves, *is demonstrated by the transmutation of the elements into one another.* For that which is changed is not altogether consumed, or, if it is, a substance is changed into a non-entity. And neither has that which is born come into existence from nothing, but it has undergone a change from one form into another. For something remains which has received the new form and cast off the other. And this is shown by destruction, for it applies only to a compound body; and, if this be true, every such body is compounded of matter and form. Induction bears testimony to the truth of this, by showing, that whatever is dissolved was compounded; and analysis in the same manner, as, for example, if a phial be resolved into gold, and gold into water; and water, in like manner, when it perishes, requires to be something analogous. But the elements must be either form, or primary matter, or a compound of form and matter. But they cannot be form, for without matter, how could they be possessed of bulk and magnitude? But they are not primary matter, for it is not con-

¹ Apuleius the Platonic Philosopher, On Natural Philosophy.

² Idem, On the Universe.

³ Cicero, On the Nature of the Gods, ii, 33.

⁴ Plotinus, Ennead ii, 4.

sumed. It follows, then, that they must consist of form and the primary matter. But form regards quality and shape, but it (the primary matter) pertains to the subject which is indeterminate, (*ἀόριστον* or *ἀόρατον*) because it is not form.”¹

“Matter of itself is devoid of form, matter is the subject of all things.”²

“The followers of Plato and Aristotle are of opinion, that there is a difference between the first principles and the elements. For, the elements are compounded, but the first principles are not compounded nor formed from any thing. What we call the elements are fire, air, earth, and water; but we call that a principle which has nothing from which it is formed, since otherwise it is not a principle, but that from which it is formed. But there is something antecedent to water and earth, from which they are formed; namely, the first matter which is devoid of shape and form; then there is form (which we call *entelocheia*) and privation.”³

“Plato, wishing to prove that the elements have one common matter as a substratum to all, in his ‘Timæus,’ enters into a discussion regarding their transmutation into one another. But he being well acquainted with the art of demonstration, has treated properly of the change of the first bodies into one another. But Thales, Anaximenes, Anaximander, and Heraclitus, assuming each that there is some one element, endeavour to prove this from their changing into one another. Yet all these seem to me to have had an obscure idea (*ὀνειράττειν*) of some matter, which is a common substratum to all the elements, and seeing that it is single they supposed that there is but one element. But instead of saying that this is a common element from which the others, I mean air, fire, water, and earth, are formed, they passed it over altogether and endeavoured to demonstrate the same thing of some one of the elements, all proceeding upon the same mode of demonstration, although they did not all make choice of the same element.”⁴

“With regard to the old philosophers, called physical, it will be obvious to us when we read their writings on Nature,

¹ Plotinus, Ennead ii, 6.

² Proclus, Inst. Theol., 72.

³ Plutarch, On the Opinions of the Philosophers.

⁴ Galen, On the Elements, &c., ii.

that they held the existence of a first matter which is increate and eternal, being the substratum to all created and perceptible things.”¹

“That the elements change into one another is admitted, even by the followers of Thales, it being so apparent. Hence it is inferred that the elements have one common matter for a substratum.”²

Philo, the platonic Jew of Alexandria, in his treatise ‘On the Creation of the World,’ thus expresses his opinions regarding the original state of matter. “Whoever would wish to discover the cause why this universe was framed, would not be far from the truth, in my opinion, if he said with one of the ancients, that the Father and Maker of it is good, and for that reason he spared not to impart of his most excellent nature to a substance having nothing beautiful in itself, but possessing the capacity of becoming all things. Of itself it was devoid of form, quality, and life; and was full of contrariety, confusion, and dissonance.”

“Moses, the chief of philosophers, and instructed in many of the most comprehensive secrets of Nature by oracles, was aware that it was most necessary that there should be in the universe an active cause and a passive subject. That the active is the most pure and perfect soul of the universe, more excellent than virtue, more excellent than knowledge, more excellent than even goodness and beauty. That the passive is of itself without life and motion, but being moved and figured, and enlivened by mind, it was changed into a most perfect work.”³

His opinion regarding the elements may be collected from the following passages:—“Fire being extinguished is converted into thick air, and air being compressed subsides into water, and water being still more compressed is changed into earth, the densest of the elements.”⁴

“Nothing that is pure can be comprehended by the senses.”⁵

“The elements are inanimate matter, of itself devoid of

¹ Galen, Commentary on the Nature of Man.

² Idem, On the Elements, &c.

³ Philo, on the Creation of the World.

⁴ On the Indestructibility of the Universe.

⁵ On the Creation.

motion, and subjected to the artificer, by whom it is transformed into all kinds of shapes and qualities.”¹

I shall venture to give under this head the opinions of one of the Arabian medical authors.

“It is to be kept in mind that the elements which are perceived by the senses, namely, fire, air, earth, and water, are by no means the pure elements, but such as are comprehended by the mind. These are not to be perceived by the senses. None of the others is pure, nor without some admixture.”²

THE PERIPATETICS.

Aristotle defines the first matter as follows: “I call matter the first subject of everything, all things being formed from it existing in them not accidentally; and when anything is destroyed, it comes to this at last.”³

In his Logical work he thus defines his ideas regarding the first substances, namely, mind and matter. “The first substances being the subjects of all other things, and as every other thing may be predicated by them and exists in them, are called the prime substances.”⁴

“We must distinguish the first bodies from matter, for we must suppose concerning them that they have a first principle and origin, namely, matter, which is inseparable from them, and is the subject of the contraries. For heat does not furnish the materials to cold, nor it to heat, but the subject to both. So that we have first the sensible body in potentiality, the first principle; then we have the contraries, I mean cold and heat; and thirdly, fire and water, and the like. These change into one another, and not as Empedocles and others say of them.”⁵

“The *material* of all bodies, great and small, is the same. This is apparent; for when air is formed from water, the same matter, when it becomes another thing, acquires nothing new, only that which formerly existed in capacity now exists actually.”⁶

The following extracts will show the opinions of his most celebrated commentators:

¹ On a Contemplative Life.

² Haly Abbas, Theor., i, 5.

³ Auscult. Natur., i, near the end.

⁴ Categor.

⁵ On Birth and Death, ii, 1.

⁶ Auscult. Phys., iv.

“Air and fire have one common character, namely, heat; therefore they readily change into one another. Air and water readily change into one another, for they have a common character, namely, moisture. In like manner, water and earth, for they have an alliance, namely, coldness.”¹

“The physical philosophers analyse any substance, as, for example, a man into head, hands, and feet; and these into bones, flesh, and nerves; and these into the four elements; and these again into matter and form.”²

“Water is formed from air, and air from water, and fire from air, because they all have one common substratum, matter.”³

The next two extracts will show the opinions entertained by Aristotle’s successor in the Peripatetic school of philosophy.

“Of the simple substances, fire has peculiar powers. *For air, water, and earth, admit only of changes into one another, but none of them can produce itself.*”⁴

“The nature of those substances called simple is mixed, and existing in one another.”⁵

“The Peripatetics divided Nature into two things, the one of which is efficient, and the other that which furnishes it with the materials from which anything is made. Power exists in the one, and matter is the essence of the other.”⁶

“The first principles are air, fire, water, and earth, for from them are formed all living things and the productions of the earth: they are therefore called elements; of these, air and fire have the power of moving and forming the others (I mean water and earth), of receiving or suffering. Besides these, Aristotle thought that there is a fifth element, from which the stars and the souls of individuals are made; but that all these had for a substratum a certain matter devoid of form and quality, from which all things are framed, a substance which has a capacity for all things, and admits of all changes, that when it perishes it is not reduced to nothing, but into its parts, which can be cut and divided infinitely, since there is nothing in Nature that is not divisible.”⁷

¹ Simplicius, Comment. in Auscult. Nat., iv.

² Ammonius, Comment. in Porphy. Introd.

⁴ Theophrastus, On Fire.

⁶ Cicero, Quæd. Acad., i, 6.

³ Ibid.

⁵ Ibid.

⁷ Ibid., 7.

THE STOICS.

“They are of opinion that the first principles of all things are two—the active and the passive: that the passive is matter, a being devoid of all qualities; the active, or efficient, is the reason (λόγος) residing in it, that is, God. That he, being eternal, fabricates all things from it all (all matter?). That there is a difference between the first principles and the elements—that the former are increate and indestructible, whilst the elements are destructible by burning (ἐκπύρωσις).—That the first principles are bodies devoid of form, whereas the elements are possessed of form. That God and Mind, Fate and Jupiter, are one and the same being under different appellations; that he formed the four elements, fire, air, water, earth.”¹

“Our Stoics say, that there are two principles in Nature from which all things are formed, namely, cause and matter. That matter lies inert, a being prepared for all things, but inactive, unless some one move it.—That cause, that is, reason, forms matter, and changes it at will. There must be something *by* which everything is made and *of* which it is made: the former is the cause, the latter the matter.”²

“Some of our sect are of opinion that air, being changeable into fire and water, &c.”³

“We are of opinion that earth is changeable. To this we may add that all things are formed from all things—air from water—water from air—fire from air—air from fire; *why, then, should not earth be formed from water, and water from earth?* Earth is formed from water—why then not water from earth?”⁴

“The Stoics divided Nature into two things, the one of which is the efficient, and the other that which furnishes itself as the materials from which anything is made.”⁵

Suidas says, regarding the first principles: “The first principles of all things are two, the efficient and the passive. The passive, then, is a being devoid of qualities—earth, matter.

¹ Diogenes Laertius, in the Life of Zeno the Stoic. The reader must take care not to confound him with Zeno the Eclectic.

² Seneca, Ep. 65.

³ Seneca, Nat. Quæst., ii, 15.

⁴ Seneca, Nat. Quæst., iii, 10.

⁵ Lactantius, Div. Inst., iii, 3.

The efficient is the reason residing in it, namely, God. The principles and elements are different, inasmuch as the former are increate and indestructible, while the elements are destructible by burning. Besides, the first principles are without body and form, but the elements have form.”¹

“Zeno, the son of Mnaseas, the Citiensian, taught that there are two principles, God and matter, the one efficient and the other passive; and that there are four elements.”²

“The Stoics maintain that the first principles are two, God and matter; not that they consider God as an element, but as the active principle, whilst matter is the passive.”³

“Always remember the saying of Heraclitus, *that the dissolution of earth is to become water, and the dissolution of water to become earth; and the dissolution of air to become fire, and conversely.*”⁴

“Contemplate the courses of the stars as if carried about with them, and frequently revolve in your mind the mutual transmutations of the elements into one another.”⁵

“Acquire the habit of contemplating the transmutation of all things into one another.”⁶

“Fire, air, water, earth, were so formed by Nature as to furnish aliment by turns to one another.”⁷

¹ See under ἀρχαί.

² Plutarch, Concerning the Opinions of the Philosophers.

³ Simplicius, Comm. in Aristot. Auscult. Nat., p. 7; ed. Ald.

⁴ Marcus Antoninus, iv, 46.

⁵ Ibid.

⁶ Ibid.

⁷ Manilius, Astron., iii, 53:—

“Principium rerum et custos natura latentum
 Cum tantas strueret moles per inania mundi:
 * * * *
 Aëraque et terras flammamque undamque natantem
 Mutua in alternum præbere alimenta juberet.”

THE EPICUREANS.

“Therefore all those who teach things took their birth
 From simple fire, or water, air, or earth,
 Lie under palpable mistakes. And those
 That teach from doubled elements they rose,
 As air and fire, as earth and water joined,
 Or all four, earth, air, water, fire combined :
 Thus sung Empedocles.

* * * *

If all things from four elements arose,
 And are again by death dissolved to those :
 What reason we should rather fondly deem
 Them principles of things, than things from them ?
*For they alternately are changed and show
 Each other's figure and their nature too.”*¹

The following passage will show the opinions of Democritus, the contemporary and friend of Hippocrates, from whom Epicurus took his system of physics.² “He taught that the atoms are infinite in magnitude and number, that they revolve in all space, and that thus they formed *the compound bodies fire, water, air, earth*; for that even these are composed from the atoms, which are impassive and unchangeable owing to their hardness.”³

These extracts prove clearly that the great philosophers of antiquity stand acquitted of having held the erroneous opinions generally ascribed to them respecting the elements of things, and that nothing can be farther from the truth than the account of the Peripatetic doctrines given by Dr. Watson. Instead of maintaining, as he carelessly represents, that “earth, air, fire, and water are distinct, uncompounded, immutable principles;” they taught, on the contrary, as we have shown, that all the elements are modifications of one common substance called the primary matter, and consequently they held, like himself, that “the elements are different magnitudes, figures, and arrangements of particles of matter of the same kind.” This primary matter they demonstrated to be devoid of all quality and form, but susceptible of all forms and qualities.⁴

¹ Lucretius, *Of the Nature of Things*, Book i, translated by Creech.

² Cicero, *Acad. Quæst.*, i, 2; Galen, *de Elementis*.

³ Diogenes Laertius, *Life of Democritus*.

⁴ Ἡ ἕλη ἄπυρος. Galen, *de Element.* ex Hippocrat.

In the language of the Peripatetics, it is everything in capacity, but nothing in actuality. They held that there are two original principles, both increate and indestructible; the one matter, the universal passive principle¹—the material *from* which all things are formed; and the other, the efficient cause *by* which all things are made:—that the one is possessed of universal privation, and the other of universal energy:—that it is the one which *impresses*, and the other which *receives* the forms of all things. They maintained that the original materials out of which all objects in the universe are composed being the same, bodies owe their characteristic qualities not to their substance, but to their form. The elements, then, according to the notions of the ancient philosophers, are the first matter arranged into certain distinguishing forms by the efficient cause. That form with which solidity is associated they call earth, under which they ranged all metals, stones, and the like, for all these they held to be allied to one another in nature, as well as in the form under which they are presented to our senses. The next arrangement of created substances is that which constitutes fluidity, and is called water, under which term they comprehended not only the native element, but every other modification of matter which assumes a similar form, namely, all juices of vegetables and fluids of animals.² Some of their earliest speculators in philosophy maintained that all the materials which compose the universe existed at one time in this form; and it is curious to reflect that modern geology has reproduced nearly the same doctrine. The third form of matter, as presented to our sense of touch, is air, under which the ancient philosophers comprehended all

¹ The eternity of matter is a doctrine which was maintained by all the ancient philosophers and by several of the Christian fathers of the church, but is generally rejected by our modern divines as being, in their opinion, contradictory to Revelation. But were it really so, it would hardly have found an advocate in the learned and pious author of 'Paradise Lost.' That such was truly his opinion can now admit of no doubt, from what he states on the subject in his treatise on Christianity, published some years ago by the present Archbishop of Canterbury; and the same might have been inferred from more than one passage in his great poem. The Jewish philosopher, Philo, seems to admit the eternity of matter, although he denies the eternity of the world. (On the Creation.)

² "There are varieties," says Strabo, "of the watery element; for this kind is saltish, and that sweet, and fit for drink; and others again poisonous, salutary, deadly, cold, and hot."—Geograph., xvii, 1. See also Aristot., Meteorol.

matter in an aërial state, such as water converted into vapour, and what are now called gases. Whether or not they believed the atmosphere which surrounds this earth to be a homogeneous substance, in nowise affects the general principles of their philosophy; for it is the same thing, as far as regards their classification, whether they held that the atmosphere consists of one or of several distinct combinations of the primary matter with form. As they were well aware that several distinct modifications of matter are comprehended under each of the other elements, it can hardly be doubted that they inferred the like of air; and, indeed, it is quite apparent from the works of Galen that he knew very well that some kinds of air are favorable, and others unfavorable to respiration and combustion.¹ But those phenomena which we ascribe to oxygen gas, they, without doubt, would have attributed to the operations of some modification of the element fire. By fire, they meant matter in its extreme state of tenuity and refinement. Of this elementary principle, Plato² and Theophrastus³ have enumerated many varieties, and have speculated regarding their nature with great precision and acuteness. The ancient philosophers believed that fire is universally diffused through the universe, being sometimes in a *sensible*, and sometimes in *latent* state; or, as Aristotle expressed it, heat exists sometimes in capacity, and sometimes in energy.⁴ They attributed the phenomena of lightning to an unequal distribution of this elemental fire.⁵ This is the element with which they supposed life to be most intimately connected; and, indeed, some of them would appear to have considered fire as the very essence of the soul. "I am

¹ Aristotle inquires whether the atmosphere be a single substance or many, and if many, of how many it consists. (Meteorol., i, 3.) I may be allowed to remark in this place, that Galen's ideas regarding respiration are wonderfully accurate, and not very different from those now entertained by the profession. Thus he compares the process of respiration to combustion, and says it produces the same change upon atmospheric air. He further agrees with modern physiologists in considering it as the vital operation by which the innate (*or* animal) heat is preserved. (De Respiratione.) Compare this treatise with Baron Cuvier's admirable section on Respiration, and observe on how many points these two great physiologists agree. (Leçons d'Anatom. Compar., 26.)

² Timæus.

³ De Igne.

⁴ De Partibus Animalium, ii, 2. His great commentator, Averrhoes the Arabian, states this distinction very correctly. See Cantic. Avicennæ, tr. v.

⁵ Lucan's Pharsalia, i, 157, 606.

of opinion," says the author of one of the Hippocratic treatises, "that what we call heat is immortal, and understands, sees, and hears all things that are or will be."¹ This doctrine, which, to say the least of it, is not very judiciously expressed in this passage, is thus corrected by the great master of logic and philosophy: "Some," says Aristotle, "improperly call fire or some such power the soul; but it would be better to say that the soul subsists in such a body, because heat is, of all bodies, the one most obedient to the operations of the soul; for to nourish and move are the operations of the soul, and these she performs by the instrumentality of this power (*or* quality?). To say that the soul is fire, is as if one were to call a saw or a wimble the artisan or his art, because his work is accomplished in co-operation with these instruments. From this it appears why animals stand in need of heat."² And in like manner he says, in another of his works: "Some are of opinion that the nature of fire is plainly the cause of nourishment and of growth; for it appears to be the only body or element which nourishes and increases itself. Wherefore one might suppose that it is this that operates both in plants and in animals. Yet it is but the co-cause (*συνάτιον*); for *it* is not, properly speaking, the cause, but rather the soul. For the increase of fire is indeterminate in so far as it is supplied with fuel. But of natural substances there is a certain limit and reason (*λόγος*) of magnitude and increase. This belongs to the soul rather than to fire, to the reason rather than to the matter."³

From these observations, coupled with the information supplied in the preceding extracts, it will be perceived that, although there be, at first sight, a great discrepancy among physical doctrines of the ancient philosophers, they differed, in fact, much less than they would appear to do, only that some of them expressed themselves more scientifically than others in

¹ De Carnibus. (See the preceding section.) In like manner Phornutus says, "our souls are fire." (De Natura Deorum, ap. Gale's Opuscula Mythologica, p. 142.) Such is also said to have been the doctrine of Hippocrates and Democritus. See Macrobius (Somnium Scipionis, i, 14); and Nemesius (de Nat. Hominis). In the Hippocratic treatise De Septimadibus, which M. Littré has discovered in Latin, the essence of the soul is held to be heat. (Ed. Littré, i, p. 391.)

² De Partibus Animalium, ii, 7.

³ De Anima, ii, 4.

handling the subject of the elements. Thus, although Thales seems to hold *water*, and Anaximander *air*, and Heraclitus *fire*, to be original principles, we have every reason to believe that, as Galen says (l. c.), even they had an idea that these are not simple substances, but merely modifications of one unformed principle, the first matter, from which they conceived that all bodies in the universe are constructed. Contrary, then, to what is very generally supposed, it would appear that there was at bottom no very great difference of opinion between the philosophers of the Ionic school and those of the other sects, namely, the Pythagoreans, Platonists, Peripatetics, Stoics, and Epicureans; and further, that, from the earliest dawn of philosophy, down to the time when it fell into neglect and came to be misunderstood, the physical doctrines of the philosophers underwent but little variation.

From the elements, then, constructed in the manner now explained, out of the primary matter, the ancient philosophers taught that all the secondary bodies in the universe are formed, and as they maintained the transmutability of the elements into one another, so, in like manner, they did not hesitate to proclaim it as a great general truth "that all things are convertible into all things."¹ The possibility, then, of such permutations will not, I presume, be questioned by any one who has formed correct ideas of the powers of the Great First Cause, and the capacities of the first subject, Matter, and that such permutations do actually take place in the course of Nature may be inferred from many phenomena of daily occurrence in the vegetable and animal world. It cannot have escaped the most careless observation what changes the great pabulum, water, undergoes in the process of vegetation—how it is converted into various woods, and barks, and leaves, and flowers, all of which are resolvable, by the process of decay, into air, or reducible into earth. It is also well known that, although a more unfrequent occurrence, all the solid parts of a tree may undergo a mutation into rock, that is to say, may become petrified. But it is in the higher classes of animals that these changes of simple matter admit of the greatest variety.

¹ Ὅτι πᾶν ἐκ πάντος γινέσθαι πέφυκε.—Aristot., de Ortu et Interitu, et Auscultationes Naturales, i.

Let us contemplate for a moment some of the most remarkable mutations which any article of food, (as, for example, flour-bread), which has been presented to the stomach, is destined to undergo in the animal frame. We know that the vital powers of the stomach will convert the starch, of which it principally consists, into a fluid state, that is to say, into what is called first chyme, and afterwards, when it has undergone some further change, is denominated chyle by the physiologists. Having been thus changed, it passes, by a process about the nature of which physiologists are still strangely divided in opinion, into certain vessels; and then, in some manner still less understood, it is converted into a fluid *sui generis*, called blood, abounding in globules of a singular construction, all fabricated, no doubt, from the food, but, by some occult process, which has hitherto defied the skilful manipulation of the chemist, and the accurate observation of the microscopist, to explain in any satisfactory manner.¹ And so complete is the transformation that scarcely one particle of the original food can be detected in the new product by all the vaunted tests of modern science. But blood is soon after converted into many other fluid and solid substances—into bones, cartilages, muscles, and vessels, and into bile, mucus, and other recrementitious matters, all differing greatly from one another, both in their appearances and in their properties.² And when all the component parts of the animal frame are constructed, and each seems to have acquired a determinate structure, should the vital actions by which they are formed become deranged, we may see the fair fabric undergo the most wonderful mutations, so that arteries are converted into bones, and bones into flesh and jelly.³ So many and so extraordinary are the changes which a simple alimentary substance may undergo in the animal frame! And if we admit, with the ancient philosophers, that every such substance is resolvable into one or more of the elements, and that all the

¹ See Simon's Chemistry, vol. i, p. 118, and the authorities there referred to.

² Baron Cuvier says: "En un mot, toutes les fonctions animales paroissent en reduire à des transformations de fluides; et c'est dans la manière dont ces transformations s'opèrent, que gît le véritable secret de cette admirable économie."—Leçons d'Anatom. Comp., lib. i.

³ It will be readily understood that allusion is here made to the diseases ossification and osteosarcoma.

elements are but different modifications of one common matter, how wonderful a thing must Form be, since it imparts such varied appearances and qualities to one common substratum?

In detailing these opinions of the ancient philosophers, it is not my present business to determine whether they be true or not; my task is fulfilled, if I have given a distinct and faithful exposition of them, so that their real import and meaning may be readily comprehended by the medical reader. I may be allowed to remark, however, that, strange although that Protean being, the primary matter, may appear to be to such men of science as are not disposed to recognise the existence of any substance which cannot be subjected to their senses, and who refuse to admit the legitimacy of every process of analysis, but what is conducted in the laboratory of the chemist, opinions similar to those of the ancient philosophers have been held by some of the most profound thinkers and distinguished experimentalists of modern times. Thus Lord Bacon, the reputed father of the inductive philosophy, appears to admit all the tenets of the ancients regarding the first matter, which, like them, he considers to have been embodied in the Homeric fable of Proteus.¹ He says, in reference to it, "that under the person of Proteus is signified *Matter*, the most ancient of all things, next to the Deity; that the herd of Proteus was nothing else than the ordinary species of animals, plants, and metals, into which matter appears to diffuse, and, as it were, to consume itself; so that, after it has formed and finished those several species, (its task being, in a manner, complete,) it appears to sleep and be at rest, nor to labour at, attempt, or prepare any species farther."² That learned and accomplished scholar, Mr. Harris, in his work on 'Philosophical Arrangements,' writes thus on the subject we are now treating of: "Here, then, we have an idea (such as it is) of that singular being, the Primary Matter, a Being which those philosophers who

¹ The same application of this myth is made by Eustathens, the commentator on Homer (ad Odyss., iv, 417), and by Heraclides Ponticus (Gale's *Opuscula Mytholog.*, p. 490). The words of Heraclides are very striking: "That hence it was with good reason that the formless matter was called Proteus; and that Providence which modified each being with its peculiar form and character was called Eidothia."

² De Sapient. Vet., cap. xiii.

are immersed in sensible subjects know not well how to admire though they cannot well do without it; a Being which flies to the perception of every sense, and which is at best, even to the intellect, but a negative object, no otherwise comprehensible than either by analogy or abstraction.

“ We gain a glimpse of it by abstraction, when we say that the first matter is not the lineaments and complexion which make the beautiful face; nor yet the flesh and blood which make these lineaments and that complexion; nor yet the liquids and solid aliments, which make that flesh and blood; nor yet the simple bodies of earth and water, which make those various aliments; but something which, being below all these, and supporting them all, is yet different from them all, and essential to their existence.

“ We obtain a sight of it by analogy when we say that, as the brass is to the statue, the marble to the pillar, the timber to the ship, or any one secondary matter to any secondary form, so is the First and Original Matter to all forms in general.”

Nay, the illustrious Sir Isaac Newton would seem, in the following extract, to countenance the profound speculations of the ancient philosophers with respect to the elements, and the transmutations of these substances into one another. He says, “ Are not gross bodies and light (*or ether*) convertible into one another?—and may not bodies receive much of their activity from the particles of light which enter into their composition? The changing of bodies into light and of light into bodies is very agreeable to the course of Nature, which seems delighted with permutations. Water, which is a very fluid tasteless substance changes by heat into vapour, a sort of air; and by cold into ice, which is a hard, pellucid, brittle, fusible stone, and the stone returns into water by heat, and vapour returns into water by cold. Earth, by heat, becomes fire, and by cold returns into earth.”²

¹ Op. cit., iv.

² These opinions of Newton bear a strong resemblance to those of Strabo, as expressed in the following passage: “ Since all things are in motion and undergoing great changes, it is to be supposed that neither does the earth always remain the same, so as neither to be augmented nor diminished; nor yet water; nor that ether always possesses the same seat, for that a change of one thing into another seems to be much according to nature. For that much earth is converted into water, and much water into earth.”—*Geography*, xii, 1.

I may further mention that all the late researches of chemical philosophers have tended to confirm the tenets of the ancients regarding the Elements. Thus in that very singular performance 'The Elements of Physiophilosophy,' by Dr. Lorenz Oken, the productions of the mineral kingdom are classified, very much in accordance with the ancient arrangement, into four classes, namely, into Earth-earths, Water-earths, Air-earths, and Fire-earths.¹ It is also well known that chemical experiment has lately established that several animal and vegetable substances, such as albumen, fibrin, and casein, which were formerly looked upon as distinct substances, are all but modifications of one substance, which is now regarded as the original of all the tissues; and further, that protein, in every respect identical with that which forms the basis of the three aforesaid animal principles, may be obtained from similar elements in the vegetable kingdom.² And if every step which we advance in the knowledge of the intimate structure of things leads us to contract the number of substances formerly held to be simple, I would not wonder if it should yet turn out that oxygen, carbon, hydrogen, and nitrogen are, like what the ancients held the elements to be—all nothing else but different modifications of one ever-changing matter. But I will not indulge further in such speculations, especially as I have reason to apprehend that I may be thought to be wandering from my own proper sphere in thus prosecuting researches which may be supposed to have but a distant bearing on the subject now in hand. I must, however, be allowed again to repeat my declaration, that it is impossible to comprehend the theories contained in the Hippocratic treatises without a proper acquaintance with the Physical Philosophy of the ancients, and that these principles have been misapprehended and misrepresented most unaccountably by modern writers, so as to occasion corresponding mistakes with regard to ancient medicine. I trust, then, that my present labours will not be ineffectual in preventing such mistakes in future; though, at the same time, knowing, as I well do, the

¹ See p. 120, Ray Society's edition.

² See Simon's Chemistry, vol. i, p. 5; Sydenham Society's edition. The etymology of the term *protein* is there given from *πρωτῆνο*, *I am first*; but it may more properly be derived from Proteus, to which, as we have mentioned above, the first matter was likened.

practical bent of British science at the present day, I cannot but be apprehensive that a certain portion of my readers will lend a deaf ear to speculative opinions, of which they cannot recognise the importance, and will be disposed to discard the doctrines of the ancient philosophers before they have rightly comprehended their import :

“Nec mea dona tibi studio comportsa fidei
Intellecta prius quam sint, contempta relinquis.”¹

I am sensible, too, that I may have just reason to suspect that I still retain a too partial fondness for the fascinating studies in which I indulged at one period, beyond what, perhaps, was prudent in a physician, and that it would have been better for me if I had taken a lesson from the mythical hero of the ‘Odyssey,’ and had resisted the enchanting voice of the ancient Siren when she sought to allure me from the active duties of a professional life, with the confident assurance that I should leave her “much delighted, and with an increase of knowledge.”²

Before concluding, I will briefly recapitulate the results to which our present inquiry has conducted us:—

1st. That many of the medical theories which occur in the Hippocratic treatises are founded on the physical philosophy of the ancients, and more particularly on their doctrines with regard to the elements of things.

2d. That all the great sects of the ancient philosophers held that the four elements, namely, fire, air, earth, and water, are transmutable into one another, being all of a homogeneous nature, and based upon one common substratum, namely, the primary matter.

¹ Lucretius, de R. N., i, 48.

² I have always looked upon the story of the Sirens as being one of the most beautiful fictions in the Homeric poems. By the two Sirens I cannot but think that the poet meant to represent Philosophy and Melody, these being, as it were, the handmaids of Poetry. They assail the virtue of Ulysses with no vulgar temptations, by assuring him that they were well acquainted with all the martial exploits in which he had been engaged, and that he would leave them “much delighted, and with an increase of knowledge.”

Ἄλλ' ὄγε περιψάμενος νείπαι καὶ πλείονα ἐϊδώς.

Odyss. xii, 188.

3d. That, by reasoning from observation and analogy, the ancient philosophers arrived at the conclusion that this primary matter is a substance devoid of all qualities and forms, but susceptible of all forms and qualities.

4th. That although certain of the philosophers, the contemporaries and predecessors of Hippocrates, appear to hold that some one of the elements, such as fire or water, was the original of all things, even these had an idea, although not expressed by them in a definite manner, of a first matter, which serves as a basis to all the elements.

5th. That these doctrines of the ancient philosophers, whether well founded or not, are countenanced by many eminent names in modern literature and philosophy.

6th. That the opinion generally entertained regarding the doctrines of the ancient philosophers on this subject is altogether erroneous.

THE
WORKS OF HIPPOCRATES.

ON ANCIENT MEDICINE.

ON ANCIENT MEDICINE.

THE ARGUMENT.

ALTHOUGH, as stated in the second section of the Preliminary Discourse, the evidence in support of this treatise be unfortunately not such as clearly to establish its genuineness, all who read it with attention must admit that it is replete with important matters, and that if not the production of Hippocrates, it is not unworthy of his high reputation. Notwithstanding, then, that I am by no means so well convinced as M. Littré is, that the work is genuine, I have not hesitated to follow his example in placing it at the head of the list, as the nature of its contents is such as to form an excellent introduction to the study of the Hippocratic medicine.

It contains, as M. Littré remarks, a polemic, a method, and a system. The polemic is directed against those of his predecessors who had corrupted medicine by introducing hypotheses into it as the causes of diseases, such as heat, cold, moisture, and dryness. These it will be seen that he combats with great force of argument and clearness of illustration. The philosophical dogma to which he is supposed to refer in this place are those of the section of the Pythagoreans, called the Eleatic, who would appear to have held nearly the same opinions as Pythagoras himself with regard to the elements.¹ But, in fact, as I trust I have clearly made out in the third section of the Preliminary

¹ Diogenes Laertius, in fact, states that Xenophanes, the founder of the school, held the doctrine of the four elements. On the Eleatic philosophy, see further, Aristotle (de Xenophane; and *Metaphys.*, i, 5); and, of the modern authorities, Ritter (*History of Ancient Philosophy*, vol. i) and Grote (*Hist. of Greece*, tom. iv, p. 518, &c.) Whether or not these modern authors, however, have rightly apprehended the doctrine of Xenophanes and Anaximander with regard to the elements, may, I think, be justly doubted. Dr. Thirlwall gives a very judicious exposition of the ethical opinions of the Eleatic philosophers, but does not touch on their physical. (*Hist. of Greece*, § 12.)

*

Discourse, all the ancient philosophers held substantially the same opinion regarding the elements, although they did not all express themselves in the same terms. It is of little consequence, then, to attempt to find out what particular class of philosophers our author directs his attack against, it being sufficient to say that he decidedly condemns the practice of founding the rules of medical practice on hypothesis.¹ I may here remark, that the censure thus bestowed on hypothetical systems applies to modern times as well as to ancient, to those who proclaim theories by which, like Broussais, they account for all diseases upon figments which they call inflammations, and those who, like Cullen, attribute most diseases to spasms. We may rest assured, from the sensible observations which Hippocrates makes on this subject in the present work, that the causes of all diseases are realities, provided we could find them out, and that they are not vague abstractions, as the authors of these hypotheses suppose.

His method of cultivating medicine is founded on an attentive examination of all the circumstances connected with real life, and his system consists in studying the condition of the humours in the body, their origin, their coction, and their disappearance.

The most prominent feature, however, in the contents of this little treatise is the practical view which is here given of the origin of medicine, namely, from the necessities and weaknesses of the human race. The author clearly makes it out that Medicine is, as it were, a corollary to Dietetics. Nothing of the kind can well be imagined more ingenious and original than his observations and reasonings on this head in the introductory sections of this treatise. See in particular § 5.

The remarks in refutation of the hypothesis of cold, heat, moist, and dry, are very interesting. (§ 13.)

The reflections on the origin of fevers and inflammations are

¹ M. Littré is inclined to give the Pythagorean philosopher, Alcmaëon, the credit of priority in broaching the philosophical theory which runs through this treatise. His only authority, however, on this point is Plutarch (*De Placit. Philos.*, v, 30); whereas Galen, as he admits, says expressly that Hippocrates himself is the author of this theory. Now, I must say that, of the two, Galen appears to me to be the better authority, being profoundly skilled both in medical and philosophical literature. But further, neither Diogenes Laertius in his life, nor any other writer who has noticed Alcmaëon, says anything of his having promulgated the theory of the Crasis.

very just and original, but would appear not to have been properly appreciated by his successors; for among all the ancient authors who have treated of fever, there is, perhaps, no one but himself who has stated in decided terms that there is something more in a fever than a mere increase of the innate (*or* animal) heat. See the Commentary on PAULUS ÆGINETA, B. II, 1.

The remarks on the effects of the cold bath at § 16 are much to the purpose, and deserve attention.

The observations on rheums *or* defluxions (§ 19) are also very striking, and even at the present day, after the many vicissitudes of medical theory which we have gone through, it would be difficult to deny that the opinions here advanced are well founded. At all events they must be allowed to be highly interesting, as containing the first germ of a theory which long flourished in the schools of medicine.

At § 20 the author seems to hold that philosophy is not so necessary to medicine as medicine is to philosophy. Schulze, with a considerable show of reason, argues that Celsus had this passage in view when he pronounced, concerning Hippocrates, that he was the first person who separated medicine from philosophy. (*Hist. Med.* I, 3, i, 26.) Schulze contends that what Celsus meant was, that Hippocrates discarded *à priori* arguments in medicine, and drew all his inferences from actual observation. This would appear to me the most plausible interpretation which has ever been given to this celebrated passage in the preface of Celsus. Philosophy, then, it would appear, freed medicine from the delusions of superstition, by substituting the errors of hypothesis in their place, and the important office which he who was called the Father of Medicine conferred upon the art was by discarding both superstition and hypothesis, and substituting the results of actual observation in the room of both.

From § 22 to the end of the work the author gives important observations on the modifications which diseases undergo in connexion with the peculiar organization of the part in which they are situated. It may well be doubted whether the remarks and reflections herein contained have ever obtained all the attention which they merit.

The style of this piece is certainly elegant and beautiful;

and it is proper to mention that the text is remarkably improved in M. Littré's edition. In all the previous editions it was more corrupt than that of almost any other of the Hippocratic treatises.

The following remarks of M. Littré on the present work appear to me so just, and are so elegantly expressed, that I cannot deny myself the pleasure of introducing them here in the original :

“ En résumé, le livre de *l'Ancienne Médecine* donne une idée des problèmes agités du temps d'Hippocrate, et de la manière dont ils étaient débattus. Il s'agissait, dans la plus grande généralité de la pathologie de déterminer la cause des maladies ou, en d'autres termes, de poser les bases d'un système de médecine. Certains médecins disaient que cette cause, étant une, résidait dans une propriété unique du corps, propriété qu'ils spécifiaient. Hippocrate répétait qu'en fait, cela était en contradiction avec l'expérience, qu'en principe une hypothèse était suspecte et stérile, et qu'il n'y avait de sûreté que dans l'étude des faits et dans la tradition de la science qui y ramène. Ainsi, quatre cents ans avant J. C., on essayait de rattacher toute la médecine à une seule propriété hypothétique, comme on l'a essayé de nos jours ; mais cette propriété était ou le chaud, ou le froid, ou l'humide, ou le sec. Quatre cents ans avant J. C., un esprit sévère et éclairé combattait de telles opinions au nom de l'expérience, montrait que les causes des maladies ne pouvant pas se ramener à une seule, le champ de la pathologie générale était bien plus vaste qu'on ne croyait ; et formulait ce que l'observation lui avait permis de conclure ; mais sa conclusion n'embrasse guère que la trouble dans le mélange des humeurs, que leur coction et leurs crises. Depuis lors, la méthode de ceux qu'Hippocrate avait combattus, et la méthode d'Hippocrate, l'hypothèse et l'observation se sont perpétuées, ainsi que le témoigne l'histoire de la médecine, mais ce ne sont plus ni l'ancienne hypothèse, ni l'ancienne observation.

“ Il est certainement instructif d'étudier, dans le cours du temps, les problèmes tels qu'ils ont été posés, et les discussions qu'ils ont soulevées. On le voit, la science antique a de grandes ressemblances avec la science moderne ; dès l'époque que nous sommes forcés de regarder comme l'aurore de la médecine, dès

les premiers monuments que nous possédons, les questions fondamentales sont débattues, et les limites de l'esprit humain sont touchées. Mais en dedans de ces limites, la science trouve, dans une immensité inépuisable de combinaisons, les matériaux qui la font grandir ; et il est impossible de ne pas reconnaître que, sur un sol et avec les aliments que lui fournissent les choses et l'expérience, elle se développe en vertu d'un principe interne de vie, qui reside dans l'enchaînement nécessaire de son développement successif."¹

ON ANCIENT MEDICINE.

1. WHOEVER having undertaken to speak or write on Medicine, have first laid down for themselves some hypothesis to their argument, such as hot, or cold, or moist, or dry, or whatever else they choose, (thus reducing their subject within a narrow compass, and supposing only one or two original causes of diseases or of death among mankind,) are all clearly mistaken in much that they say; and this is the more reprehensible as relating to an art which all men avail themselves of on the most important occasions, and the good operators and practitioners in which they hold in especial honour. For there are practitioners, some bad and some far otherwise, which, if there had been no such thing as Medicine, and if nothing had been investigated or found out in it, would not have been the case, but all would have been equally unskilled and ignorant of it, and everything concerning the sick would have been directed by chance. But now it is not so; for, as in all the other arts, those who practise them differ much from one another in dexterity and knowledge, so is it in like manner with Medicine. Wherefore I have not thought that it stood in need of an empty hypothesis, like those subjects which are occult and dubious, in attempting to handle which it is necessary to use some hypothesis; as, for example, with regard to things above us and things below the earth;² if any one should treat of these and undertake to declare how they are constituted,

¹ Tom. i, p. 567.

² See Note, p. 191.

the reader or hearer could not find out, whether what is delivered be true or false; for there is nothing which can be referred to in order to discover the truth.

2. But all these requisites belong of old to Medicine, and an origin and way have been found out, by which many and elegant discoveries have been made, during a length of time, and others will yet be found out, if a person possessed of the proper ability, and knowing those discoveries which have been made, should proceed from them to prosecute his investigations. But whoever, rejecting and despising all these, attempts to pursue another course and form of inquiry, and says he has discovered anything, is deceived himself and deceives others, for the thing is impossible. And for what reasons it is impossible, I will now endeavour to explain, by stating and showing what the art really is. From this it will be manifest that discoveries cannot possibly be made in any other way. And most especially, it appears to me, that whoever treats of this art should treat of things which are familiar to the common people. For of nothing else will such a one have to inquire or treat, but of the diseases under which the common people have laboured, which diseases and the causes of their origin and departure, their increase and decline, illiterate persons cannot easily find out themselves, but still it is easy for them to understand these things when discovered and expounded by others. For it is nothing more than that every one is put in mind of what had occurred to himself. But whoever does not reach the capacity of the illiterate vulgar, and fails to make them listen to him, misses his mark. Wherefore, then, there is no necessity for any hypothesis.

3. For the art of Medicine would not have been invented at first, nor would it have been made a subject of investigation (for there would have been no need of it,) if when men are indisposed, the same food and other articles of regimen which they eat and drink when in good health were proper for them, and if no others were preferable to these. But now necessity itself made medicine to be sought out and discovered by men, since the same things when administered to the sick, which agreed with them when in good health, neither did nor do agree with them. But to go still further back, I hold that the diet and food which people in health now use would not

have been discovered, provided it had suited with man to eat and drink in like manner as the ox, the horse, and all other animals, except man, do of the productions of the earth, such as fruits, weeds, and grass; for from such things these animals grow, live free of disease, and require no other kind of food. And, at first, I am of opinion that man used the same sort of food, and that the present articles of diet had been discovered and invented only after a long lapse of time. For when they suffered much and severely from this strong and brutish diet, swallowing things which were raw, unmixed, and possessing great strength, they became exposed to strong pains and diseases, and to early deaths. It is likely, indeed, that from habit they would suffer less from these things than we would now, but still they would suffer severely even then; and it is likely that the greater number, and those who had weaker constitutions, would all perish; whereas the stronger would hold out for a longer time, as even nowadays some, in consequence of using strong articles of food, get off with little trouble, but others with much pain and suffering. From this necessity it appears to me that they would search out the food befitting their nature, and thus discover that which we now use: and that from wheat, by macerating it, stripping it of its hull, grinding it all down, sifting, toasting, and baking it, they formed bread;¹ and from barley they formed cake (*maza*),² performing many operations in regard to it; they boiled, they roasted, they mixed, they diluted those things which are strong and of intense qualities with weaker things, fashioning them to the nature and powers of man, and considering that the stronger things Nature would not be able to manage if administered, and that from such things pains, diseases, and death would arise, but such as Nature could manage, that from them food, growth, and health, would arise. To such a discovery and investigation

¹ The invention of bread must have been very ancient, as is obvious from the circumstance of its being referred to a mythological name, that is to say, Demeter or Ceres. The ancients would appear to have paid great attention to the manufacture of bread. See Athenæus Deipnos, iii, 26; and PAULUS ÆGINETA, B. I, 78, Syd. Soc. edition.

² The *maza* was a sort of pudding or cake made from barleymeal mixed up with water, oil, milk, oxymel, hydromel, or the like. It also was a very ancient invention, for it is mentioned in one of the works of Hesiod, which is universally allowed to be genuine, I mean the Opera et Dies, l. 588.

what more suitable name could one give than that of Medicine? since it was discovered for the health of man, for his nourishment and safety, as a substitute for that kind of diet by which pains, diseases, and deaths were occasioned.

4. And if this is not held to be an art, I do not object. For it is not suitable to call any one an artist of that which no one is ignorant of, but which all know from usage and necessity. But still the discovery is a great one, and requiring much art and investigation. Wherefore those who devote themselves to gymnastics and training, are always making some new discovery, by pursuing the same line of inquiry, where, by eating and drinking certain things, they are improved and grow stronger than they were.¹

5. Let us inquire then regarding what is admitted to be Medicine; namely, that which was invented for the sake of the sick, which possesses a name and practitioners, whether it also seeks to accomplish the same objects, and whence it derived its origin. To me, then, it appears, as I said at the commencement, that nobody would have sought for medicine at all, provided the same kinds of diet had suited with men in sickness as in good health. Wherefore, even yet, such races of men as make no use of medicine, namely, barbarians, and even certain of the Greeks, live in the same way when sick as when in health; that is to say, they take what suits their appetite, and neither abstain from, nor restrict themselves in anything for which they have a desire. But those who have cultivated and invented medicine, having the same object in view as those of whom I formerly spoke, in the first place, I suppose, diminished the quantity of the articles of food which they used, and this alone would be sufficient for certain of the sick, and be manifestly beneficial to them, although not to all, for there would be some so affected as not to be able to manage even small quantities of their usual food, and as such persons would seem to require something weaker, they invented soups, by

¹ We have stated in our brief sketch of the Life of Hippocrates, that he studied the application of gymnastics to medicine under the great master of the art, Herodicus. He was a native of Selymbra in Thrace, and is generally represented as the father of medicinal gymnastics; but, as we have mentioned above, this statement must be received with considerable allowance, since there is every reason to believe that the Asclepiadae applied exercises to the cure of diseases.

mixing a few strong things with much water, and thus abstracting that which was strong in them by dilution and boiling. But such as could not manage even soups, laid them aside, and had recourse to drinks, and so regulated them as to mixture and quantity, that they were administered neither stronger nor weaker than what was required.

6. But this ought to be well known, that soups do not agree with certain persons in their diseases, but, on the contrary, when administered both the fevers and the pains are exacerbated, and it becomes obvious that what was given has proved food and increase to the disease, but a wasting and weakness to the body. But whatever persons so affected partook of solid food, or cake, or bread, even in small quantity, would be ten times and more decidedly injured than those who had taken soups, for no other reason than from the strength of the food in reference to the affection; and to whomsoever it is proper to take soups and not eat solid food, such a one will be much more injured if he eat much than if he eat little, but even little food will be injurious to him. But all the causes of the sufferance refer themselves to this rule, that the strongest things most especially and decidedly hurt man, whether in health or in disease.

7. What other object, then, had he in view who is called a physician, and is admitted to be a practitioner of the art, who found out the regimen and diet befitting the sick, than he who originally found out and prepared for all mankind that kind of food which we all now use, in place of the former savage and brutish mode of living? To me it appears that the mode is the same, and the discovery of a similar nature. The one sought to abstract those things which the constitution of man cannot digest, because of their wildness and intemperance, and the other those things which are beyond the powers of the affection in which any one may happen to be laid up. Now, how does the one differ from the other, except that the latter admits of greater variety, and requires more application, whereas the former was the commencement of the process?

8. And if one would compare the diet of sick persons with that of persons in health, he will find it not more injurious than that of healthy persons in comparison with that of wild beasts and of other animals. For, suppose a man labouring

under one of those diseases which are neither serious and unsupportable, nor yet altogether mild, but such as that, upon making any mistake in diet, it will become apparent, as if he should eat bread and flesh, or any other of those articles which prove beneficial to healthy persons, and that, too, not in great quantity, but much less than he could have taken when in good health; and that another man in good health, having a constitution neither very feeble, nor yet strong, eats of those things which are wholesome and strengthening to an ox or a horse, such as vetches, barley, and the like, and that, too, not in great quantity, but much less than he could take; the healthy person who did so would be subjected to no less disturbance and danger than the sick person who took bread or cake unseasonably. All these things are proofs that Medicine is to be prosecuted and discovered by the same method as the other.

9. And if it were simply, as is laid down, that such things as are stronger prove injurious, but such as are weaker prove beneficial and nourishing, both to sick and healthy persons, it were an easy matter, for then the safest rule would be to circumscribe the diet to the lowest point. But then it is no less mistake, nor one that injures a man less, provided a deficient diet, or one consisting of weaker things than what are proper, be administered. For, in the constitution of man, abstinence may enervate, weaken, and kill. And there are many other ills, different from those of repletion, but no less dreadful, arising from deficiency of food; wherefore the practice in those cases is more varied, and requires greater accuracy. For one must aim at attaining a certain measure, and yet this measure admits neither weight nor calculation of any kind, by which it may be accurately determined, unless it be the sensation of the body; wherefore it is a task to learn this accurately, so as not to commit small blunders either on the one side or the other, and in fact I would give great praise to the physician whose mistakes are small, for perfect accuracy is seldom to be seen, since many physicians seem to me to be in the same plight as bad pilots, who, if they commit mistakes while conducting the ship in a calm do not expose themselves, but when a storm and violent hurricane overtake them, they then, from their ignorance and mistakes, are discovered to be what they are, by all men, namely, in losing their ship. And thus bad and commonplace

physicians, when they treat men who have no serious illness, in which case one may commit great mistakes without producing any formidable mischief, (and such complaints occur much more frequently to men than dangerous ones): under these circumstances, when they commit mistakes, they do not expose themselves to ordinary men; but when they fall in with a great, a strong, and a dangerous disease, then their mistakes and want of skill are made apparent to all. Their punishment is not far off, but is swift in overtaking both the one and the other.¹

10. And that no less mischief happens to a man from unseasonable depletion than from repletion, may be clearly seen upon reverting to the consideration of persons in health. For, to some, with whom it agrees to take only one meal in the day, and they have arranged it so accordingly; whilst others, for the same reason, also take dinner, and this they do because they find it good for them, and not like those persons who, for pleasure or from any casual circumstance, adopt the one or the other custom: and to the bulk of mankind it is of little consequence which of these rules they observe, that is to say, whether they make it a practice to take one or two meals. But there are certain persons who cannot readily change their diet with impunity; and if they make any alteration in it for one day, or even for a part of a day, are greatly injured thereby. Such persons, provided they take dinner when it is not their wont, immediately become heavy and inactive, both in body and mind, and are weighed down with yawning, slumbering, and thirst; and if they take supper in addition, they are seized with flatulence, tormina, and diarrhœa, and to many this has been the commencement of a serious disease, when they have merely taken twice in a day the same food which they have been in the custom of taking once. And thus, also, if one who has been accustomed to dine, and this rule agrees with him, should not dine at the accustomed hour, he will straightway feel great loss of strength, trembling, and want of spirits, the eyes of such a person will become more pallid, his urine thick and hot, his mouth bitter; his bowels will seem, as it were, to hang loose; he will suffer from vertigo, lowness of spirit, and inactivity,—such are the effects; and if he should attempt to take at supper the same food which he was wont to partake of

¹ He means both the pilot and physician.

at dinner, it will appear insipid, and he will not be able to take it off; and these things, passing downwards with tormina and rumbling, burn up his bowels; he experiences insomnolency or troubled and disturbed dreams; and to many of them these symptoms are the commencement of some disease.

11. But let us inquire what are the causes of these things which happened to them. To him, then, who was accustomed to take only one meal in the day, they happened because he did not wait the proper time, until his bowels had completely derived benefit from and had digested the articles taken at the preceding meal, and until his belly had become soft, and got into a state of rest, but he gave it a new supply while in a state of heat and fermentation, for such bellies digest much more slowly, and require more rest and ease. And as to him who had been accustomed to dinner, since, as soon as the body required food, and when the former meal was consumed, and he wanted refreshment, no new supply was furnished to it, he wastes and is consumed from want of food. For all the symptoms which I describe as befalling to this man I refer to want of food. And I also say that all men who, when in a state of health, remain for two or three days without food, experience the same unpleasant symptoms as those which I described in the case of him who had omitted to take dinner.

12. Wherefore, I say, that such constitutions as suffer quickly and strongly from errors in diet, are weaker than others that do not; and that a weak person is in a state very nearly approaching to one in disease; but a person in disease is the weaker, and it is, therefore, more likely that he should suffer if he encounters anything that is unseasonable. It is difficult, seeing that there is no such accuracy in the Art, to hit always upon what is most expedient, and yet many cases occur in medicine which would require this accuracy, as we shall explain. But on that account, I say, we ought not to reject the ancient Art, as if it were not, and had not been properly founded, because it did not attain accuracy in all things, but rather, since it is capable of reaching to the greatest exactitude by reasoning, to receive it and admire its discoveries, made from a state of great ignorance, and as having been well and properly made, and not from chance.

13. But I wish the discourse to revert to the new method

of those who prosecute their inquiries in the Art by hypothesis. For if hot, or cold, or moist, or dry, be that which proves injurious to man, and if the person who would treat him properly must apply cold to the hot, hot to the cold, moist to the dry, and dry to the moist—let me be presented with a man, not indeed one of a strong constitution, but one of the weaker, and let him eat wheat, such as it is supplied from the thrashing-floor, raw and unprepared, with raw meat, and let him drink water. By using such a diet I know that he will suffer much and severely, for he will experience pains, his body will become weak, and his bowels deranged, and he will not subsist long. What remedy, then, is to be provided for one so situated? Hot? or cold? or moist? or dry? For it is clear that it must be one or other of these. For, according to this principle, if it is one of these which is injuring the patient, it is to be removed by its contrary. But the surest and most obvious remedy is to change the diet which the person used, and instead of wheat to give bread, and instead of raw flesh, boiled, and to drink wine in addition to these: for by making these changes it is impossible but that he must get better, unless completely disorganised by time and diet. What, then, shall we say? whether that, as he suffered from cold, these hot things being applied were of use to him, or the contrary? I should think this question must prove a puzzler to whomsoever it is put. For whether did he who prepared bread out of wheat remove the hot, the cold, the moist, or the dry principle in it?—for the bread is consigned both to fire and to water, and is wrought with many things, each of which has its peculiar property and nature, some of which it loses, and with others it is diluted and mixed.

14. And this I know, moreover, that to the human body it makes a great difference whether the bread be fine or coarse;¹ of wheat with or without the hull, whether mixed with much or little water, strongly wrought or scarcely at all, baked or raw—and a multitude of similar differences; and so, in like

¹ Καθαρός ἄρτος ἢ συγκομιστός. There has been some difference of opinion regarding these two kinds of bread; but it appears to me probable that the former was made of flour from which the bran had been entirely excluded, and the other from flour containing the whole of the bran. Later authorities called the one *siligo*, and the other *autopyrus*. See PAULUS ÆGINETA, Vol. 1, p. 121.

manner, with the cake (maza); the powers of each, too, are great, and the one nowise like the other. Whoever pays no attention to these things, or, paying attention, does not comprehend them, how can he understand the diseases which befall a man? For, by every one of these things, a man is affected and changed this way or that, and the whole of his life is subjected to them, whether in health, convalescence, or disease. Nothing else, then, can be more important or more necessary to know than these things. So that the first inventors, pursuing their investigations properly, and by a suitable train of reasoning, according to the nature of man, made their discoveries, and thought the Art worthy of being ascribed to a god, as is the established belief. For they did not suppose that the dry or the moist, the hot or the cold, or any of these, are either injurious to man, or that man stands in need of them; but whatever in each was strong, and more than a match for a man's constitution, whatever he could not manage, that they held to be hurtful, and sought to remove. Now, of the sweet, the strongest is that which is intensely sweet; of the bitter, that which is intensely bitter; of the acid, that which is intensely acid; and of all things that which is extreme, for these things they saw both existing in man, and proving injurious to him. For there is in man the bitter and the salt, the sweet and the acid, the sour and the insipid,¹ and a multitude of other things having all sorts of powers, both as regards quantity and strength. These, when all mixed and mingled up with one another, are not apparent, neither do they hurt a man; but when any of them is separate, and stands by itself, then it becomes perceptible, and hurts a man. And thus, of articles of food, those which are unsuitable and hurtful to man when administered, every one is either bitter, or intensely so, or saltish or acid, or something else intense and strong, and therefore we are disordered by them in like manner as we are by the secretions in the body. But all those things of which a man eats and drinks are devoid of any such intense and well-marked quality, such as bread, cake, and many other things of a similar nature which man is accustomed to use for food, with the exception of condiments and confectionaries, which are made

¹ He alludes here to the secretions and humours in the body. See the Commentary of Heurnius.

to gratify the palate and for luxury. And from those things, when received into the body abundantly, there is no disorder nor dissolution of the powers belonging to the body; but strength, growth, and nourishment result from them, and this for no other reason than because they are well mixed, have nothing in them of an immoderate character, nor anything strong, but the whole forms one simple and not strong substance.

15. I cannot think in what manner they who advance this doctrine, and transfer the Art from the cause I have described to hypothesis, will cure men according to the principle which they have laid down. For, as far as I know, neither the hot nor the cold, nor the dry, nor the moist, has ever been found unmixed with any other quality; but I suppose they use the same articles of meat and drink as all we other men do. But to this substance they give the attribute of being hot, to that cold, to that dry, and to that moist. Since it would be absurd to advise the patient to take something hot, for he would straightway ask what it is? so that he must either play the fool, or have recourse to some one of the well-known substances: and if this hot thing happen to be sour, and that hot thing insipid, and this hot thing has the power of raising a disturbance in the body (and there are many other kinds of heat, possessing many opposite powers), he will be obliged to administer some one of them, either the hot and the sour, or the hot and the insipid, or that which, at the same time, is cold and sour (for there is such a substance), or the cold and the insipid. For, as I think, the very opposite effects will result from either of these, not only in man, but also in a bladder, a vessel of wood, and in many other things possessed of far less sensibility than man; for it is not the heat which is possessed of great efficacy, but the sour and the insipid, and other qualities as described by me, both in man and out of man, and that whether eaten or drunk, rubbed in externally, and otherwise applied.

16. But I think that of all the qualities heat and cold exercise the least operation in the body, for these reasons: as long time as hot and cold are mixed up with one another they do not give trouble, for the cold is attempered and rendered more moderate by the hot, and the hot by the cold; but when the one is wholly separate from the other, then it gives pain; and

at that season when cold is applied it creates some pain to a man, but quickly, for that very reason, heat spontaneously arises in him without requiring any aid or preparation. And these things operate thus both upon men in health and in disease. For example, if a person in health wishes to cool his body during winter, and bathes either in cold water or in any other way, the more he does this, unless his body be fairly congealed, when he resumes his clothes and comes into a place of shelter, his body becomes more heated than before. And thus, too, if a person wish to be warmed thoroughly either by means of a hot bath or strong fire, and straightway having the same clothing on, takes up his abode again in the place he was in when he became congealed, he will appear much colder, and more disposed to chills than before. And if a person fan himself on account of a suffocating heat, and having procured refrigeration for himself in this manner, cease doing so, the heat and suffocation will be ten times greater in his case than in that of a person who does nothing of the kind. And, to give a more striking example, persons travelling in the snow, or otherwise in rigorous weather, and contracting great cold in their feet, their hands, or their head, what do they not suffer from inflammation and tingling when they put on warm clothing and get into a hot place? In some instances, blisters arise as if from burning with fire, and they do not suffer from any of those unpleasant symptoms until they become heated. So readily does either of these pass into the other; and I could mention many other examples. And with regard to the sick, is it not in those who experience a rigor that the most acute fever is apt to break out? And yet not so strongly neither, but that it ceases in a short time, and, for the most part, without having occasioned much mischief; and while it remains, it is hot, and passing over the whole body, ends for the most part in the feet, where the chills and cold were most intense and lasted longest; and, when sweat supervenes, and the fever passes off, the patient is much colder than if he had not taken the fever at all. Why then should that which so quickly passes into the opposite extreme, and loses its own powers spontaneously, be reckoned a mighty and serious affair? And what necessity is there for any great remedy for it?

17. One might here say—but persons in ardent fevers,

pneumonia, and other formidable diseases, do not quickly get rid of the heat, nor experience these rapid alterations of heat and cold. And I reckon this very circumstance the strongest proof that it is not from heat simply that men get into the febrile state, neither is it the sole cause of the mischief, but that this species of heat is bitter, and that acid, and the other saltish, and many other varieties; and again there is cold combined with other qualities. These are what proves injurious; heat, it is true, is present also, possessed of strength, as being that which conducts, is exacerbated and increased along with the other, but has no power greater than what is peculiar to itself.

18. With regard to these symptoms, in the first place those are most obvious of which we have all often had experience. Thus, then, in such of us as have a coryza and defluxion from the nostrils, this discharge is much more acrid than that which formerly was formed in and ran from them daily; and it occasions swelling of the nose, and it inflames, being of a hot and extremely ardent nature, as you may know, if you apply your hand to the place; and, if the disease remains long, the part becomes ulcerated although destitute of flesh, and hard; and the heat in the nose ceases, not when the defluxion takes place and the inflammation is present, but when the running becomes thicker and less acrid, and more mixed with the former secretion, then it is that the heat ceases. But in all those cases in which this decidedly proceeds from cold alone, without the concurrence of any other quality, there is a change from cold to hot, and from hot to cold, and these quickly supervene, and require no coction. But all the others being connected, as I have said, with acrimony and intemperance of humours, pass off in this way by being mixed and concocted.

19. But such defluxions as are determined to the eyes being possessed of strong and varied acrimonies, ulcerate the eyelids, and in some cases corrode the cheeks and parts below the eyes upon which they flow, and even occasion rupture and erosion of the tunic which surrounds the eyeball. But pain, heat, and extreme burning prevail until the defluxions are concocted and become thicker, and concretions form about the eyes, and the coction takes place from the fluids being mixed up, diluted, and digested together. And in defluxions upon the throat, from which are formed hoarseness, cynauche, corysypclas, and

pneumonia, all these have at first saltish, watery, and acrid discharges, and with these the diseases gain strength. But when the discharges become thicker, more concocted, and are freed from all acrimony, then, indeed, the fevers pass away, and the other symptoms which annoyed the patient; for we must account those things the cause of each complaint, which, being present in a certain fashion, the complaint exists, but it ceases when they change to another combination. But those which originate from pure heat or cold, and do not participate in any other quality, will then cease when they undergo a change from cold to hot, and from hot to cold; and they change in the manner I have described before. Wherefore, all the other complaints to which man is subject arise from powers (qualities?). Thus, when there is an overflow of the bitter principle, which we call yellow bile, what anxiety, burning heat, and loss of strength prevail! but if relieved from it, either by being purged spontaneously, or by means of a medicine seasonably administered, the patient is decidedly relieved of the pains and heat; but while these things float on the stomach, unconcocted and undigested, no contrivance could make the pains and fever cease; and when there are acidities of an acrid and æruginous character, what varieties of frenzy, gnawing pains in the bowels and chest, and inquietude, prevail! and these do not cease until the acidities be purged away, or are calmed down and mixed with other fluids. The coction, change, attenuation, and thickening into the form of humours, take place through many and various forms; therefore the crises and calculations of times are of great importance in such matters; but to all such changes hot and cold are but little exposed, for these are neither liable to putrefaction nor thickening. What then shall we say of the change? that it is a combination (crasis) of these humours having different powers towards one another. But the hot does not lose its heat when mixed with any other thing except the cold; nor again, the cold, except when mixed with the hot. But all other things connected with man become the more mild and better in proportion as they are mixed with the more things besides. But a man is in the best possible state when they are concocted and at rest, exhibiting no one peculiar quality; but I think I have said enough in explanation of them.

20. Certain sophists and physicians say that it is not possible

for any one to know medicine who does not know what man is [and how he was made and how constructed], and that whoever would cure men properly, must learn this in the first place. But this saying rather appertains to philosophy, as Empedocles and certain others have described what man in his origin is, and how he first was made and constructed.¹ But I think whatever such has been said or written by sophist or physician concerning nature has less connexion with the art of medicine than with the art of painting. And I think that one cannot know anything certain respecting nature from any other quarter than from medicine; and that this knowledge is to be attained when one comprehends the whole subject of medicine properly, but not until then; and I say that this history shows what man is, by what causes he was made, and other things accurately. Wherefore it appears to me necessary to every physician to be skilled in nature, and strive to know, if he would wish to perform his duties, what man is in relation to the articles of food and drink, and to his other occupations, and what are the effects of each of them to every one. And it is not enough to know simply that cheese is a bad article of food, as disagreeing with whoever eats of it to satiety, but what sort of disturbance it creates, and wherefore, and with what principle in man it disagrees; for there are many other articles of food and drink naturally bad which affect man in a different manner. Thus, to illustrate my meaning by an example, undiluted wine drunk in large quantity renders a man feeble; and everybody seeing this knows that such is the power of wine, and the cause thereof; and we know, moreover, on what parts of a man's body it principally exerts its action; and I wish the same certainty to appear in other cases. For cheese (since we used it as an example) does not prove equally injurious to all men, for there are some who can take it to satiety without being hurt by it in the least, but, on the contrary, it is wonderful what strength it imparts to those it agrees with; but there are some who do not bear it well, their constitutions are different, and they differ in this respect, that what in their body is incompatible with cheese, is roused and put in commotion by such a thing; and those in whose bodies such a humour

¹ See Littré, h. l.

happens to prevail in greater quantity and intensity, are likely to suffer the more from it. But if the thing had been pernicious to the whole nature of man, it would have hurt all. Whoever knows these things will not suffer from it.

21. During convalescence from diseases, and also in protracted diseases, many disorders occur, some spontaneously, and some from certain things accidentally administered. I know that the common herd of physicians, like the vulgar, if there happen to have been any innovation made about that day, such as the bath being used, a walk taken, or any unusual food eaten, all which were better done than otherwise, attribute notwithstanding the cause of these disorders, to some of these things, being ignorant of the true cause, but proscribing what may have been very proper. Now this ought not to be so; but one should know the effects of a bath or a walk unseasonably applied; for thus there will never be any mischief from these things, nor from any other thing, nor from repletion, nor from such and such an article of food. Whoever does not know what effect these things produce upon a man, cannot know the consequences which result from them, nor how to apply them.

22. And it appears to me that one ought also to know what diseases arise in man from the powers, and what from the structures. What do I mean by this? By powers, I mean intense and strong juices; and by structures, whatever conformations there are in man. For some are hollow, and from broad contracted into narrow; some expanded, some hard and round, some broad and suspended,¹ some stretched, some long, some dense, some rare and succulent,² some spongy and of loose texture.³ Now, then, which of these figures is the best calculated to suck to itself and attract humidity from another body? Whether what is hollow and expanded, or what is solid and round, or what is hollow, and from broad, gradually turning narrow? I think such as from hollow and broad are contracted into narrow: this may be ascertained otherwise from obvious facts: thus, if you gape wide with the mouth you cannot

¹ Meaning probably the diaphragm, with its membranes. See the Commentary of Heurnius, p. 92.

² Meaning the mammæ, according to Heurnius.

³ Such as the spleen and lungs.

draw in any liquid ; but by protruding, contracting, and compressing the lips, and still more by using a tube, you can readily draw in whatever you wish. And thus, too, the instruments which are used for cupping are broad below and gradually become narrow, and are so constructed in order to suck and draw in from the fleshy parts. The nature and construction of the parts within a man are of a like nature ; the bladder, the head, the uterus in women ; these parts clearly attract, and are always filled with a juice which is foreign to them. Those parts which are hollow and expanded are most likely to receive any humidity flowing into them, but cannot attract it in like manner. Those parts which are solid and round could not attract a humidity, nor receive it when it flows to them, for it would glide past, and find no place of rest on them. But spongy and rare parts, such as the spleen, the lungs, and the breasts, drink up especially the juices around them, and become hardened and enlarged by the accession of juices. Such things happen to these organs especially. For it is not with the spleen as with the stomach, in which there is a liquid, which it contains and evacuates every day ; but when it (the spleen) drinks up and receives a fluid into itself, the hollow and lax parts of it are filled, even the small interstices ; and, instead of being rare and soft, it becomes hard and dense, and it can neither digest nor discharge its contents : these things it suffers, owing to the nature of its structure. Those things which engender flatulence or tormina in the body, naturally do so in the hollow and broad parts of the body, such as the stomach and chest, where they produce rumbling noises ; for when they do not fill the parts so as to be stationary, but have changes of place and movements, there must necessarily be noise and apparent movements from them. But such parts as are fleshy and soft, in these there occur torpor and obstructions, such as happen in apoplexy. But when it (the flatus?) encounters a broad and resisting structure, and rushes against such a part, and this happens when it is by nature not strong so as to be able to withstand it without suffering injury ; nor soft and rare, so as to receive or yield to it, but tender, juicy, full of blood, and dense, like the liver, owing to its density and broadness, it resists and does not yield. But flatus, when it obtains admission, increases and becomes

stronger, and rushes towards any resisting object ; but owing to its tenderness, and the quantity of blood which it (the liver) contains, it cannot be without uneasiness ; and for these reasons the most acute and frequent pains occur in the region of it, along with suppurations and chronic tumours (phymata). These symptoms also occur in the site of the diaphragm, but much less frequently ; for the diaphragm is a broad, expanded, and resisting substance, of a nervous (tendinous?) and strong nature, and therefore less susceptible of pain ; and yet pains and chronic abscesses do occur about it.

23. There are both within and without the body many other kinds of structure, which differ much from one another as to sufferings both in health and disease ; such as whether the head be small or large ; the neck slender or thick, long or short ; the belly long or round ; the chest and ribs broad or narrow ; and many others besides, all which you ought to be acquainted with, and their differences ; so that knowing the causes of each, you may make the more accurate observations.

24. And, as has been formerly stated, one ought to be acquainted with the powers of juices, and what action each of them has upon man, and their alliances towards one another. What I say is this : if a sweet juice change to another kind, not from any admixture, but because it has undergone a mutation within itself ; what does it first become ?—bitter ? salt ? austere ? or acid ? I think acid. And hence, an acid juice is the most improper of all things that can be administered in cases in which a sweet juice is the most proper. Thus, if one should succeed in his investigations of external things, he would be the better able always to select the best ; for that is best which is farthest removed from that which is unwholesome.

ON AIRS, WATERS, AND PLACES.

ON AIRS, WATERS, AND PLACES.

THE ARGUMENT.

DR. CORAY, in his excellent edition of this treatise, divides it into six chapters, as follows: first, the Introduction (from § 1—3) comprehends some general observations on the importance of cultivating a knowledge of the effects which the different seasons, the winds, the various kinds of water, the situation of cities, the nature of soils, and the modes of life, exercise upon the health, and the necessity of a physician's making himself well acquainted with all these matters, if he would wish to practise his profession successfully. The author insists, with particular earnestness, on the utility of studying the constitution of the year and the nature of the seasons, and refutes the opinions of those persons, in his days, who held that a knowledge of all these things belongs to meteorology rather than to medicine. The second chapter (from § 3—7) treats of climate, and the diseases prevalent in localities characterised by their exposure to particular winds. Those winds being peculiar to Greece, their names occasion some trouble in order to understand them correctly, and we shall give below a summary of what the modern Greek Coray says in illustration of them. This part of the present treatise appears to have been highly elaborated, and contains much important information. The third chapter (§ 7—10) treats of the various kinds of water, and their effects in different states of the human constitution. The remarks contained here are of an eminently practical nature, and evidently must have been the results of patient observation and experiment, so that, even at the present day, it would be difficult to detect our author in a single error of judgment. In this place he has occasion to deliver his opinions on the formation of urinary calculi, which he does at consider-

able length ; and I may be permitted to remark, whatever may be thought of his etiology of the disease, it will be admitted that his theory is plausible, and the best that could well have been framed in the state of knowledge which then prevailed on that subject. Indeed, even at the present day, it must be allowed that this is a dark subject; we have acquired, it is true, many new and curious facts connected with the minute structure of these concretions, but it can hardly be affirmed that we have been able to evolve from them any general principles, or certain rules of practice. In the fourth chapter (§ 10—12), the nature of the seasons is treated of, and their influence on the health circumstantially stated. Some of the observations contained in this part of the work are remarkable for their acuteness and originality, such as the following, that, in estimating the effects of a season on the health, we ought to take into account the seasons which preceded it. This is well expressed by Celsus, as follows: “*neque solum interest quales dies sint sed etiam quales præcesserint.*” (Præfat.) See also Hippocrates (de Humoribus, § 8); and Coray (ad h. l. § cix.) It will be seen in our annotations that a considerable number of the Aphorisms are abstracted from this part of the present treatise. In the fifth chapter (§ 12—17), the effects of climate and the institutions of society on the inhabitants of Asia are treated of at considerable length. Our author, in this place, evinces a great acquaintance with human life, and a most philosophical spirit in contemplating the subjects which he is handling. Indeed few works in any language display so much accurate observation and originality of thought. The varieties of disposition, and of intellectual and moral development among mankind, are set down as being derived, in a great measure, from differences of climate and modes of government. Thus the Asiatics are of an effeminate and slavish disposition, because they live in a soft climate, on a rich soil, where they are little exposed to hardships or labour, and under a despotic form of government, which arrests the development of their mental energies.¹ This part also contains some interesting observations

¹ Although I shall touch cursorily on this subject in my annotations, I cannot deny myself the pleasure of setting down here the following passage from the treatise of Longinus ‘On the Sublime.’ It is to be borne in mind that it was written by a noble-minded Greek, who lived at the court of an Oriental despot, and must have

on the Macrocephali and the inhabitants of Phasis. In the sixth and last chapter (§ 17 to the end), the peculiar traits of the European character, as connected with climate and institutions, are described in a very interesting manner. Here the observations on the Amazons, Sauromate, and Scythians are well deserving of an attentive perusal, and more particularly the description of the disease induced by continual riding on horseback, the probable nature of which we shall consider presently. Here, too, are given our author's remarks on diseases supposed to be divine, which, as we have stated in the Preliminary section on his life, evince a wonderful exemption from the superstitious belief of his age, and indicate an extraordinary depth of thought.

This is a general outline of the contents of this treatise, which is one of the most celebrated in the whole Collection. From what we have stated, it will at once be seen that it relates to a subject of commanding interest, and deserves to be carefully studied, as containing the oldest exposition which we possess of the opinions entertained by an original and enlightened mind on many important questions connected with Public Hygiene and Political Economy, two sciences which, of late years, have commanded a large amount of professional attention. Whether or not modern experience may confirm our author's judgment in every particular case, it surely can neither be unprofitable nor uninteresting to ascertain what his opinions on these subjects actually were. Let us be thankful, then, that the destroying hand of time has spared us so valuable a relic of antiquity; and, instead of undervaluing our ancient instructor because he shows himself ignorant of many truths which we are now familiar with, let us be grateful to him for the amount of

been a daily observer of the effects which he so feelingly depicts. Who does not lament to think of a generous mind placed under circumstances where cowardice is honoured and courage debased? And what more melancholy picture of human misery can be imagined than that which is here exhibited of the bodily and mental powers in a state of arrested development from the effects of confinement?

Ἡμισυ γάρ τ' ἀρετῆς (κατὰ τὸν Ὅμηρον) ἀποαίνυται δοῦλιον ἡμαρ ὥσπερ ὄνον (εἶγε φησί, τοῦτο πιστόν ἐστι) ἀκούω τὰ γλωττόκομα, ἐν οἷς οἱ Πυγμαῖοι καλούμενοι νάνοι τρέφονται, οὐ μόνον κωλύει τῶν ἐγκεκλεισμένων τὰς ἀνξήσεις, ἀλλὰ καὶ συνάγει διὰ τὸν περικείμενον τοῖς σώμασι δεσμόν· οὕτως ἕπασαν δουλείαν, καὶ ἣ δίκαιοτάτη, ψυχῆς γλωττόκομον, καὶ κοινόν δὴ τις ἀποφίηται δεσμοτήριον.—§ 39.

information which he has supplied to us, and for setting us an example which it must be both safe and profitable for us to follow. Surely great praise is due to the man who first mooted so many important questions, and stated their bearings in distinct terms, although he did not always succeed in solving them.¹

I may take the present opportunity of mentioning that M. Littré, with some appearance of truth, blames Hippocrates for having rather overrated the influence of climate and institutions in producing military valour, which, as he justly remarks, has been proved by modern examples to be most intimately connected with discipline, and a knowledge of the arts of war. But if Hippocrates was wrong on this point, it was because he did not avail himself properly of the lights of his own age; for he might have learned from his contemporary, Socrates, the very doctrine which M. Littré here inculcates. "The question being put to him," says Xenophon, "whether valour was a thing that could be taught, or was natural? I am of opinion,

¹ M. Littré thus states the four principal points to which Hippocrates here directs attention :

"1st. Il cherche quelle est, sur le maintien de la santé et la production des maladies, l'influence de l'exposition des villes par rapport au soleil et aux vents.

"2d. Il examine quelles sont les propriétés des eaux, bonnes ou mauvaises.

"3d. Il s'efforce de signaler les maladies qui prédominent suivant les saisons, et suivant les alternatives que chacune d'elles éprouve.

"4th. Enfin, il compare l'Europe et l'Asie, et il rattache les différences physiques et morales qui en séparent les habitants, aux différences du sol et du climat."

He goes on, however, to state, that these four questions, although neatly put, are merely sketched, and half insinuates that it is a defect in the work, that it merely contains our author's assertions, without the corresponding proofs. In a modern work, he remarks, the mode of procedure would be different; for it would be expected that the general truths should be supported by detailed and prolonged statistics on particular facts. It is to be borne in mind, however, that the work of Hippocrates was probably meant merely as a text-book, on which were grounded his public prelections, wherein would, no doubt, be given all the necessary proofs and illustrations. In this respect, it resembles the esoteric works of Aristotle, of which the author of them said that when they were published the contents of them, in one sense, were not communicated to the public, as they would be unintelligible without the illustrations by which they were accompanied when delivered in his school. In conclusion, I would beg leave to remark that, if the work of Hippocrates, in its present form, appear defective when compared with what a modern work on the same subject would be expected to be, it has also peculiar traits which would hardly be matched in a modern composition. In a modern work we might have a greater abundance of particular facts, and a more copious detail of individual observations, but would there be such an exuberance of general truths, of grand results, and of original reflections?

he said, that as one body is born with greater powers than another for enduring labour, so is one soul produced by nature stronger than another for enduring dangers. For I see persons brought up under the same institutions and habits differing much from one another in courage. But I think that every nature may be improved in valour by learning and discipline. For it is obvious that the Scythians and Thracians would not dare to contend with the Lacedemonians with bucklers and spears; and it is clear that the Lacedemonians would not be willing to contend with the Thracians with small targets and javelins, or with the Scythians with bows and arrows." (Memorab. iii, 9.) The same doctrine is taught with remarkable subtlety of argument and originality of thought in the 'Protagoras' of Plato, (see § 97). If, then, Hippocrates was wrong on this head, (which, however, may be doubted), it is clear that he is not to be screened by the alleged ignorance of his age, and that he might have put himself right by attending to the instructions of a contemporary with whom he, in all probability, was familiar, and who undoubtedly was the greatest master of human nature that ever existed.

As there are certain matters connected with this treatise which will require a more lengthened discussion than can well suit with foot notes, I think it advisable to treat of them in this place:—

I. With regard to the seasons of the year, as indicated by the risings and settings of the stars, the following observations, taken in a great measure from Clifton's Preface, will supply, in as brief a space as possible, all the information that will be required: "As the reader will find frequent mention of seasons, equinoxes, solstices, risings and settings of the sun and stars (particularly Arcturus, the Dog-star, and the Pleiades), it may not be amiss to premise, in the first place, that as the year was divided by the ancients into four parts, every one of these was distinguished astronomically.

"Thus, for instance, the winter began at the setting of the Pleiades, and continued to the vernal equinox.

"The spring began at the vernal equinox, and ended at the rising of the Pleiades.

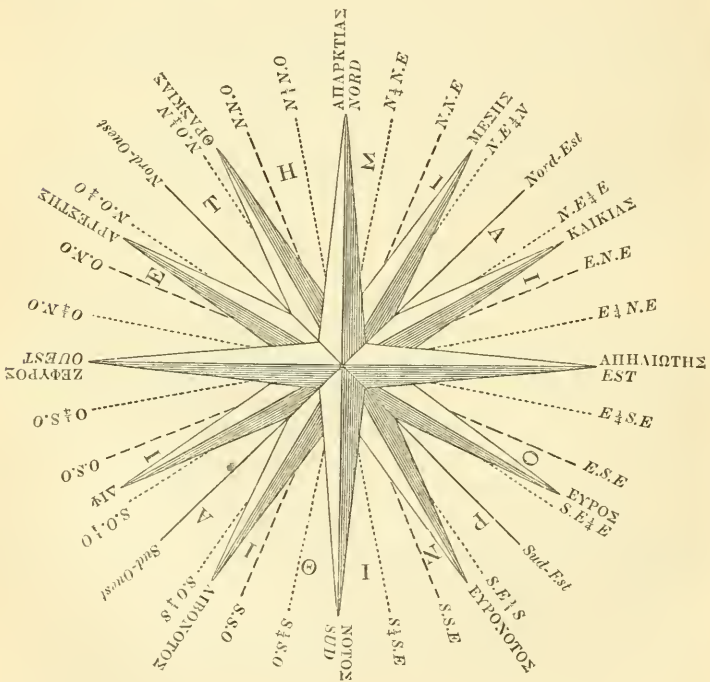
"The summer began at the rising of the Pleiades, and ended at the rising of Arcturus.

“The autumn began at the rising of Arcturus, and ended at the setting of the Pleiades.

“The rising and setting of the stars is always to be understood of what astronomers call the heliacal rising or setting, i. e. when a star rises or sets with the sun.

“The rising and setting of the sun in summer or winter (an expression which often occurs in this treatise), implies those points of the compass the sun rises and sets at.”¹

II. On the winds, of which frequent mention is made by our author, Coray has treated with a degree of prolixity and earnestness for which it is difficult to recognise the necessity. The figure given below, if properly studied and understood, will supply the professional reader with all the information he will require on this head.



¹ The classical reader is referred to Theophrastus' treatise *De Signis Aquarum et Ventorum*, for much interesting information on this subject.—See also Galen, *Op.* tom. v, p. 346, 347, ed. Basil.

III. One of the most singular diseases noticed in this work is the effeminacy with which the Scythians are said to have been attacked in consequence of spending the greater part of their time on horseback. (See § 22.) As the subject has attracted a good deal of attention lately, I will give a summary of the information which has been collected respecting it. See Coray, &c., t. ii, p. 331; Littré, t. ii, p. 5, 6; and Avert., xxxix, p. 47; t. iv, p. 9.

In the first place, then, it can scarcely admit of doubt that the disease is the same as that which Herodotus describes in the following passage: "Venus inflicted upon the Scythians, who pillaged her temple at Ascalon, and on their descendants, *the feminine disease*; at least it is to this cause that they attribute their disease; and travellers that go to the land of Scythia see how those persons are affected whom the Scythians call *accursed* (ἐνάοσει)." ¹

All the opinions which have been entertained respecting this affection are referred by M. Littré to the three following categories:

1. A vice, namely (A), Pederasty, which, he says is the most ancient opinion we have respecting it, as indicated by Longinus² (on the Sublime, 25), and defended by his commentators, Toll and Pearce, and by Casaubon and Coster.³ (B), Onanism, the opinion to which Sprengel inclines in his work on Hippocrates.

2. A bodily disease, to wit: (A), Hemorrhoids, as maintained by Paul Thomas de Girac,⁴ by Valkenäer, by Bayer,⁵ and by the Compilers of the 'Universal History.'⁶ (B), A true menstruation, as appears to be maintained by Lefevre and Dacier,⁷ and by others. (C), Blenorhagia, as Guy Patin⁸ and others suppose. (D), A true impotence as held by Mercuriali and others.

3. A mental disease, as maintained by Sauvages,⁹ Heyne,¹⁰ Coray,¹¹ and others.

¹ I. 105.

² It appears to me, however, that the meaning of Longinus in this place is rather overstrained.

³ Coster, Défense des Œuvres de Voiture, &c., p. 194.

⁴ Réponse à l'Apologie de Voiture, par Coster, p. 54.

⁵ Memoria Scythica, in Comm. Petropol. p. 377-78.

⁶ P. vi, p. 35.

⁷ Notæ in Longinum.

⁸ Comment. in vetus Monument, p. 415.

⁹ Nosol. Meth. p. 365.

¹⁰ De maribus inter Scythas morbo effeminatis, &c., p. 28.

¹¹ Hipp. de Aere, &c., t. ii, p. 326.

M. Rosenbaum is at great pains to make out that the affection in question was pederasty, and that the *accursed* (ἐνάργεες) of Herodotus were the same as the *pathici* of the Romans. I must say, that in my opinion Rosenbaum makes out a strong case in support of this opinion. In particular it will be remarked, that Herodotus says, the descendants of these Scythians were also inflicted with this complaint. Now Celsus Aurelianus says expressly, that the affection of the *pathici* was hereditary.¹ Taking everything into account, I must say that my own opinion has always been that the disease in question must have been some variety of *spermatorrhœa*. I need scarcely remark that this affection induces a state, both of body and mind, analogous to that of the *pathici*, as described by ancient authors.

Before leaving this subject, however, I should mention that M. Littré, in the fourth volume of his *Hippocrates* (p. xi), brings into view a thesis by M. Graff, the object of which is to prove that the disease of the Scythians was a true sort of impotence; and in illustration of it, he cites a passage from the memoirs of M. Larrey, containing a description of a species of impotence, attended with wasting of the testicle, which attacked the French army in Egypt. But, as far as I can see, this disease described by Larrey had nothing to do with riding on horseback, and I cannot see any relation between it and the diseases described by Herodotus and Hippocrates.

IV. Of all the legendary tales of antiquity, there is probably no one which was so long and so generally credited by the best informed historians, critics, geographers, poets, and philosophers, as the story of the Amazons. They are noticed historically by Homer (*Iliad*, iii, 186; vi, 152); Apollonius Rhodius (ii, 196); Pindar (*Olymp.* xiii, 84); Herodotus (ix, 27); Lysias (*Epitaph.* 3); Plato (*Menex.*); Isocrates (*Panegy.*); Ctesias (*Persic.*); Plutarch (*Theseus*); Strabo (*Geogr.* ix); Pausanias (iv, 31, 6; vii, 2, 4); Arrian (*Exped. Alexand.*); Quintus Curtius (vi, 4). Now it is singular that in all this list of authorities, which, it will be remarked, comprehends the *élite* of ancient scholars, no one, with the exception of Strabo, ventures to express the slightest doubt respecting the actual existence of the Amazons. Some of them, indeed, admit that the race had

¹ *Morb. Târd.* iv, 9.

become extinct in their time ; but they all seem satisfied that the Amazons had truly existed in a bygone age, and consequently they acknowledge them as real historical personages. Sec, in particular, Arrian, who, although compelled by his respect for truth to acknowledge that they did not exist in the days of Alexander the Great, still does not hesitate to declare that it appeared incredible that this race of women, celebrated as they were by the most eminent authors, should never have existed at all. Yet, notwithstanding the mass of evidence in support of their actual existence, I suppose few scholars now-a-days will hesitate to agree with Heyne (Apollodor. ii, 5, 9), and with Grote (Hist. of Greece, i, 2), in setting down the whole story as a mere myth. But, considering how generally it had been believed, we need not wonder that Hippocrates in this treatise should appear to entertain no doubt of their actual existence. The reader will remark that he makes the locality of the Amazons to be in Europe, among the Sarmatians, on the north side of the Euxine. It is generally taken for granted, however, in the ancient myths, that their place of residence was on the banks of the Thermodon, in Cappadocia, and they are described as having afterwards crossed to the opposite side of the Euxine, when expelled from this locality. But, in fact, they are remarkable so much for nothing as their ubiquity, being sometimes located in Asia, sometimes in Africa, and at other times in Athens. I may remark, before concluding, that Mr. Payne Knight (Symbolical Language, &c., Classical Journal, 23), and Creuzer (Symbolik. &c.), give a symbolical interpretation to the story of the Amazons ; but this mode of explaining the myths of antiquity is altogether fanciful and unsatisfactory. It seems safer and more judicious to deal with them as Mr. Grote has done¹, that is to say, to receive them as tales in which the ancients believed, without having any rational foundation for their faith. That there may have been a certain basis of truth in the story of the Amazons need not be denied ; but in this, as in all the ancient myths, it is a hopeless task to attempt to separate truth from fiction.

¹ Hist. of Greece, pluries.

ON AIRS, WATERS, AND PLACES.

1. WHOEVER wishes to investigate medicine properly, should proceed thus: in the first place to consider the seasons of the year, and what effects each of them produces (for they are not at all alike, but differ much from themselves in regard to their changes).¹ Then the winds, the hot and the cold, especially such as are common to all countries, and then such as are peculiar to each locality. We must also consider the qualities of the waters, for as they differ from one another in taste and weight, so also do they differ much in their qualities. In the same manner, when one comes into a city to which he is a stranger, he ought to consider its situation, how it lies as to the winds and the rising of the sun; for its influence is not the same whether it lies to the north or the south, to the rising or to the setting sun. These things one ought to consider most attentively, and concerning the waters which the inhabitants use, whether they be marshy and soft, or hard, and running from elevated and rocky situations, and then if saltish and unfit for cooking; and the ground, whether it be naked and deficient in water, or wooded and well watered, and whether it lies in a hollow, confined situation, or is elevated and cold; and the mode in which the inhabitants live, and what are their pursuits, whether they are fond of drinking and eating to excess, and given to indolence, or are fond of exercise and labour, and not given to excess in eating and drinking.²

2. From these things he must proceed to investigate every-

¹ The part in parenthesis is rather obscure. In the old French translation it is rendered thus: "Elles sont très différentes entre elles par leur nature, et il arrive d'ailleurs une infinité de changemens qui sont tous divers." On these changes, see Aphor. iii, 2—15.

² I have translated this passage agreeably to the reading suggested by Coray, that is to say, *ὄνκ ἐδωδός*, which appears to be a great improvement, although it is not adopted by Littré. Without the negation (*ὄνκ*) the contrast between the first and the last clause of the sentence is entirely lost. It will be remarked that I have translated *ἀριστηράι*, eating to excess. The *ἄριστον*, or dinner, was a meal which persons of regular habits seldom partook of, and hence Suetonius mentions it as an instance of the Domitian's gormandising propensities, that he was in the habit of taking dinner.—See Vita Domitiani; also PAULUS ÆGINETA, B. I, 109.

thing else. For if one knows all these things well, or at least the greater part of them, he cannot miss knowing, when he comes into a strange city, either the diseases peculiar to the place, or the particular nature of common diseases, so that he will not be in doubt as to the treatment of the diseases, or commit mistakes, as is likely to be the case provided one had not previously considered these matters. And in particular, as the season and the year advances, he can tell what epidemic diseases will attack the city, either in summer or in winter, and what each individual will be in danger of experiencing from the change of regimen. For knowing the changes of the seasons, the risings and settings of the stars, how each of them takes place, he will be able to know beforehand what sort of a year is going to ensue. Having made these investigations, and knowing beforehand the seasons, such a one must be acquainted with each particular, and must succeed in the preservation of health, and be by no means unsuccessful in the practice of his art. And if it shall be thought that these things belong rather to meteorology,¹ it will be admitted, on second thoughts, that astronomy contributes not a little, but a very great deal, indeed, to medicine. For with the seasons the digestive organs of men undergo a change.

3. But how each of the aforementioned things should be investigated and explained, I will now declare in a clear manner. A city that is exposed to hot winds (these are between the wintry rising, and the wintry setting of the sun), and to which these are peculiar, but which is sheltered from the north winds; in such a city the waters will be plenteous and saltish, and as they run from an elevated source,

¹ It will be remarked that our author uses meteorology and astronomy almost as synonymous terms. In his time meteorology was looked upon by practical men as a visionary subject of investigation, which had a tendency to make those who engaged in it atheists, and the enemies of Socrates took advantage of the prejudices then prevailing against it to represent him as a meteorologist. See Aristophanes (Nub. 225.) Aristophanes, who would appear to have been always too ready to pander to the popular prejudices of the day, also represents the physicians as being "meteorological impostors,"—*μετεωροφύλακας*. (Ibid. 330.) The enlightened mind of Aristotle, however, regarded meteorology in a very different light, and accordingly he wrote a work on the subject replete with all the astronomical and geological knowledge of his time. In it he professes to treat of the heavenly bodies and atmospherical phenomena, including winds, earthquakes, and the like; also of minerals, fossils, &c. See the introduction to his *Meteorologica*.

they are necessarily hot in summer, and cold in winter;¹ the heads of the inhabitants are of a humid and pituitous constitution, and their bellies subject to frequent disorders, owing to the phlegm running down from the head; the forms of their bodies, for the most part, are rather flabby; they do not eat nor drink much; drinking wine in particular, and more especially if carried to intoxication, is oppressive to them; and the following diseases are peculiar to the district: in the first place, the women are sickly and subject to excessive menstruation; then many are unfruitful from disease, and not from nature, and they have frequent miscarriages; infants are subject to attacks of convulsions and asthma, which they consider to be connected with infancy,² and hold to be a sacred disease (epilepsy). The men are subject to attacks of dysentery, diarrhœa, hepialus,³ chronic fevers in winter, of epinyctis,⁴ frequently, and of hemorrhoids about the anus. Pleurisies, peripneumonies, ardent fevers, and whatever diseases are reckoned acute, do not often occur, for such diseases are not apt to prevail where the bowels are loose. Ophthalmics occur of a humid character, but not of a serious nature, and of short duration, unless they attack

¹ Upon reference to the editions of Coray, Clifton, and Littré, it will be seen that the text here is in a doubtful state. I shall not weary the reader by stating my reasons for adhering to the meaning which I have adopted.

² In place of the common reading, *παιδίον*, Coray adopts *θεῖον*, which certainly, at first sight, appears to be an improvement. But I admit, with Littré, that the authority of Galen (tom. v, p. 447, ed. Basil), is quite decisive in favour of *παιδίον*. It is also to be taken into account in this place that the author of the treatise on Dentition brings prominently into view the connexion between infancy and convulsions, which adds probability to the supposition that in those days convulsions may have been called "the disease of infancy."

³ The Hepialus is a species of intermittent fever, very common in warm climates. It would appear to be a variety of the quotidian. See PAULUS ÆGINETA, Vol. I, 252, Syd. Soc. edition.

⁴ Frequent mention of this disease of the skin occurs in the works of the ancient writers on medicine. See PAULUS ÆGINETA, Vol. II, 40. We have there stated that it would appear to have been some species of Eczema, with which we are now unacquainted. Coray has a very lengthy note on it, but arrives at no satisfactory conclusions on the subject. He brings into review three cutaneous diseases, namely, the *bouton d'Alep*, (described, Mémoir. de la Société Royale de Médec. année 1777, 1778, t. i, p. 313;) the *pelagre*, (described, Toaldo, Essai Météorolog., pp. 19, 20; Comment. de Rebus in Scient. Nat. et Medec. Gestis., tom. xxxi, p. 553; and Journ. de Médec., tom. lxxx, p. 272;) and the *tepre des Asturies*, or *mal de la rosa*, (described by Thieri, Journ. de Médec., tom. ii, p. 337.)

epidemically from the change of the seasons. And when they pass their fiftieth year, defluxions supervening from the brain, render them paralytic when exposed suddenly to strokes of the sun,¹ or to cold. These diseases are endemic to them, and, moreover, if any epidemic disease connected with the change of the seasons, prevail, they are also liable to it.

4. But the following is the condition of cities which have the opposite exposure, namely, to cold winds, between the summer settings and the summer risings of the sun, and to which these winds are peculiar, and which are sheltered from the south and the hot breezes. In the first place the waters are, for the most part, hard and cold. The men must necessarily be well braced and slender, and they must have the discharges downwards of the alimentary canal hard, and of difficult evacuation, while those upwards are more fluid, and rather bilious than pituitous. Their heads are sound and hard, and they are liable to burstings (of vessels?) for the most part. The diseases which prevail epidemically with them, are pleurisies, and those which are called acute diseases. This must be the case when the bowels are bound; and from any causes, many become affected with suppurations in the lungs, the cause of which is the tension of the body, and hardness of the bowels; for their dryness and the coldness of the water dispose them to ruptures (of vessels?). Such constitutions must be given to excess of eating, but not of drinking; for it is not possible to be gourmands and drunkards at the same time. Ophthalmies, too, at length supervene; these being of a hard and violent nature, and soon ending in rupture of the eyes; persons under thirty years of age are liable to severe bleedings at the nose in summer; attacks of epilepsy are rare but severe. Such people are likely to be rather long-lived; their ulcers are not attended with serous discharges, nor of a malignant character; in disposition they are rather ferocious than gentle. The diseases I have mentioned are peculiar to the men, and besides they are liable to any common complaint which may be prevailing from the changes of the seasons. But the women, in the first place,

¹ *Coups de soleil*, or strokes of the sun, are often mentioned incidentally in the works of the ancient authors, but no one has treated of them in any very systematic manner, as far as I recollect. On the effects of exposure to cold and heat, see, however, PAULUS ÆGINETA, Vol. I, 49-51, Syd. Soc. edition.

are of a hard constitution, from the waters being hard, indigestible, and cold; and their menstrual discharges are not regular, but in small quantity, and painful. Then they have difficult parturition, but are not very subject to abortions. And when they do bring forth children, they are unable to nurse them; for the hardness and indigestible nature of the water puts away their milk. Phthisis frequently supervenes after childbirth, for the efforts of it frequently bring on ruptures and strains.¹ Children while still little are subject to dropsies in the testicle, which disappear as they grow older; in such a town they are late in attaining manhood. It is, as I have now stated, with regard to hot and cold winds and cities thus exposed.

5. Cities that are exposed to winds between the summer and the winter risings of the sun, and those the opposite to them, have the following characters:—Those which lie to the rising of the sun are all likely to be more healthy than such as are turned to the North, or those exposed to the hot winds, even if there should not be a furlong between them.² In the first place, both the heat and the cold are more moderate. Then such waters as flow to the rising sun, must necessarily be clear, fragrant, soft, and delightful to drink, in such a city. For the sun in rising and shining upon them purifies them, by dispelling the vapours which generally prevail in the morning. The persons of the inhabitants are, for the most part, well coloured and blooming, unless some disease counteract. The inhabitants have clear voices, and in temper and intellect are superior to those which are exposed to the north, and all the productions of the country in like manner are better. A city so situated resembles the spring as to moderation between heat and cold, and the diseases are few in number, and of a feeble

¹ *Ῥήγματα καὶ σπάσματα*. There has been much difference of opinion as to the exact import of these two terms. It would appear to me that they were intended to apply to a rupture or straining of the fibres, occasioned by external violence. M. Littré has a very interesting note on this subject, tom. v, p. 579. On these strainings see further *Coacæ Prænotiones*, 376, 418. M. Littré, l. c., relates a case of empyema brought on by lifting a heavy piece of wood. On these terms see further the Annotations on Demosthenes, Olynth. ii, 8, ed. Dobson; and Foës, Re. Hippocr.

² Clifton translates this clause of the sentence thus: "Even if there be but a small distance between them," and, I think, correctly, although Coray is not quite satisfied with this interpretation. The stadium was *nearly* the eighth part of a Roman mile, that is to say, it consisted of 94½ French toises, or 625 English feet.

kind, and bear a resemblance to the diseases which prevail in regions exposed to hot winds. The women there are very prolific, and have easy deliveries. Thus it is with regard to them.

6. But such cities as lie to the west, and which are sheltered from winds blowing from the east, and which the hot winds and the cold winds of the north scarcely touch, must necessarily be in a very unhealthy situation: in the first place the waters are not clear, the cause of which is, because the mist prevails commonly in the morning, and it is mixed up with the water and destroys its clearness, for the sun does not shine upon the water until he be considerably raised above the horizon. And in summer, cold breezes from the east blow and dews fall; and in the latter part of the day the setting sun particularly scorches the inhabitants, and therefore they are pale and enfeebled, and are partly subject to all the aforesaid diseases, but no one is peculiar to them. Their voices are rough and hoarse owing to the state of the air, which in such a situation is generally impure and unwholesome, for they have not the northern winds to purify it; and these winds they have are of a very humid character, such being the nature of the evening breezes. Such a situation of a city bears a great resemblance to autumn as regards the changes of the day, inasmuch as the difference between morning and evening is great. So it is with regard to the winds that are conducive to health, or the contrary.

7. And I wish to give an account of the other kinds of waters, namely, of such as are wholesome and such as are unwholesome, and what bad and what good effects may be derived from water; for water contributes much towards health.¹ Such waters then as are marshy, stagnant, and belong to lakes, are necessarily hot in summer, thick, and have a strong smell, since they have no current; but being constantly supplied by rain-water, and the sun heating them, they necessarily want their proper colour, are unwholesome and form bile; in winter, they become congealed, cold, and

¹ In another place, I have given a summary of the information supplied by the ancient authors on this subject, (PAULUS AEGINETA, Vol. I, 66.) Upon the whole, none of them gives so much valuable matter on it as our author. Coray has some elaborate annotations on this passage.

muddy with the snow and ice, so that they are most apt to engender phlegm, and bring on hoarseness; those who drink them have large and obstructed spleens, their bellies are hard, emaciated, and hot; and their shoulders, collar-bones, and faces are emaciated; for their flesh is melted down and taken up by the spleen, and hence they are slender; such persons then are voracious and thirsty; their bellies are very dry both above and below, so that they require the strongest medicines.¹ This disease is habitual to them both in summer and in winter, and in addition they are very subject to dropsies of a most fatal character; and in summer dysenteries, diarrhœas, and protracted quartan fevers frequently sieze them, and these diseases when prolonged dispose such constitutions to dropsies, and thus prove fatal. These are the diseases which attack them in summer; but in winter younger persons are liable to pneumonia, and maniacal affections; and older persons to ardent fevers, from hardness of the belly. Women are subject to œdema and leucophlegmasiæ;² when pregnant they have difficult deliveries; their infants are large and swelled, and then during nursing they become wasted and sickly, and the lochial discharge after parturition does not proceed properly with the women. The children are particularly subject to hernia, and adults to varices and ulcers on their legs, so that persons with such constitutions cannot be long-lived, but before the usual period they fall into a state of premature old age. And further, the women appear to be with child, and when the time of parturition arrives, the fulness of the belly disappears, and this happens from dropsy of the

¹ It can scarcely admit of a doubt that our author here alludes to scurvy. (See Coray at this place, and Lind on Scurvy, iii, 1.) He also describes the disease distinctly in the second book of *Prorrhætics*, that is to say, if Hippocrates be actually the author of that book. See also *Epidem.* ii, 1; *de Affection., de inter. affect.*; *Cælius Aurelianus, Tard. Pass.* iii, 4; *Celsus*, iv, 9; *Aëtius*, x, 11; *Pliny, H. N.*, xxv, 3; *Aretæus, Morb. Diurnum*, i, 14; and *Paulus Aegineta*, iii, 49; *Marcellus, de Medic.* ii.

² The leucophlegmasia is treated of in different parts of the Hippocratic treatises, as *Aphor.* vii, 29; *de Morb.* ii. By it he evidently meant a species of dropsy, as Galen remarks in his commentary on the *Aphorisms* (l. c.). It occurs in *Aretæus's* chapter on dropsy, *Morb. Diurnum*, ii, 1; *Octavius Horatianus*, v. *Celsus* makes it to be synonymous with *anasarca*, iii, 21. Our author would seem to notice these varieties of dropsy as being affections to which pregnant women are subject.

uterus.¹ Such waters then I reckon bad for every purpose. The next to them in badness are those which have their fountains in rocks, so that they must necessarily be hard, or come from a soil which produces thermal waters, such as those having iron, copper, silver, gold, sulphur, alum, bitumen, or nitre (soda) in them; for all these are formed by the force of heat.² Good waters cannot proceed from such a soil, but those that are hard and of a heating nature, difficult to pass by urine, and of difficult evacuation by the bowels. The best are those which flow from elevated grounds, and hills of earth; these are sweet, clear, and can bear a little wine; they are hot in summer and cold in winter, for such necessarily must be the waters from deep wells. But those are most to be commended which run to the rising of the sun, and especially to the summer sun; for such are necessarily more clear, fragrant, and light. But all such as are saltish, crude, and hard, are not good for drink. But there are certain constitutions and diseases with which such waters agree when drunk, as I will explain presently. Their characters are as follows: the best are such as have their fountains to the east; the next, those between the summer risings and settings of the sun, and especially those to the risings; and third, those between the summer and winter settings; but the worst are those to the south, and the parts between the winter rising and setting, and those to the south are very bad, but those to

¹ On hydrops uteri see the authorities quoted in the Commentary on PAULUS ÆGINETA, B. III, 48, Syd. Soc. edition. It may appear singular that hydatids of the womb should be particularly prevalent in the case of women that drink unwholesome water from marshes, and yet our author's observation is confirmed by a modern authority, as quoted by Coray: "Il a été également prouvé par les observations des Modernes, que les fausses grossesses produites par les hydatides; 'sont très-communes dans les pays marécageux, ou la plupart des habitans ont une constitution lâche, propre à l'affection scorbutique, qui y est presque endémique, qu'elles se terminent plus ou moins tard par l'exercition de ces hydatides.'"—(Notes sur le Traité des Aïrs, &c., p. 106.) Sydenham, moreover, describes the symptoms of false pregnancy in much the same terms as our author. (Tract de Hydrop.)

² On the Thermal waters of the ancients, see PAULUS ÆGINETA, Vol. I, 72. I have treated fully of the ancient *alum* and *nitre* under *στυπτηρία* and *λίτρον*, in the Third Volume. Coray, in his notes on this passage, does not throw much light on this subject. The opinion here delivered by our author, that these metallic substances are produced by the operation of heat, is adopted and followed out by Aristotle towards the end of the third book on Meteorologia.

the north are better. They are to be used as follows : whoever is in good health and strength need not mind, but may always drink whatever is at hand. But whoever wishes to drink the most suitable for any disease, may accomplish his purpose by attending to the following directions : To persons whose bellies are hard and easily burnt up, the sweetest, the lightest, and the most limpid waters will be proper ; but those persons whose bellies are soft, loose, and pituitous, should choose the hardest, those kinds that are most crude, and the saltest, for thus will they be most readily dried up ; for such waters as are adapted for boiling, and are of a very solvent nature, naturally loosen readily and melt down the bowels ; but such as are intractable, hard, and by no means proper for boiling, these rather bind and dry up the bowels. People have deceived themselves with regard to salt waters, from inexperience, for they think these waters purgative, whereas they are the very reverse ; for such waters are crude, and ill adapted for boiling, so that the belly is more likely to be bound up than loosened by them.¹ And thus it is with regard to the waters of springs.

8. I will now tell how it is with respect to rain-water, and water from snow. Rain waters, then, are the lightest, the sweetest, the thinnest, and the clearest ; for originally the sun raises and attracts the thinnest and lightest part of the water, as is obvious from the nature of salts ; for the saltish part is left behind owing to its thickness and weight, and forms salts ; but the sun attracts the thinnest part, owing to its lightness, and he abstracts this not only from the lakes, but also from the sea, and from all things which contain humidity, and there is humidity in everything ; and from man himself the sun draws off the thinnest and lightest part of the juices. As a strong proof of this, when a man walks in the sun, or sits down having a garment on, whatever parts of the body

¹ Coray appears to me to be unnecessarily puzzled to account for our author's statement, that saltish waters, although held to be purgative, are, in fact, astringent of the bowels. But, although their primary effect certainly be cathartic, is it not undeniable that their secondary effect is to induce or aggravate constipation of the bowels? Certain it is, moreover, that all the ancient authorities held salts to be possessed of desiccant and astringent powers. See PAULUS AEGINETA, Vol. III, under ἀλεγε.

the sun shines upon do not sweat, for the sun carries off whatever sweat makes its appearance; but those parts which are covered by the garment, or anything else, sweat, for the particles of sweat are drawn and forced out by the sun, and are preserved by the cover so as not to be dissipated by the sun; but when the person comes into the shade the whole body equally perspires, because the sun no longer shines upon it.¹ Wherefore, of all kinds of water, these spoil the soonest; and rain water has a bad smell, because its particles are collected and mixed together from most objects, so as to spoil the soonest. And in addition to this, when attracted and raised up, being carried about and mixed with the air, whatever part of it is turbid and darkish is separated and removed from the other, and becomes cloud and mist, but the most attenuated and lightest part is left, and becomes sweet, being heated and concocted by the sun, for all other things when concocted become sweet. While dissipated then and not in a state of consistence it is carried aloft. But when collected and condensed by contrary winds, it falls down wherever it happens to be most condensed. For this is likely to happen when the clouds being carried along and moving with a wind which does not allow them to rest, suddenly encounters another wind and other clouds from the opposite direction: there it is first condensed, and what is behind is carried up to the spot, and thus it thickens, blackens, and is conglomerated, and by its weight it falls down and becomes rain. Such, to all appearance, are the best of waters, but they require to be boiled and strained;² for otherwise they have a bad smell, and occasion hoarseness and thickness of the voice to those who drink them.³ Those from snow and ice are all bad, for when once congealed, they never again recover their former nature; for whatever is clear, light, and sweet in them, is separated and disappears; but the

¹ Aristotle discusses the subject in his Problems, ii, 9, 36, 37; ii, 15; i, 53; v, 34, and arrives at nearly the same conclusions as Hippocrates. See also Theophrastus de Sudoribus.

² I cannot hesitate in adopting the emendation suggested by Coray (*ἀποσήθεσθαι*) in place of the common reading (*ἀποσήπρεσθαι*), which evidently has no proper meaning in this place. I am surprised that M. Littré should have hesitated in admitting it into the text.

³ Athenæus, in like manner, praises rain water. Deipnos ii, 5.

most turbid and weightiest part is left behind.¹ You may ascertain this in the following manner: If in winter you will pour water by measure into a vessel and expose it to the open air until it is all frozen, and then on the following day bring it into a warm situation where the ice will thaw, if you will measure the water again when dissolved you will find it much less in quantity. This is a proof that the lightest and thinnest part is dissipated and dried up by the congelation, and not the heaviest and thickest, for that is impossible:² wherefore I hold that waters from snow and ice, and those allied to them, are the worst of any for all purposes whatever. Such are the characters of rain-water, and those from ice and snow.

9.³ Men become affected with the stone, and are seized with diseases of the kidneys, strangury, sciatica, and become ruptured,

¹ It appears singular that Athenæus, who is undoubtedly a most learned and judicious authority on all matters relating to Dietetics, speaks as favorably of water from ice as he does of rain water. Both he praises for their lightness, (l. c.) Celsus gives the character of the different kinds of water with his characteristic terseness and accuracy: "Aqua levissima pluvialis est; deinde fontana; tum ex flumine; tum ex puteo; post hæc ex nive, aut glacie; gravior his ex lacu; gravissima ex palude," (ii, 19.) Galen treats of the medicinal and dietetical properties of water in several of his works, and uniformly agrees with Hippocrates in the judgment he pronounces on them. See in particular, De Ptisana; De Sanit. tuend. ii; Comment. ii. in Libr. de Ratione victus in Morb. acut.

² Athenæus, on the other hand, argues from the fact that ice is lighter than water, that water formed from ice must be light. Pliny gives a lucid statement of the opinions of those who held that water from ice is light and wholesome, and those who, like Hippocrates, held it to be just the reverse. He says in the words of Hippocrates, literally translated, "nec vero pauci inter ipsos e contrario ex gelu ac nivibus insaluberrimos potius prædicant, quoniam exactum sit inde, quod tenuissimum fuerit." (H.N. xxxi, 21.) See also Seneca, Quæst. Natural. iv. It would appear that iced *liqueurs* were greatly relished at the tables of *gourmands* in those days. I need scarcely remark that there has been great difference of opinion in modern times regarding the qualities of water from melted snow and ice. It was at one time generally believed that it is the cause of the *gôîtres* to which the inhabitants of the valleys bordering on the Alps are subject. This opinion, however, is by no means generally held at the present time.

³ This is a most interesting chapter, as containing the most ancient observations which we possess on the important subject of urinary calculi. The ancients never improved the theory, nor added much to the facts which are here stated by our author. We have given the summary of their opinions in the Commentary on PAULUS ÆGINETA, B. III, 45. I would beg leave to remark that, notwithstanding the number of curious facts which modern chemistry has evolved regarding the composition of urinary calculi, the etiology of the disease is nearly as obscure now as it was in the days of Hippocrates.

when they drink all sorts of waters, and those from great rivers into which other rivulets run, or from a lake into which many streams of all sorts flow, and such as are brought from a considerable distance. For it is impossible that such waters can resemble one another, but one kind is sweet, another saltish and aluminous, and some flow from thermal springs; and these being all mixed up together disagree, and the strongest part always prevails; but the same kind is not always the strongest, but sometimes one and sometimes another, according to the winds, for the north wind imparts strength to this water, and the south to that, and so also with regard to the others. There must be deposits of mud and sand in the vessels from such waters, and the aforesaid diseases must be engendered by them when drunk, but why not to all I will now explain. When the bowels are loose and in a healthy state,¹ and when the bladder is not hot, nor the neck of the bladder very contracted, all such persons pass water freely, and no concretion forms in the bladder; but those in whom the belly is hot, the bladder must be in the same condition; and when preternaturally heated, its neck becomes inflamed; and when these things happen, the bladder does not expel the urine, but raises its heat excessively. And the thinnest part of it is secreted, and the purest part is passed off in the form of urine, but the thickest and most turbid part is condensed and concreted, at first in small quantity, but afterwards in greater; for being rolled about in the urine, whatever is of a thick consistence it assimilates to itself, and thus it increases and becomes indurated. And when such persons make water, the stone forced down by the urine falls into the neck of the bladder and stops the urine, and occasions intense pain; so that calculous children rub their privy parts and tear at them, as supposing that the obstruction to the urine is situated there. As a proof that it is as I say, persons affected with calculus have very limpid urine, because the thickest and foulest part remains and is concreted.² Thus it generally is in cases of calculus. It

¹ Coray remarks that Prosper Martian, in his commentary on this passage, confirms the truth of the observation here made, that persons affected with calculus have the bowels constipated.

² Theophilus, in his treatise *De Urinis*, would seem to contradict this observation of Hippocrates, when he states that the urine of calculous persons is thick and

forms also in children from milk, when it is not wholesome, but very hot and bilious, for it heats the bowels and bladder, so that the urine being also heated undergoes the same change. And I hold that it is better to give children only the most diluted wine, for such will least burn up and dry the veins. Calculi do not form so readily in women, for in them the urethra is short and wide, so that in them the urine is easily expelled; neither do they rub the pudendum with their hands, nor handle the passage like males;¹ for the urethra in women opens direct into the pudendum, which is not the case with men, neither in them is the urethra so wide, and they drink more than children do.² Thus, or nearly so, is it with regard to them.

10. And respecting the seasons, one may judge whether the year will prove sickly or healthy from the following observations:³—If the appearances connected with the rising and setting stars be as they should be; if there be rains in autumn;

milky (8). But, according to Prosper Martian, when the calculus is in the state of formation, its characters are as described by the latter, whereas, when the calculus is already formed, the urine is limpid, as described by Hippocrates.

¹ It is worthy of remark that Celsus states just the reverse with regard to the practice of women labouring under the stone; he says: “Feminae vero oras naturalium suorum manibus admotis scabere crebro coguntur.” (ii, 7.) Are we to suppose that he followed a different reading? Considering how well he shows himself acquainted with the works of Hippocrates, it cannot be thought that he had overlooked this passage.

² Our author, it will be remarked, ascribes the comparative immunity from calculus which females enjoy to their freer use of liquids. Celsus, in laying down directions for the regimen of a calculous person, as preparatory for the operation, among other things, directs, “ut aquam bibat,” (vii, 26-2.) Coray collects the opinions of several modern authorities in favour of drinking water as a preventive of calculus. Thus Tissot states that the Chinese, who drink so much water with their tea, enjoy almost an immunity from the disease. (*De la Santé des Gens de Lettres*, p. 196.) Campfer, in like manner, affirms that calculus has become less common in Europe since the introduction of tea, which he justly attributes to the amount of water drunk with it, rather than to any virtues of the plant itself. (*Comment de Reb. in scient. nat. et medic. gestis*, vol. xvi, p. 594.) Metzger attributes the diminution of the number of calculous cases in Königsberg to the use of draughts of tepid water. (*Journal de Médec.*, vol. lxvii, 348.) The Turks, according to Thevenot, owing to their free use of water, are almost exempt from the disease. (*Voyage au Levant*, c. xxvii, p. 70.)

³ Coray makes the following remarks on the natural characters of the seasons in Greece. The natural temperature of the winter in Greece was cold and humid; thus a dry and northerly winter was reckoned an unnatural season. Spring was reckoned unnatural when the heat and rain were excessive. See further Theophrast. *de Caus. Plaut.* ii, 1.

if the winter be mild, neither very tepid nor unseasonably cold, and if in spring the rains be seasonable, and so also in summer, the year is likely to prove healthy. But if the winter be dry and northerly, and the spring showery and southerly, the summer will necessarily be of a febrile character, and give rise to ophthalmies and dysenteries.¹ For when suffocating heat sets in all of a sudden, while the earth is moistened by the vernal showers, and by the south wind, the heat is necessarily doubled from the earth, which is thus soaked by rain and heated by a burning sun, while, at the same time, men's bellies are not in an orderly state, nor the brain properly dried; for it is impossible, after such a spring, but that the body and its flesh must be loaded with humours, so that very acute fevers will attack all, but especially those of a phlegmatic constitution. Dysenteries are also likely to occur to women and those of a very humid temperament. And if at the rising of the Dogstar rain and wintry storms supervene, and if the ætesian winds blow, there is reason to hope that these diseases will cease, and that the autumn will be healthy; but if not, it is likely to be a fatal season to children and women, but least of all to old men; and that convalescents will pass into quartans, and from quartans into dropsies; but if the winter be southerly, showery, and mild, but the spring northerly, dry, and of a wintry character, in the first place women who happen to be with child, and whose accouchement should take place in spring, are apt to miscarry; and such as bring forth, have feeble and sickly children, so that they either die presently or are tender, feeble, and sickly, if they live. Such is the case with the women. The others are subject to dysenteries² and dry ophthalmies, and some have catarrhs beginning in the head and descending to the lungs. Men of a phlegmatic temperament are likely to have dysenteries; and women, also, from the

¹ See Aphorism iii, 11.

² The celebrated Haller charges Hippocrates with inaccurate observation in stating that dysenteries are epidemic in spring, which, he contends, is contrary to modern experience. (Bibl. Med. Pract., vol. i, p. 61.) Hippocrates, however, is defended by Gruner (Cens. libr. Hippocrat. ii, 5, p. 51), and by Coray. (Notes, &c., p. 159.) The latter justly argues, that although dysentery may not prevail at that season in Germany, that is no reason for holding why it may not be so in Greece. He also refers to the works of Birnstiel and Stoll for descriptions of epidemical dysentery, occurring in the season of spring.

humidity of their nature, the phlegm descending downwards from the brain ; those who are bilious, too, have dry ophthalmies from the heat and dryness of their flesh ; the aged, too, have catarrhs from their flabbiness and melting of the veins, so that some of them die suddenly and some become paralytic on the right side or the left.¹ For when, the winter being southerly and the body hot, the blood and veins are not properly constricted ; a spring that is northerly, dry, and cold, having come on, the brain when it should have been expanded and purged, by the coryza and hoarseness is then constricted and contracted, so that the summer and the heat occurring suddenly, and a change supervening, these diseases fall out. And such cities as lie well to the sun and winds, and use good waters, feel these changes less, but such as use marshy and pooly waters, and lie well both as regards the winds and the sun, these all feel it more. And if the summer be dry, those diseases soon cease, but if rainy, they are protracted ; and there is danger of any sore that there is becoming phagedenic from any cause ; and henteries and dropsies supervene at the conclusion of diseases ; for the bowels are not readily dried up. And if the summer be rainy and southerly, and next the autumn, the winter must, of necessity, be sickly, and ardent fevers are likely to attack those that are phlegmatic, and more elderly than forty years, and pleurisics and peripneumonics² those that are bilious. But if the summer is parched and northerly, but the autumn rainy and southerly, headache and sphaecelus of the brain³ are likely to occur ; and in addition hoarseness, coryza, coughs, and in some cases, consumption.⁴ But if the season is northerly and without water, there being no rain, neither after the Dogstar nor Arcturus ; this state agrees best with those who are naturally phlegmatic, with those who are of a humid temperament, and with women ; but it is most inimical to the bilious ; for they become much parched

¹ See Aphorism iii, 12 ; also Aristot. Probl. i, 9 ; Celsus, ii, 1.

² Coray, in this place, refers to an epidemic of the same description related by Caillar, which prevailed in the winter of 1751, and was treated by emetics more successfully than by bleeding.

³ By sphaecelus of the brain Clifton understands "paralytic diseases," which is not far removed from the conclusion which we have arrived at respecting it in the Commentary on PAULUS AEGINETA, Vol. I, p. 365. See Coray's lengthened note on this passage.

up, and ophthalmies of a dry nature supervene, fevers both acute and chronic, and in some cases melancholy;¹ for the most humid and watery part of the bile being consumed, the thickest and most acrid portion is left, and of the blood likewise, whence these diseases come upon them. But all these are beneficial to the phlegmatic, for they are thereby dried up, and reach winter not oppressed with humours, but with them dried up.

11. Whoever studies and observes these things may be able to foresee most of the effects which will result from the changes of the seasons; and one ought to be particularly guarded during the greatest changes of the seasons, and neither willingly give medicines, nor apply the cautery to the belly, nor make incisions there until ten or more days be past. Now, the greatest and most dangerous are the two solstices, and especially the summer, and also the two equinoxes, but especially the autumnal.² One ought also to be guarded about the rising of the stars, especially of the Dogstar, then of Arcturus, and then the setting of the Pleiades; for diseases are especially apt to prove critical in those days, and some prove fatal, some pass off, and all others change to another form and another constitution. So it is with regard to them.

12. I wish to show, respecting Asia and Europe, how, in all respects, they differ from one another, and concerning the figure of the inhabitants, for they are different, and do not at all resemble one another. To treat of all would be a long story, but I will tell you how I think it is with regard to the greatest and most marked differences. I say, then, that [Asia differs very much from Europe as to the nature of all things, both with regard to the productions of the earth and the inhabitants, for everything is produced much more beautiful and large in Asia; the country is milder, and the dispositions of the inhabitants also are more gentle and affectionate.³

¹ Aphorism iii, 14.

² I have stated in my analysis of the short treatise 'On Purgative Medicines,' that the author of it forbids the administration of these medicines, that is to say, of drastic purgatives, during excessive heat or cold.

³ One may see, upon consulting the editions of Clifton, Coray, and Littré, that there are great varieties of readings in regard to the word which I have translated "affectionate." It will be remarked that I have followed Coray and Littré, in reading *εὐοργητότερα*. Clifton adopts *ἀεργότερα*, and translates it "inactive."

The cause of this is the temperature of the seasons, because it lies in the middle of the risings of the sun¹ towards the east, and removed from the cold (and heat),² for nothing tends to growth and mildness so much as when the climate has no predominant quality, but a general equality of temperature prevails. It is not everywhere the same with regard to Asia, but such parts of the country as lie intermediate between the heat and the cold, are the best supplied with fruits and trees, and have the most genial climate, and enjoy the purest waters, both celestial and terrestrial.] For neither are they much burnt up by the heat, nor dried up by the drought and want of rain, nor do they suffer from the cold; since they are well watered from abundant showers and snow, and the fruits of the season,³ as might be supposed, grow in abundance, both such as are raised from seed that has been sown, and such plants as the earth produces of its own accord, the fruits of which the inhabitants make use of, training them from their wild state and transplanting them to a suitable soil; the cattle also which are reared there are vigorous, particularly prolific, and bring up young of the fairest description; the inhabitants, too, are well fed, most beautiful in shape, of large stature, and differ little from one another either as to figure or size; and the country itself, both as regards its constitution and mildness of the seasons, may be said to bear a close resemblance to the spring. [Manly courage, endurance of suffering, laborious enterprise, and high spirit, could not be produced in such a state of things either among the native inhabitants or those of a different country, for there pleasure necessarily reigns.] For this reason, also, the forms of wild beasts there are much

¹ This expression of our author is ambiguous. Coray explains it thus: "il entend le lever d'été, qu'il place à 45 degrés de l'Est au Nord, dans l'horizon de la Grèce, et particulièrement celui de l'île de Cos; et le lever d'hiver qu'il place à 45 degrés de l'Est au Sud."

² The sense undoubtedly requires this addition, and therefore I have not scrupled to follow the reading of Cornarius, *καὶ τοῦ θερμοῦ*.

³ The term here used meant particularly the *fructus horæi*, or summer fruits; namely, cucumbers, gourds, and the like. (See PAULUS ÆGINETA, B. I, § 80.) Surely Coray forgot himself, when he wrote thus regarding the distinction between the summer and autumnal fruits of his country: "les Grecs entendoient particulièrement par *ὑρᾶια* les fruits de la fin de l'été, c'est-à-dire, de cette partie de l'année qu'ils appelloient *ὀπώραν*, &c."

varied.¹ Thus it is, as I think, with the Egyptians and Libyans.

13. But concerning those on the right hand of the summer risings of the sun as far as the Palus Mæotis² (for this is the boundary of Europe and Asia), it is with them as follows: the inhabitants there differ far more from one another than those I have treated of above, owing to the differences of the seasons and the nature of the soil. But with regard to the country itself, matters are the same there as among all other men; for where the seasons undergo the greatest and most rapid changes, there the country is the wildest and most unequal; and you will find the greatest variety of mountains, forests, plains, and meadows; but where the seasons do not change much there the country is the most even; and, if one will consider it, so is it also with regard to the inhabitants; for the nature of some is like to a country covered with trees and well watered; of some, to a thin soil deficient in water; of others, to fenny and marshy places; and of some again, to a plain of bare and parched land.³ For the seasons which modify their natural frame of body are varied, and the greater the varieties of them the greater also will be the differences of their shapes.

14. I will pass over the smaller differences among the nations, but will now treat of such as are great either from nature or custom; and, first, concerning the Macrocephali.⁴ There is no other race of men which have heads in the least resembling

¹ It is but too apparent that there is a lacuna in the text here. A chapter devoted to an examination of the peculiarities of the Egyptians and Libyans is evidently lost. As M. Littré has remarked, Galen appears to refer to the contents of the lost chapter. (Opera, tom. xvi, p. 392; ed. Kühn.)

² That is to say, the Sea of Azoff. See Herodotus, iv, 86, who calls it *Μαιῆτις*. This was generally held to be the division between Europe and Asia, as stated by our author. As Coray remarks, its borders on the north-west are occupied by the inhabitants of Little Tartary: it has the Crimea on the south-west; the Tartars of Cuban and the Circassians on the south-east.

³ That the inhabitants of a country bear a resemblance to the country itself, is no doubt a profound and most philosophical remark, although it must be admitted that the comparisons which our author makes are somewhat quaintly expressed, and hence a German physician wished the passage expunged, as being unworthy of Hippocrates. (Comment. de Reb. in Scient. Natur. et Med. gestis, vol. xx, p. 131.) There can be no question, however, that it embodies a grand general truth, although the particular application of it may not always be apparent.

⁴ On the Macrocephali, see Pliny, H. N. vi, 4; Stephanus, de Urbibus; Suidas and

theirs. At first, usage was the principal cause of the length of their head, but now nature cooperates with usage. They think those the most noble who have the longest heads. It is thus with regard to the usage: immediately after the child is born, and while its head is still tender, they fashion it with their hands, and constrain it to assume a lengthened shape by applying bandages and other suitable contrivances whereby the spherical form of the head is destroyed, and it is made to increase in length. Thus, at first, usage operated, so that this constitution was the result of force; but, in the course of time, it was formed naturally, so that usage had nothing to do with it; for the semen comes from all parts of the body, sound from the sound parts, and unhealthy from the unhealthy parts. If, then, children with bald heads are born to parents with bald heads; and children with blue eyes to parents who have blue eyes; and if the children of parents having distorted eyes squint also for the most part; and if the same may be said of other forms of the body, what is to prevent it from happening that a child with a long head should be produced by a parent having a long head?¹ But now these things do not happen as they did formerly, for the custom no longer prevails owing to their

Hippocraton in *Μακροκέφαλοι*; Pomponius Mela, i, 19; Strabo, xii; Scholiast Apollon. Rhod., i; Dionysius Periegetes.

The exact situation of the savage nation of the Macrocephali cannot be precisely determined, but it was evidently not far from the *Palus Mæotis*, and most probably in the vicinity of the Caucasus. Little is known of them, except what our author says respecting the practice which they had of disfiguring their heads by squeezing them, in early infancy, into an elongated shape. It is well known that the same absurd usage prevailed among the early inhabitants of Mexico. I need scarcely say that much important information respecting them has been obtained of late years. M. Littré, in the fourth vol. of his edition of Hippocrates, supplies some very important information in illustration of this subject, from a recent publication of Dr. H. Rathke. Certain tumuli having been excavated at Kertch, in the Crimea, there were found in them, besides different utensils and statues, several skeletons, and it was most remarkable that the form of the head was greatly elongated, in the manner described by Hippocrates with regard to the Macrocephali. The author's words are: "On y remarquait, en effet, un hauteur extraordinaire par rapport au diamètre de la base, et par là ils frappaient même les personnes qui n'avaient aucune connaissance de la structure du corps humain."

¹ The same theory respecting the secretion of the semen is given in the treatises 'De Genitura' and 'De Morbo Sacro.' It is espoused by Galen, in his little work, 'Quod animal sit quod utero continetur.' Coray remarks that Hippocrates's theory on the origin of the fœtus does not differ much from that of Buffon.

intercourse with other men. Thus it appears to me to be with regard to them.

15. As to the inhabitants of Phasis,¹ their country is fenny, warm, humid, and wooded; copious and severe rains occur there at all seasons; and the life of the inhabitants is spent among the fens; for their dwellings are constructed of wood and reeds, and are erected amidst the waters; they seldom practise walking either to the city or the market, but sail about, up and down, in canoes constructed out of single trees, for there are many canals there.² They drink the hot and stagnant waters, both when rendered putrid by the sun, and when swollen with the rains. The Phasis itself is the most stagnant of all rivers, and runs the smoothest;³ all the fruits which spring there are unwholesome, of feeble and imperfect growth, owing to the redundance of water, and on this account they do not ripen, for much vapour from the waters overspreads the country. For these reasons the Phasians have shapes different from those of all other men; for they are large in stature, and of a very gross habit of body, so that not a joint nor vein is visible; in colour they are sallow, as if affected with jaundice. Of all

¹ I need scarcely remark that both the river and city of this name are very celebrated in ancient mythology and history. See in particular Apollonius Rhodius, with his learned Scholiast, Arg. II; Strabo, xi; Pliny, II. N., vi, 4; Procopius, Pers., ii, 29; Mela, i, 85; Arrian, periplus. The river takes its rise in the Caucasus, and terminates in the Black Sea. It is called *Rion* by the inhabitants, and the river and a city situated upon it are called *Fache* by the Turks. See Coray at this place, and Mannert., Geograph., iv, 394.

² Coray quotes from Lamberti, a modern traveller, a description of the Colehide and its inhabitants, which agrees wonderfully with the account of both given by our author. The following is part of his description: "Il sito della Colehide porta seco un' aria tanto humida ehe forse in altro luogo non si è veduta la simile. E la ragione si è perche venendo dall' occidente bagnata dall' Eusino, et dall' oriente cinta dal Caucaso, dal quale sorgano gran quantità di fiumi rende da per tutto l'aria humidissima affatto. A questo s' aggiungono la frequenza de' boscchi, fra quali non viene agitata l'aria da' venti, et li spessi venti marini apportato di pioggie et de' vapori del mare. Questa humidità si grande genera poi gran quantità de' vapori, che sollevati in alto si dissolvono in frequentissime pioggie."—Relatione della Colchide, c. 27. He goes on to state that a great part of the inhabitants are fishers.

³ It is singular that Procopius, on the other hand, states that the Phasis is a very rapid river, and Chardin confirms his statement. (Voyage en Perse, vol. i, p. 105.) Lamberti reconciles these discrepant accounts by explaining that the river is rapid in its course near where it rises among the mountains, but quite smooth and stagnant when it arrives at the plain.—Relat. dell' Colehid., 29.

men they have the roughest voices, from their breathing an atmosphere which is not clear, but misty and humid; they are naturally rather languid in supporting bodily fatigue. The seasons undergo but little change either as to heat or cold; their winds for the most part are southerly, with the exception of one peculiar to the country, which sometimes blows strong, is violent and hot, and is called by them the wind *cenchron*. The north wind scarcely reaches them, and when it does blow it is weak and gentle. Thus it is with regard to the different nature and shape of the inhabitants of Asia and Europe.

16. [And with regard to the pusillanimity and cowardice of the inhabitants, the principal reason why the Asiatics are more unwarlike, and of a more gentle disposition than the Europeans is, the nature of the seasons, which do not undergo any great changes either to heat or cold, or the like; for there is neither excitement of the understanding nor any strong change of the body by which the temper might be ruffled, and they be roused to inconsiderate emotion and passion, rather than living as they do always in the same state.] It is changes of all kinds which arouse the understanding of mankind, and do not allow them to get into a torpid condition. For these reasons, it appears to me, the Asiatic race is feeble, and further, owing to their laws; [for monarchy prevails in the greater part of Asia, and where men are not their own masters nor independent, but are the slaves of others, it is not a matter of consideration with them how they may acquire military discipline, but how they may seem not to be warlike, for the dangers are not equally shared, since they must serve as soldiers, perhaps endure fatigue, and die for their masters, far from their children, their wives, and other friends; and whatever noble and manly actions they may perform lead only to the aggrandisement of their masters, whilst the fruits which they reap are dangers and death;] and, in addition to all this, the lands of such persons must be laid waste by the enemy and want of culture.¹

¹ The best practical proof of the justness of our author's reflections in this place is the result of the battle of Salamis; and the noblest intellectual monument which ever the wit of man has raised to the triumph of freedom is the Persæ of Æschylus, in celebration of that event. A single line, descriptive of the Greeks, is sufficient to account for their superiority to the Asiatics:

Οὐ τινος ἑὸυλοι κέκληνται φωτός, οὐδ' ὑπήκοοι.—l. 240.

None seem to have felt the force of this great truth so much as the Persian despots

Thus, then, if any one be naturally warlike and courageous, his disposition will be changed by the institutions. As a strong proof of all this, such Greeks or barbarians in Asia as are not under a despotic form of government, but are independent, and enjoy the fruits of their own labours, are of all others the most warlike; for these encounter dangers on their own account, bear the prizes of their own valour, and in like manner endure the punishment of their own cowardice. And you will find the Asiatics differing from one another, for some are better and others more dastardly; of these differences, as I stated before, the changes of the seasons are the cause. Thus it is with Asia.

17. In Europe there is a Scythian race, called Sauromatæ, which inhabits the confines of the Palus Mæotis, and is different from all other races.¹ Their women mount on horseback, use the bow, and throw the javelin from their horses, and fight with their enemies as long as they are virgins; and they do not lay aside their virginity until they kill three of their enemies, nor have any connexion with men until they perform the sacri-

themselves, or to have estimated the effects of civil liberty higher than they did. The younger Cyrus, before the battle of Cynaxa, addresses his Grecian soldiers in the following memorable words: Ὁ ἄνδρες Ἕλληνες, οὐκ ἀνθρώπων ἀπορῶν βαρβάρων συμμάχους ἡμᾶς ἄγω, ἀλλὰ νομίζων ἀμείνονας καὶ κρείττους πολλῶν βαρβάρων ἡμᾶς εἶναι διὰ τοῦτο προσέλαβον ὅπως οὖν ἴσσεσθε ἄνδρες ἀξιοὶ τῆς ἐλευθερίας, ἧς κέκτησθε, καὶ ὑπὲρ ἧς ἡμᾶς ἐγὼ εὐδαιμονίζω· εἰ γὰρ ἴσσετε, ὅτι τῆν ἐλευθερίαν ἐλοίμην ἂν ἀντὶ ὧν ἔχω πάντων καὶ ἄλλων πολλαπλασίων.—Anab., i, 7. Such being the established opinions of the intelligent portion of mankind in the days of Hippocrates, the sentiment here expressed would then be regarded as a self-evident truth. Plato, indeed, modifies this opinion in so far when he holds despotism to be the consequence and not the cause of servility.—De Repub., viii.

¹ The name Sauromatæ or Sarmatæ was applied by the ancient geographers to certain inhabitants of that vast and, to them, nearly unexplored country, extending from the Sinus Codanus or Baltic Sea, to the Euxine or Black Sea. It comprehends, then, a large portion of Russia, Poland, and perhaps Prussia. (See Pomponius Mela, iii, 4; Ptolemy, Geograph.; and Maltebrun, Geograph., vol. i, p. 126.) That the Sarmatians and Scythians were the same race of men, although some of the authorities make a distinction between them, can scarcely admit of a doubt. Our author, it will be remarked, seems to restrict the name to a peculiar race of Scythians, who lived near the Palus Mæotis (or Sea of Asaph). From the account which he gives of them it is impossible to doubt that he alludes to the Amazonians, so celebrated in ancient legends. The opinion which I entertain of them is pretty fully stated in the Argument to this treatise. That our author should not have doubted the real existence of the Amazonians need excite no wonder, considering the very positive and very circumstantial account of them given by his contemporary Herodotus (iv, 110-18).

fices according to law. Whoever takes to herself a husband, gives up riding on horseback, unless the necessity of a general expedition obliges her. They have no right breast; for while still of a tender age their mothers heat strongly a copper instrument, constructed for this very purpose, and apply it to the right breast, which is burnt up, and its development being arrested, all the strength and fulness are determined to the right shoulder and arm.

18. As the other Scythians have a peculiarity of shape, and do not resemble any other, the same observation applies to the Egyptians, only that the latter are oppressed by heat and the former by cold.¹ What is called the Scythian desert is a prairie, abounding in meadows, high-lying, and well watered; for the rivers which carry off the water from the plains are large. There live those Scythians which are called Nomades, because they have no houses, but live in waggons. The smallest of these waggons have four wheels, but some have six; they are covered in with felt, and they are constructed in the manner of houses, some having but a single apartment, and some three; they are proof against rain, snow, and winds. The waggons are drawn by yokes of oxen, some of two and others of three, and all without horns, for they have no horns, owing to the cold.² In these waggons the women live, but the men are carried about on horses, and the sheep, oxen, and horses accompany them; and they remain on any spot as long as there is provender for their cattle, and when that fails they migrate to some other place. They eat boiled meat, and drink the milk of mares, and also eat *hippace*, which is cheese prepared from the milk of the mare. Such is their mode of life and their customs.³

¹ It may at first sight appear singular that our author should have mixed up his account of the Scythians with allusions to the Egyptians; but he probably had in view Herodotus (ii, 103-6), who connects the Egyptians with the Scythians, and more especially with the tribe of them called Colchians. He states in particular that the Colchians and Egyptians resembled one another in the fashion of their linen, their whole course of life, and in their language.

² Herodotus (iv, 28, 29) and Strabo (Geogr., vii) assign the same reason for the Scythian cattle not having horns.

³ This description evidently applies to the wandering tribes which roam over the steppes of Tartary. The passage is of classical celebrity, for I cannot but fancy that certainly Virgil (Georg., iii, 349-83), and perhaps Horace (Od. iii, 24), had it in view

19. In respect of the seasons and figure of body, the Scythian race, like the Egyptian, have a uniformity of resemblance, different from all other nations; they are by no means prolific, and the wild beasts which are indigenous there are small in size and few in number, for the country lies under the Northern Bears, and the Rhiphæan mountains, whence the north wind blows; the sun comes very near to them only when in the summer solstice, and warms them but for a short period, and not strongly; and the winds blowing from the hot regions of the earth do not reach them, or but seldom, and with little force; but the winds from the north always blow, congealed, as they are, by the snow, the ice, and much water, for these never leave the mountains, which are thereby rendered uninhabitable. A thick fog covers the plains during the day, and amidst it they live, so that winter may be said to be always present with them; or, if they have summer, it is only for a few days, and the heat is not very strong. Their plains are high-lying and naked, not crowned with mountains, but extending upwards under the Northern Bears.¹ The wild beasts there are not large, but such as can be sheltered under-ground; for the cold of winter and the barrenness of the country prevent

when they drew their pictures of the nomadic life of the Scythians. The extraordinary cold of that region, notwithstanding its southern latitude, has not been exaggerated by ancient authors; but to account for it, as the modern traveller, Clark, remarks, is still a problem which no one has solved. Strabo mentions that carts were driven across the Palus Mæotis (Geogr., vii, 3). The chariots covered in from the inclemency of the weather with a roof of felt, are described also by Strabo (Geogr., l. c.); and, according to Dr. Coray, similar contrivances are still to be found among the Kalmucs and other savage nations. (Notes sur le Traité des Airs, &c., h. l.) A preparation from milk resembling the hippæe is still used by the inhabitants of that region. On the people who lived upon this composition from milk, see in particular Strabo, vii, 3.

¹ The following lines of Virgil, referred to above, may be almost said to be a translation of this passage:

“Semper hiems, semper spirantes frigora Canri.
Tum sol pallentes haud unquam disentit umbras;
* * * * *
Talis Hyperboreo septem subjecta trioni
Gens effrena virûm Rhiphæo tunditur Euro.”

It was in this region of mist and cold that the celebrated race of the Cimmerians resided. See Herodot., i, 6, &c.; Homer, *Odyss.* x, 14. The montes Rhiphæi would appear to have been the Ural mountains which separate Russia from Siberia.

their growth, and because they have no covert nor shelter.¹ The changes of the seasons, too, are not great nor violent, for, in fact, they change gradually; and therefore their figures resemble one another, as they all equally use the same food, and the same clothing summer and winter, respiring a humid and dense atmosphere, and drinking water from snow and ice; neither do they make any laborious exertions, for neither body nor mind is capable of enduring fatigue when the changes of the seasons are not great.² For these reasons their shapes are gross and fleshy, with ill-marked joints, of a humid temperament, and deficient in tone: the internal cavities, and especially those of the intestines, are full of humours; for the belly cannot possibly be dry in such a country, with such a constitution and in such a climate; but owing to their fat, and the absence of hairs from their bodies, their shapes resemble one another, the males being all alike, and so also with the women; for the seasons being of an uniform temperature, no corruption or deterioration takes place in the concretion of the semen, unless from some violent cause, or from disease.³

20. I will give you a strong proof of the humidity (laxity?) of their constitutions.⁴ You will find the greater part of the Scythians, and all the Nomades, with marks of the cautery on their shoulders, arms, wrists, breasts, hip-joint, and loins, and that for no other reason but the humidity and flabbiness of their constitution, for they can neither strain with their bows, nor launch the javelin from their shoulder owing to their humidity and atony; but when they are burnt, much of the humidity

¹ It is well known now that excessive cold has a tendency to retard the growth of animals. This opinion is confirmed in several instances by Pallas (*Voy. en Russie*, i, 197; iii, 431). Strabo mentions, as the consequences of the cold which prevails in the country of the Getæ, that there are no asses in it, the cattle want horns, and the horses are small. (*Geogr.*, vii, 3.)

² Buffon, on the other hand, maintains that the Nomadic race are men of active habits. (*Hist. Nat.*, tom. iii, p. 384.) Pallas, however, confirms the judgment of Hippocrates. (*Voyag. en Russie*, tom. i, p. 499.) See also Coray, ad h. l.

³ It is to be borne in mind that Hippocrates, and after him most of the ancient authorities, held that the fœtus is formed from the male semen. This doctrine prevailed generally down to the days of Harvey. Some of the ancient physiologists, however, maintained that "omne animal est ab ovo." See Plutarch, de Placit. Philos.

⁴ Ὑγρότης, when applied to the body, may signify both humidity and relaxation, in like manner as the adjective (ὀρερός) signifies humid and relaxed. We shall see an example of the latter signification in the Prognostics:

in their joints is dried up, and they become better braced, better fed, and their joints get into a more suitable condition.¹ They are flabby and squat at first, because, as in Egypt, they are not swathed (?);² and then they pay no attention to horsemanship, so that they may be adepts at it; and because of their sedentary mode of life; for the males, when they cannot be carried about on horseback, sit the most of their time in the waggon, and rarely practise walking, because of their frequent migrations and shiftings of situation; and as to the women, it is amazing how flabby and sluggish they are. The Scythian race are tawny from the cold, and not from the intense heat of the sun, for the whiteness of the skin is parched by the cold, and becomes tawny.

21. It is impossible that persons of such a constitution could be prolific, for, with the man, the sexual desires are not strong, owing to the laxity of his constitution, the softness and coldness of his belly, from all which causes it is little likely that a man should be given to venery; and besides, from being jaded by exercise on horseback, the men become weak in their desires. On the part of the men these are the causes; but on that of the women, they are embonpoint and humidity; for the womb cannot take in the semen, nor is the menstrual discharge such as it should be, but scanty and at too long intervals; and the mouth of the womb is shut up by fat, and does not admit the semen; and, moreover, they themselves are indolent and fat, and their bellies cold and soft.³ From these causes

¹ This practice came to be one of the regular operations of surgery, being performed with the view of correcting the tendency of a joint to dislocation. It is minutely described by Hippocrates (*De Artic.*, xi), Paulus Ægineta (VI, 42), Albucasis (*Chirurg.*, i, 27), Haly Abbas (*Pract.*, ix, 73). See the Sydenham Society's edition of PAULUS ÆGINETA, l. c.

² The meaning of this passage is ambiguous. I have followed Coray, who gives some very interesting annotations on it. He translates these words, "Ils sont naturellement d'une complexion lâche et trapus; premièrement, parceque dans leur enfance ils ne sont point emmaillotés, non plus que les Egyptiens." Clifton has given nearly the same meaning of the passage: "Their fluidness and breadth proceed first from their neglect of bandages, as in Egypt." Littré, on the other hand, appears to give a different interpretation of the passage: "D'abord parceque on ne les emmaillotte pas, comme en Egypte."

³ A fat condition of the body was also supposed adverse to conception in the case of cattle. Virgil alludes to this opinion, and the means used to counteract the effects of an excessively fat state of the body in the following verses, which have been

the Scythian race is not prolific. Their female servants furnish a strong proof of this ; for they no sooner have connection with a man than they prove with child, owing to their active course of life and the slenderness of body.

22. And, in addition to these, there are many eunuchs among the Scythians, who perform female work, and speak like women. Such persons are called effeminates.¹ The inhabitants of the country attribute the cause of their impotence to a god, and venerate and worship such persons, every one dreading that the like might befall himself ; but to me it appears that such affections are just as much divine as all others are, and that no one disease is either more divine or more human than another, but that all are alike divine, for that each has its own nature, and that no one arises without a natural cause.² But I will explain how I think that the affection takes its rise. From continued exercise on horseback they are seized with chronic defluxions in their joints (*kedmata*³) owing to always admired as an example how delicately a great genius can touch upon an indelicate subject :

“ Ipsa autem macie tenuant armenta volentes :
Atque, ubi coneubitus primos jam nota voluptas
Sollicitat, frondesque negant, et fontibus arcent.
Sæpe etiam cursu quatiunt et sole fatigunt ;
Hoc faciunt nimio ne luxu obtusior usus
Sit genitali arvo, et sulcos oblimet inertes ;
Sed rapiat sitiens venerem, interiusque recondat.”

Georg., iii, 136.

¹ On the nature of this affection see the Argument. There is a variety in the reading, most of the MSS. having *ἀνανδριεῖς*, but the one usually marked 2146, which is followed in the Aldine edition, reading *ἀνδριεῖς*. See a long discussion in Coray's edition on this point. There seems to be no good reason for at all interfering with the text as it now stands.

² Our author in this place, as in the treatise on the Sacred Disease, holds the philosophical opinion in opposition to the superstitious, that all diseases have natural causes, and that no one more than another is to be ascribed to the extraordinary interference of supernatural beings. Plato, his contemporary, would appear to have endeavoured to steer a sort of middle course between the scientific and the popular belief. Thus he ascribes epilepsy, like all other diseases, to a natural cause, namely, in this instance, to a redundancy of black bile ; but he qualifies this opinion by calling the passages of the brain (the ventricles?) most divine, and adds that the disease had been most appropriately denominated sacred. (Timæus, § 66.)

³ The origin and signification of this term are by no means well defined. See Galen (Exeges. &c.), Foës (Econ. Hippocr.), and Coray (ad h. l.). It has been applied first, to certain varieties of morbus coxarius ; secondly, to chronic buboes, super-

their legs always hanging down below their horses ; they afterwards become lame and stiff at the hip-joint, such of them, at least, as are severely attacked with it. They treat themselves in this way : when the disease is commencing, they open the vein behind either ear, and when the blood flows, sleep, from feebleness, seizes them, and afterwards they awaken, some in good health and others not. To me it appears that the semen is altered by this treatment, for there are veins behind the ears which, if cut, induce impotence ; now, these veins would appear to me to be cut.¹ Such persons afterwards, when they go in to women and cannot have connection with them, at first do not think much about it, but remain quiet ; but when, after making the attempt two, three, or more times, they succeed no better, fancying they have committed some offence against the god whom they blame for the affection, they put on female attire, reproach themselves for effeminacy, play the part of women, and perform the same work as women do. This the rich among the Scythians endure, not the basest, but the most noble and powerful, owing to their riding on horseback ; for the poor are less affected, as they do not ride on horses. And yet, if this disease had been more divine than the others, it ought not to have befallen the most noble and the richest of the Scythians alone, but all alike, or rather those who have

induced by disease of the hip-joint ; thirdly, to paralysis of the muscles about the genital organs ; fourthly, aneurismal varix. (See Aretæus, *Morb. Acut.*, ii, 8 ; and the note in Boerhaave's edition.) I must own that I find some difficulty in deciding to which of these significations I should give the preference ; I rather incline, however, to the first, from what our author says towards the end of this section, namely, that all men who ride much "are afflicted with rheums in the joints, sciatica and gout, and are inept at venery."

¹ This opinion of our author was no doubt founded on the erroneous notion regarding the distribution of the veins which prevailed in his time, and which we find advocated in the tract 'on the Nature of Man,' and elsewhere. (See *Aristot.*, *H. N.*, iii, 3.) Coray strives hard, in his annotations on this passage, to make out that the fact may be as stated by his ancient countryman, although the hypothesis by which he explained it be false. It is singular, however, that, after the lapse of more than two thousand years, Phrenology should have come to the assistance of Hippocrates in this case. I need scarcely remark that Gall and his followers hold that the cerebellum is the seat of the animal appetites, so that, if this be really the fact, a close sympathy between the back of the head and the genital organs may be very legitimately inferred. At all events, this coincidence between ancient observation and modern hypothesis must be admitted to be very remarkable.

little, as not being able to pay honours to the gods, if, indeed, they delight in being thus rewarded by men, and grant favours in return; for it is likely that the rich sacrifice more to the gods, and dedicate more votive offerings, inasmuch as they have wealth, and worship the gods; whereas the poor, from want, do less in this way, and, moreover, upbraid the gods for not giving them wealth; so that those who have few possessions were more likely to bear the punishments of these offences than the rich. But, as I formerly said, these affections are divine just as much as others, for each springs from a natural cause, and this disease arises among the Scythians from such a cause as I have stated. But it attacks other men in like manner, for whenever men ride much and very frequently on horseback, then many are affected with rheums in the joints, sciatica, and gont, and they are inept at venery. But these complaints befall the Scythians, and they are the most impotent of men for the aforesaid causes, and because they always wear breeches, and spend the most of their time on horseback,¹ so as not to touch their privy parts with the hand, and from the cold and fatigue they forget the sexual desire, and do not make the attempt until after they have lost their virility.² Thus it is with the race of the Scythians.

23. The other races in Europe differ from one another both as to stature and shape, owing to the changes of the seasons, which are very great and frequent, and because the heat is strong, the winters severe, and there are frequent rains, and again protracted droughts, and winds, from which many and diversified changes are induced. These changes are likely to

¹ Aristotle, on the other hand, holds that the effects of equitation are aphrodisiac. (Probl. iv, 12.) Coray attempts to reconcile the discordant opinions of the physician and philosopher, by supposing that moderate exercises may excite the venereal appetite, whereas excessive extinguish them. Van Swieten agrees with Hippocrates that inordinate exercise in riding may induce impotence. (Comment. in Boerh. Aphor., § 1063.)

² It is a singular idea of our author that the wearing of breeches by confining the development of the genital organs impairs the sexual desires. It is curious, as remarked by Coray, that the same opinion is advocated by Hunter in his treatise on the Venereal Disease. Coray also quotes the following passage from Lalement: "Sæpe andivimus pistoros et cæteros quorum partes pudendæ subligaculis non obteguntur sed liberius pendent crassos et bene nutritos habere testiculos."—Comment. in Hippocrat. de Aer., &c.

have an effect upon generation in the coagulation of the semen, as this process cannot be the same in summer as in winter, nor in rainy as in dry weather; wherefore, I think, that the figures of Europeans differ more than those of Asiatics: and they differ very much from one another as to stature in the same city; for vitiations of the semen occur in its coagulation more frequently during frequent changes of the seasons, than where they are alike and equable. And the same may be said of their dispositions, for the wild, the unsociable, and the passionate occur in such a constitution; for frequent excitement of the mind induces wildness, and extinguishes sociableness and mildness of disposition, and therefore I think the inhabitants of Europe more courageous than those of Asia; for a climate which is always the same induces indolence, but a changeable climate, laborious exertions both of body and mind; and from rest and indolence cowardice is engendered, and from laborious exertions and pains, courage. On this account the inhabitants of Europe are more warlike than the Asiatics, and also owing to their institutions, because they are not governed by kings like the latter, for where men are governed by kings there they must be very cowardly, as I have stated before; for their souls are enslaved, and they will not willingly or readily undergo dangers in order to promote the power of another; but those that are free undertake dangers on their own account, and not for the sake of others; they court hazard and go out to meet it, for they themselves bear off the rewards of victory, and thus their institutions contribute not a little to their courage.¹

¹ I trust I shall be excused in quoting entire Dr. Coray's note on this section: "Trente mille Macédoniens (dit Pauw) ont conquis la Perse; quarante mille Mogols ont conquis les Indes; cinquante mille Tartares ont conquis la Chine, où l'on comptait alors plus de quarante millions d'habitans, qui abandonnèrent leurs souverains. On a vu de nos jours l'armée du grand Visir désertir presque complètement dans les environs de Varna; et jamais les Turcs n'eurent plus de bon sens qu'en cette occasion là; car leurs tyrans ne méritent pas qu'on verse une seule goutte de sang pour les maintenir sur le trône de ces contrées qu'ils ont dévastées en voleurs et en brigands. (Recherch. philosoph. sur les Grecs.)—Par ce dernier exemple on voit encore combien les causes politiques ou morales, et les causes naturelles, peuvent se modifier réciproquement. Les Russes, quoique soumis à un gouvernement despotique, ont cependant été la terreur des Turcs, à cause, sans doute, de la différence du climat, de la discipline militaire, et des progrès dans la civilisation. Ces circonstances ont con-

Such is the general character of Europe and Asia.¹

24. And there are in Europe other tribes, differing from one another in stature, shape, and courage: the differences are those I formerly mentioned, and will now explain more clearly. Such as inhabit a country which is mountainous, rugged, elevated, and well watered, and where the changes of the seasons are very great, are likely to have great variety of shapes among them, and to be naturally of an enterprising and warlike disposition;² and such persons are apt to have no little of the savage and ferocious in their nature; but such as dwell in places which are low-lying, abounding in meadows and ill ventilated, and who have a larger proportion of hot than of cold winds, and who make use of warm waters—these are not likely to be of large stature nor well proportioned, but are of a broad make, fleshy, and have black hair; and they are rather of a dark than of a light complexion, and are less likely to be phlegmatic than bilious; courage and laborious enterprise are not naturally in them, but may be engendered in them by means of their institutions. And if there be rivers in the country which carry off the stagnant and rain water from it, these may be wholesome and clear; but if there be no rivers,

couru à mitiger le despotisme Russe, et à le rendre si différent du despotisme brutal des Turcs. Il en est de même des autres peuples Septentrionaux de l'Europe. Quoique gouvernés par des loix qui ne sont point leur ouvrage, ils sont très belliqueux, et par la nature de leur climat, et par les lumières que les sciences et les arts ont répandues parmi eux."

¹ Aristotle, in drawing the traits of the European and Asiatic character, would appear to have borrowed freely from our author. He says the inhabitants of cold countries and of Europe are full of spirit, but deficient in intellect and skill; they therefore remain in a state of freedom, but without regular government, and they are incapable of governing their neighbours. The inhabitants of Asia are described by him as being intellectual and skilled in the arts, but deficient in courage, and therefore they are in constant subjection and slavery. The Greeks, he maintains, held an intermediate place between these two, have both courage and intellect, and therefore enjoy freedom and good government. (*Polit.*, iii, 7.)

² We have lately had a notable example of the warlike and independent spirit of mountaineers in the determined resistance which the Circassians have made to the colossal power of Russia. Great Britain, too, I may be permitted to remark, experienced disasters in contending with the mountaineers of Affganistan, such as she had never met with in the rich plains of India. And, by the way, the conqueror of Greece and of Persia was very nearly cut off by the same people. See Arrian, *Expd. Alexandr.*, iv, 22, &c.

but the inhabitants drink the waters of fountains, and such as are stagnant and marshy, they must necessarily have prominent bellies and enlarged spleens. But such as inhabit a high country, and one that is level, windy, and well-watered, will be large of stature, and like to one another; but their minds will be rather unmanly and gentle. Those who live on thin, ill-watered, and bare soils, and not well attempered in the changes of the seasons, in such a country they are likely to be in their persons rather hard and well braced, rather of a blond than a dark complexion, and in disposition and passions haughty and self-willed. For, where the changes of the seasons are most frequent, and where they differ most from one another, there you will find their forms, dispositions, and nature the most varied. These are the strongest of the natural causes of difference, and next the country in which one lives, and the waters; for, in general, you will find the forms and dispositions of mankind to correspond with the nature of the country; for where the land is fertile, soft, and well-watered, and supplied with waters from very elevated situations, so as to be hot in summer and cold in winter, and where the seasons are fine, there the men are fleshy, have ill-formed joints,¹ and are of a humid temperament; they are not disposed to endure labour, and, for the most part, are base in spirit; indolence and sluggishness are visible in them, and to the arts they are dull, and not clever nor acute. When the country is bare, not fenced, and rugged, blasted by the winter and scorched by the sun, there you may see the men hardy, slender, with well-shaped joints,¹ well-braced, and shaggy; sharp industry and vigilance accompany such a constitution; in morals and passions they are haughty and opiniative, inclining rather to the fierce than to the mild; and you will find them acute and ingenious as regards the arts, and excelling in military affairs; and likewise all the other productions of the earth corresponding to the earth itself.²] Thus it is with regard to

¹ *Ἀναρῶτοι*. The meaning of this term seems to be, persons whose joints are indistinct owing to fatness.

² Coray supposes, and apparently with justice, that our author in this passage tacitly refers to the inhabitants of Attica. It is worthy of remark that Thucydides ascribes the early civilization of the Athenians to the infertility of the soil. (*Ἀττικὴν λεπτόγειον*, i, 2.) See Arnold's Note, h. l.; also the quotation from Aristotle at § 23; and Plato's *Timæus*, tom. iii, p. 247; ed. Bekker. According to Coray (but

the most opposite natures and shapes; drawing conclusions from them, you may judge of the rest without any risk of error.

perhaps he was partially disposed towards his adopted country), the characters of Provence and Marseilles are analogous to those of Attica and Athens, and the effects on the inhabitants similar. That Marseilles was at one time a flourishing seat of learning is undoubted; see Tacitus (*Agricola*) and Strabo (*Geogr.*, iii); but in literary celebrity it cannot surely aspire to be put on a level with the region which produced an *Æschylus*, a *Thucydides*, a *Plato*, and a *Demosthenes*! And it may be doubted whether even the *Marseillais Hymn* equals in masculine energy the war songs of *Tyrtæus*!

ON THE PROGNOSTICS.

ON THE PROGNOSTICS.

THE ARGUMENT.

OF the genuineness of this work I have treated in the Preliminary Discourse, and have also briefly touched upon its relation to two other important treatises in the Hippocratic collection, the 'Prorrhetics' and the 'Coacæ Prænotiones.' The latter subject I am now to resume, and in doing so I mean to avail myself of the talented dissertation of Dr. Ermerins, to which also I have already made allusion. Indeed, I am persuaded that I cannot do a more acceptable service to my profession in Britain than by laying before them a brief exposition of the important views brought forward in this 'Dissertatio Inauguralis.'¹

After some preliminary observations on the ancient Temples of Health, which are mainly derived from Sprengel's 'History of Medicine,'² he passes on to consider the opinion started by this author and others before his time, that the first book of the 'Prorrhetics,' and the 'Coacæ Prænotiones' are the results of isolated observations made upon the sick in the Asclepion of Cos. The probability of this opinion being well founded he shows to be very great; and he next endeavours to solve the question whether the first book of the 'Prorrhetics' be derived from the 'Coacæ Prænotiones,' or whether the latter be the more modern work of the two. He comes to the conclusion that the 'Prorrhetics' is the more ancient work, for the following reasons: 1st. Because in it the names of the patients are frequently given, which is rarely the case in the 'Coacæ Præ-

¹ Its title is, *Specimen Historico-Medicum Inaugurale de Hippocratis Doctrina a Prognostice Oriunda. Lugduni Batavorum, 1832.*

² Cap. v.

notiones.' 2d. Because queries and doubts are oftener found in this book than in the other, when one takes into account the number of presages. 3d. Because the number of observations which this book contains is much smaller than those which the 'Coacæ' embrace. 4th. This is confirmed by the circumstance that the enunciations of the prognoses are far less extended in the 'Prorrhethics,' whence it is clearly proved that they are not derived from so great a field of observations as those we meet with in the other work. He then gives a most lucid view of the parallelism which subsists between the 'Prorrhethica' and the 'Coacæ,' and, as the results of his observations upon them, he draws the following most important conclusions :

1. "By a most fortunate occurrence certain monuments of the medical art, as cultivated by the Asclepiadæ, are preserved to us in the first 'Prorrhethics,' and the 'Prænotiones Coacæ,' which books appear to be fragments and excerpts from the histories of diseases and cures which were formerly found on the votive tablets of the Coan temple.

2. This sacerdotal medicine was at first a certain medical divination, which, as it was the offspring of pure observation, so the system of prognostics of the Coans was altogether aloof from the theories and systems of the philosophers, and is therefore to be reckoned most worthy of our attention, both from the great love of observation which we admire in it, and from the exquisite and beautiful sense of the simple truth which it evinces.

3. We must keep in view the origin of these presages from individual observations gradually collected, in order that we may have a knowledge of this system of prognostic semeiology. Hence we comprehend how we meet with so many doubtful propositions, and so many uncertain and vague remarks, and that imperfect etiology which confounded causes with their effects, and again, the latter with the former.

4. The readers must particularly keep before their eyes this origin, and the antiquity of those writings, if they would pass a correct judgment on the merits of the Asclepiadæ towards the art of medicine. Whatever in their works we have the pleasure of possessing, all attest the infancy of the art; many things are imperfect, and not unfrequently do we see them, while in the pursuit of truth, groping, as it were, and pro-

ceeding with uncertain steps, like men wandering about in darkness; but yet the method which they applied, and to which they would seem to have betaken themselves of their own accord, was so excellent, that nothing could surpass it. It was the same method which Hippocrates himself always adopted, and which, in fine, Lord Bacon, many ages afterwards, commended as the only instrument by which truth in medicine can be found out.

5. As this method is founded on true induction, so are its dicta to be held the more worthy of admiration, the more they possess a universal signification. To give an example; what assiduous observation, and what abundance of rational experience, must have been required for enunciating the following admirable truth, and, as it were, law of nature: "Those things which bring alleviation with bad signs, and do not remit with good, are troublesome and difficult."

6. Many passages bear reference to the condition of the vital powers, which they took into account at all times, both in making presages and in exercising the art. For, although they had not our theories of the vital force, they perceived its effects very well by observation; and for this very reason, that they did not search for the art in theories, but in observation alone, we owe so many excellent things to them, since they did not adapt their observation to theories, but related a trustworthy and faithful history of the operations of nature.

7. They sought after many things from a comparison of health with disease, in which also they rightly calculated the manners and customs of men. Thus they call that, in the first place, the best mode of reclining, which is adopted by the patient when in good health; and hence they estimate the other modes as being less good, or altogether unfavorable. Nor did they only compare health with disease, but they compared also the symptoms of diseases with one another, and interpreted the one from the other. Thus they first depict and pronounce a favorable opinion on the best kind of excretions, and then they describe the other abnormal kinds, and pass an unfavorable judgment on them.

8. They particularly relate the operations of a *natura medicatrix*, which, in a region such as Greece is, and in athletic, strong bodies, on which they appear to have practised the art,

and for the most part in acute diseases, and the few chronic ones derived from them which they have left described, might especially be looked for. Hence that doctrine of crises most deserving of attention, the rudiments, indeed, of which we only have here preserved, but a just notion of which we may easily draw from these fragments.

9. The *Asclepiadæ* would appear to have accommodated and directed their art to this natural *Therapia*. Hence the advice that convulsions arising from a great hemorrhage, forcibly stopped, should be cured by the abstraction of blood. It is to be regretted that but a few monuments of their practice remain; but these embrace admirable imitations of nature, and the most prudent caution in administering remedies.

10. Neither did they neglect surgery, but deliver many excellent remarks on things pertaining to wounds, ulcers, and fractures.

11. Although it cannot be made out for certain that everything which is preserved in these writings existed before Hippocrates, there can be no doubt that many of them are more ancient than he. And although we may attribute some things rather to Hippocrates himself, it is nevertheless certain that the method of deducing the art from observation and comparison had existed before him. Some may, perhaps, object that these books are to be attributed to the youth of Hippocrates, and that the others, more elaborate and perfect, had proceeded from the same person in his old age; but this supposition we may refute by a single argument, namely, that it would be absurd to ascribe so many observations about so many diseases to one man.

12. From the whole Coan system of cultivating medicine, the best hopes might justly have been expected; and from what follows it will be seen that the result did not disappoint this expectation."

These deductions, I must say, appear to be most legitimately drawn; and having thus satisfactorily made out that the '*Coacæ Prænotiones*' are founded on the '*Prorrhethics*,' Dr. Ermerinus proceeds to make an interesting comparison between the former and the book of '*Prognostics*.' Here again we can only find room for the general conclusions.

1. "We have compared together two monuments of antiquity embracing entirely the same doctrine, so that we may hold it as put out of all doubt that they must have derived their origin from the same school, only the one yields to the other in antiquity, as its more expanded mode of expression shows.

2. The more recent work is attributed to Hippocrates by all the critics and interpreters; the most ancient authors have made mention of it, and all the characteristic marks by which the genuine works of Hippocrates are distinguished from the spurious, without doubt, are found in it; for whether you look to the brevity and gravity of the language, or the paucity of the reasonings, the correctness of the observations, or the dialect in which they are expressed, or, in fine, its agreement with the whole Hippocratic doctrine,—all these attest that "the divine old man" is the author of this work.

3. From a comparison of the 'Coacæ Prænotiones' with the 'Prognostics,' it is as clear as the light of day that Hippocrates composed this work from them, in such a manner that he circumscribed many of the symptoms, limited the enunciations, and amplified them all by his own experience in the medical Art. Hence the Prognostics may not inaptly be called the Commentary of Hippocrates on the 'Coacæ Prænotiones.'

4. With regard to the exquisite and artificial order, in which we see many things proposed in this book, we agree entirely with Sprengel, who thinks that they have proceeded from a more recent describer. This is confirmed by our comparison of both works.

5. This work exhibits the fundamental principles and originals of the Hippocratic doctrine, and although we hardly know anything as to the manner in which Hippocrates composed his writings, and of the form which he gave them, it does not seem at all out of the way to hold this book to be the oldest of all the works which "the Father of Medicine" has left to us.

6. Inasmuch as this work is entitled the Book of Prognostics, so it turns on the *prescience* (*πρόνοια*), that is to say, the foreknowledge of the physician, which Hippocrates recommends to physicians for three reasons: first, for the confidence of mankind, which it will conciliate to the physician; then because it will free the practitioner from all blame, if he

has announced beforehand the fatal result of diseases ; and further, as being a very great instrument in effecting the cure.

7. Like the Coan priests, Hippocrates drew his Prognostics from a comparison of disease with health. This he held to be of so great importance, that he first delivers physiological semeiotics, and then adds pathological.

8. In calculating and judging of signs he neglected neither age nor sex, and, in the first place, directed his mind to the power of habit on the human body.

9. Nor did Hippocrates stop here, but directed care to be had of the attack of epidemics, and the condition of the season.

10. The Prognostics of Hippocrates are not of one time or place, but extend through every age, and through the whole world ; inasmuch as the prognostic signs have been proved to be true in Libya, in Delos, and in Scythia, and it should be well known that every year, and at every season of the year, bad symptoms bode ill, and good symptoms good.

11. But he who would wish to know properly beforehand those who will recover from a disease, and those who will die, and those in whom the disease will persevere for many days, and those in whom it will last for a few, should be able to comprehend and estimate the doctrine of all the signs, and weigh in his mind and compare together their strength. The Hippocratic foreknowledge rests not only on the observation of the signs, but also on the understanding of them.

12. The Book of Prognostics exhibits observations of acute diseases, and of chronic arising from them, in which Hippocrates has diligently noted the times and modes of the crises.

13. Such is the authority of critical days and signs, that in those fevers which cease without the symptoms of resolution, and not upon critical days, a relapse is to be expected.

14. The series of critical days which Hippocrates delivers, proceeds solely upon the observation of nature. Yet neither can any of them be exactly numbered by entire days, since neither the year nor the months are usually numbered by entire days."

Dr. Ermerins, in the remaining part of his Essay, shows, in a very lucid manner, that the rules of Prognosis laid down in this treatise by Hippocrates, are manifestly those by which he

is regulated in his other works, and more especially in the Epidemics and Aphorisms. We must not, however, occupy room with any further exposition of the contents of this important treatise, which does equal credit to the author himself, and to the medical system of education pursued in the learned university from which it emanated.

I will now give some remarks and reflections of my own on the treatise under consideration.

In this work, then, Hippocrates appears to have had for his object, to give such a general description of the phenomena of disease as would apply to all the disorders of the animal frame. With this intention he brings into review the state of the countenance, the position of the patient in bed, the movements of the hands, the respiration, the sweats, the state of the hypochondria, dropsies which are the consequences of acute diseases, the sleep, the urine, the alvine dejections, the vomitings, and the sputa. In doing this, his uniform practice is to contrast the healthy with the morbid appearances. Although M. Littré regards it as a treatise on special Pathology, it appears to me to be decidedly a general work on Semeiology. Certain it is that all the best commentators, such as Erotian and Stephanus,¹ decidedly regard it as a semeiological work. The class of ancient writings with which it admits of being most closely compared, are the works on the prognostics of the weather. On this subject Greek literature contains several works of a very philosophical nature, such as the Phænomena of Aratus, and several of the minor tracts of Theophrastus. Now as the object of these authors was to connect the most striking phenomena in the sky, the earth, and the sea, with the changes in the weather, of which they are the precursors, so the intention of the medical writer of Prognostics was, to point out the alterations in the animal frame, which certain preternatural symptoms usually indicate. And as the utility of an acquaintance with prognostics of the weather to the husbandman and sailor is sufficiently obvious, the benefit to be derived from a knowledge of medical prognostics by the physician is equally so. Our author, it will be seen in the Preface to this work, enumerates

¹ Comment. in Prognos. ap. Dietz.

three objects to be attained by cultivating an acquaintance with prognostics; first, to attract the confidence of one's patients; second, to free the physician from blame by enabling him to announce beforehand the issue of the disorder about which he is consulted; and, third, to give him a decided advantage in conducting the treatment by preparing him for remarkable changes in the diseases before they occur. And, in like manner, I may be allowed to remark, the master of a ship who shows himself prepared for all changes of the weather, will naturally attract the confidence of those intrusted to his charge; and whatever may be the result, he will be freed from blame if his ship should be damaged in a storm which he had previously predicted; and surely his knowledge of impending commotions in the sea and sky, will be of advantage to him by enabling him to make preparations for them.

Looking then to the importance of general Prognostics, I have often wondered why this branch of Semeiology is no longer cultivated by the profession. Did not the ancient physicians follow the best possible plan when they first described the general phenomena of diseased action, and then applied them to particular cases? Surely they did right in first taking a comprehensive view of the whole subject of disease before attempting to examine the different parts of it in detail. This, in fact, constitutes the great superiority of the ancient *savans* over the modern, that the former possessed a much greater talent for apprehending general truths than the latter, who confine their attention to particular facts, and too much neglect the observation of general appearances. I trust no one will be offended if I venture to pronounce regarding the present condition of our professional literature, that (to borrow an illustration from the Logic of Kant) it is altogether Cyclopic,—that is to say, it wants the eye of Philosophy, for, although we have learned to examine particular objects with greater accuracy than our forefathers did, the sphere of our mental vision, so to speak, is more confined than theirs, and cannot embrace the same enlarged views of general subjects. Surely then we might gain a useful lesson by endeavouring to combine their more comprehensive views with our own more accurate and minute observation.

Some people may be inclined to think that we have greatly

detracted from the credit which Hippocrates has long enjoyed as being the undoubted author of this work, by showing that in composing it he was so much indebted to the labours of his predecessors. But I have long been impressed with the conviction that in compositions even of the highest order, there is much less originality than is generally supposed, and that true genius frequently is displayed more in its own felicitous way of dealing with materials formerly prepared and collected for its use than in searching out new matter to work upon,¹ and hence it will be found upon examination that many of the most distinguished efforts of human intellect have consisted in the successful performance of tasks which had been frequently attempted by previous labourers in the same line. Many artists, before the time of Phidias, had acquired reputation by their attempts at making the statue of Jupiter;² but this did not deter him from undertaking the same task: and we may well believe that he would avail himself of every practical lesson which he could draw from the success or failure of his predecessors, in perfecting that matchless performance which completely cast all others into the background. The sad misfortunes of Œdipus had been often represented on the Athenian stage before Sophocles made them the subject of those inimitable dramas, which still enjoy an unrivalled reputation, nor will it be often considered how much assistance he may have derived from the labours of those who had gone before him. It is well known that of all the literary performances of Aristotle, there is no one which gained him so enduring a reputation as his *Categories*, and yet it is admitted that his division of the subject into the ten Predicaments, was taken from the Pythagorean philosopher Archytas;³ in short, the great merit of Aristotle on this as on many other occasions, consisted in defining and arranging a subject on which much had been previously effected by the labours of his

¹ The opinion here advanced is expressed with great precision by a French writer who has been making some figure in the political world of late. "Great men," says Louis Blanc, "only govern society by means of a force which they themselves borrow. They enlighten the world only by a burning focus of all the scattered rays emanating from itself."—*Organization of Labour*, p. 98, English edition.

² Ascarus, a Theban statuary for one. See Pausanias, v, 24, 1.

³ See the Commentary of Simplicius. As I quote from memory I cannot refer to the page.

predecessors. And, to give one example more, long before the time of Galen, the temperaments, and the facts in physiology and pathology bearing upon Hygiene, had been frequently and successfully investigated, but he, by recasting all these subject-matters into his *Ars Medica*, composed a work which posterity regarded as his master-performance, and every word and tittle of which, for a succession of ages, were commented upon and admired in the Schools of Medicine. And of all our Author's admired performances, there is perhaps no one which has exerted so great an influence upon the literature of the profession as the present work, for all the Greek, Roman, and Arabian writers on medicine, subsequent to him, make use of his terms, and copy his descriptions of morbid phenomena.

THE BOOK OF PROGNOSTICS.

1. It appears to me a most excellent thing for the physician to cultivate Prognosis; for by foreseeing and foretelling, in the presence of the sick, the present, the past, and the future, and explaining the omissions which patients have been guilty of,¹ he will be the more readily believed to be acquainted with the circumstances of the sick; so that men will have confidence to intrust themselves to such a physician. And he will manage the cure best who has foreseen what is to happen from the present state of matters. For it is impossible to make all the sick well; this, indeed, would have been better than to be able to foretel what is going to happen; but since men die, some even before calling the physician, from the violence of the disease, and some die immediately after calling him, having lived, perhaps, only one day or a little longer, and before the physician could bring his art to counteract the disease; it

¹ Galen, in his Commentary on this clause of the sentence, acutely remarks that patients are justly disposed to form a high opinion of a physician who points out to them symptoms of their complaint which they themselves had omitted to mention to him. And Stephanus further remarks that the patient naturally estimates highly the acumen of the physician who detects any errors in regimen which he has been guilty of, such as drinking water, or eating fruit when forbidden; (Ed. Dietz, p. 54;) or when he has some disease about him, such as bubo or inflammation, which he wishes to conceal. (Ibid., p. 63.)

therefore becomes necessary to know the nature of such affections, how far they are above the powers of the constitution; and, moreover, if there be anything divine in the diseases,¹ and to learn a foreknowledge of this also. Thus a man will be the more esteemed to be a good physician, for he will be the better able to treat those aright who can be saved, from having long anticipated everything; and by seeing and announcing beforehand those who will live and those who will die, he will thus escape censure.²

2. He should observe thus in acute diseases: first, the countenance of the patient, if it be like those of persons in health, and more so, if like itself, for this is the best of all; whereas the most opposite to it is the worst, such as the fol-

¹ It has puzzled all the commentators, ancient and modern, to explain satisfactorily why Hippocrates, in this place, seems to adopt the popular creed, and acknowledge that a certain class of diseases are of divine origin; whilst in his treatises 'On Airs,' &c., and 'On the Sacred Disease' he combats this doctrine as being utterly unfounded. Galen attempts to get over the difficulty by supposing that, in this place, by divine our author means diseases connected with the state of the atmosphere; this, however, would merely imply that, on the present occasion, he expressed himself in accordance with the popular belief. And, by the way, I would beg leave to remark that the plague which is described by Homer in the exordium to the Iliad, and is referred to the wrath of a god, that is to say, of Apollo, was at the same time held by Eustathius and other commentators to be connected with the state of the atmosphere; that is to say, agreeably to the vulgar belief, epidemical diseases were looked upon as divine. See also Stephanns, the commentator, t. i, p. 77; ed. Dietz. M. Littré has given, from a MS. in the Royal (National?) Library at Paris, a gloss never before published, which contains an interesting extract from one of the early Hippocratic commentators, Xenophon of Cos, bearing upon this passage. It is to this effect, that Bacchius, Callimachus, Philinus, and Heraclides Terentinus, supposed that by divine, in this place, was meant pestilential, because the pestilence was held to be from god; but that Xenophon, the acquaintance of Praxagoras, reckoned the nature of the critical days divine; for, as to persons in a storm, the appearance of the gods Dioscuri brings safety, so do the critical days bring life to men in disease. (Opera, tom. i, p. 76.) See some remarks on this scholium by Grote, Hist. of Greece, vol. i, p. 488. On the *ἔξιον* of Hippocrates see further Berends, Lect. in Aphor. p. 349.

² It will be remarked that, in his sketch of Prognosis (*πρόρροια*), in this place our author uses the term with considerable latitude; in fact, it comprehends the past, the present, and the future condition of the patient. Hippocrates, in a word, appears to have desired that the physician should be in his line what his contemporary, Thucydides, describes Themistocles to have been as a statesman: "Quod de instantibus (ut ait Thucydides), verissime judicabat, et de futuris callidissime conjiciebat." —Cornelius Nepos, in vita Themistoclis. See also Thucydides, i, 138. Probably both these writers had in his mind the character of the prophet as drawn by Homer: "Ὀς ἦδ' ἔγ' τὰ τ' ἔοντα τὰ τ' ἐσσόμενα πρό τ' ἔοντα. (Iliad i.)

lowing: *a sharp nose, hollow eyes, collapsed temples; the ears cold, contracted, and their lobes turned out; the skin about the forehead being rough, distended, and parched; the colour of the whole face being green, black, livid, or lead-coloured.*¹ If the countenance be such at the commencement of the disease, and if this cannot be accounted for from the other symptoms, inquiry must be made whether the patient has long wanted sleep; whether his bowels have been very loose; and whether he has suffered from want of food; and if any of these causes be confessed to, the danger is to be reckoned so far less; and it becomes obvious, in the course of a day and a night, whether or not the appearance of the countenance proceed from these causes.² But if none of these be said to exist, and if the symptoms do not subside in the aforesaid time, it is to be known for certain that death is at hand. And, also, if the disease be

¹ The groundwork of the matters contained in this section is to be found in the *Coacæ Prænotiones*, 212; but it is greatly expanded and improved by our author. I need scarcely remark that the description of the features of a dying man is of classical celebrity. It is given in elegant prose by Celsus, ii, 6; and by Lucretius it is thus put into a poetical form:

“Item ad supremum denique tempus
Compressæ nares, nasi primoris acumen
Tenuè, cavati oculi, cava tempora, frigida pellis
Duraque, inhorrebat rictum, frons tenta minebat.”

De Rerum Natura, vi, 1190.

Shakespeare's description of the death of Falstaff, by the way, contains images which have always appeared to me to be borrowed (at second-hand, no doubt) from this and other passages of the present work: “For after I saw him fumble with the sheets, and play with flowers, and smile upon his fingers'-ends, I knew there was but one way: for his nose was as sharp as a pen, and he habbled of green fields.—So he bade me lay more clothes on his feet: I put my hand into the bed and felt them, and they were as cold as any stone,” &c.—Henry V, ii, 3. Although perhaps it may be thought rather hypercritical, I cannot omit the present opportunity of making the remark, that it appears to me rather out of character to make the wandering mind of a London debauchee dwell upon images “of green fields.” One would have thought that “the ruling passion strong in death” would have rather suggested stews and pot-houses to the imagination of such a person.

² It will be remarked that our author modifies his judgment on the result of the *ensemble* of dangerous symptoms which he has just described, provided they be connected with want of food and of rest, or with looseness of the bowels. See Galen's Commentary on this passage. Celsus renders this clause of the sentence as follows: “Si ita hæc sunt, ut neque vigilia præcesserit, neque ventris resolutio, neque inedia.”—ii, 6. I may briefly mention that both Galen and Stephanus seem to have understood this passage as I have translated it. Littré it will be seen has rendered it somewhat differently.

in a more advanced stage either on the third or fourth day, and the countenance be such, the same inquiries as formerly directed are to be made, and the other symptoms are to be noted, those in the whole countenance, those on the body, and those in the eyes; for if they shun the light, or weep involuntarily, or squint, or if the one be less than the other, or if the white of them be red, livid, or has black veins in it; if there be a gum upon the eyes, if they are restless, protruding, or are become very hollow; and if the countenance be squalid and dark, or the colour of the whole face be changed—all these are to be reckoned bad and fatal symptoms. The physician should also observe the appearance of the eyes from below the eyelids in sleep; for when a portion of the white appears, owing to the eyelids not being closed together, and when this is not connected with diarrhœa or purgation from medicine, or when the patient does not sleep thus from habit, it is to be reckoned an unfavorable and very deadly symptom; but if the eyelid be contracted, livid, or pale, or also the lip, or nose, along with some of the other symptoms, one may know for certain that death is close at hand. It is a mortal symptom, also, when the lips are relaxed, pendent, cold, and blanched.

3.¹ It is well when the patient is found by his physician

¹ The prognostics, drawn from the position in which the patient is found reclining, are mostly taken from the *Coacæ Prænotiones*, 497. As usual, however, Hippocrates has improved very much the materials which he avails himself of.

I would here point out a mistake which most of the modern translators have committed respecting the meaning of an expression contained in this paragraph. It is *καὶ τὸ ξύμπαν σῶμα ὑγρὸν κέμενον*, which Clifton, Moffat, and even Littré understand as descriptive of the body's being in a moist state with sweat. Littré's translation is, "Le corps entier en moiteur." The translators forget that the word *ὑγρὸς* is used by the best classical authors to signify "relaxed" or "soft." Thus Pindar, in his celebrated description of the eagle perched upon the sceptre of Jupiter, and lulled asleep by the power of music (every English scholar will remember Gray's version of it in his Ode on the Progress of Poesy), has the expression *ὑγρὸν σῶμα*, which Heyne interprets by *flexile* and *lubricum*. (Ad Pyth., i.) See also the Scholiast, in l. 1. Galen apprehends the meaning of the term as I have stated it; thus he defines it as applying to the position intermediate between complete extension and complete flexion, that is to say, half-bent or relaxed. Fœs also renders the expression correctly by "corpus molliter positum." (Econom. Hippocrat.) See also Stephanus (p. 96, ed. Dietz), who decidedly states that the epithet (*ὑγρὸς*), in this place, means slightly bent or relaxed. Hearnius explains *ὑγρὸν* as signifying "molliter decubens," p. 189. Celsus renders the words in question by "cruribus paulum reductis," ii. 3.

reclining upon either his right or his left side, having his hands, neck, and legs slightly bent, and the whole body lying in a relaxed state, for thus the most of persons in health recline, and these are the best of postures which most resemble those of healthy persons. But to lie upon one's back, with the hands, neck, and the legs extended, is far less favorable. And if the patient incline forward, and sink down to the foot of the bed, it is a still more dangerous symptom; but if he be found with his feet naked and not sufficiently warm, and the hands, neck, and legs tossed about in a disorderly manner and naked, it is bad, for it indicates aberration of intellect. It is a deadly symptom, also, when the patient sleeps constantly with his mouth open, having his legs strongly bent and plaited together, while he lies upon his back; and to lie upon one's belly, when not habitual to the patient to sleep thus while in good health, indicates delirium, or pain in the abdominal regions. And for the patient to wish to sit erect at the acmè of a disease is a bad symptom in all acute diseases, but particularly so in pneumonia.¹ To grind the teeth in fevers, when such has not been the custom of the patients from childhood, indicates madness and death, both which dangers are to be announced beforehand as likely to happen; and if a person in delirium do this it is a very deadly symptom. And if the patient had an ulcer previously, or if one has occurred in the course of the disease, it is to be observed; for if the man be about to die the sore will become livid and dry, or yellow and dry before death.²

4. Respecting the movement of the hands I have these observations to make: When in acute fevers, pneumonia, phrenitis, or headache, the hands are waved before the face, hunting through empty space, as if gathering bits of straw, picking the nap from the coverlet, or tearing chaff from the wall—all such symptoms are bad and deadly.³

¹ This is taken pretty closely from the *Coacæ Prænotiones*, 235.

² This sentence is thus translated by Celsus: "Ubi ulcus, quod aut ante, aut in ipso morbo natum est, aridum, et aut pallidum, aut lividum factum est." (ii, 6.) It is imitated from the *Coacæ Prænotiones*, 496.

³ This graphic description of the movement of the hands in delirium is nearly original, being but slightly touched upon in the *Coacæ Prænotiones*, 76. The terms are copied by most of the ancient authors subsequent to Hippocrates, in their descriptions

5. Respiration, when frequent, indicates pain or inflammation in the parts above the diaphragm: a large respiration performed at a great interval announces delirium; but a cold respiration at nose and mouth is a very fatal symptom. Free respiration is to be looked upon as contributing much to the safety of the patient in all acute diseases, such as fevers, and those complaints which come to a crisis in forty days.¹

6. Those sweats are the best in all acute diseases which occur on the critical days, and completely carry off the fever. Those are favorable, too, which taking place over the whole body, show that the man is bearing the disease better. But those that do not produce this effect are not beneficial. The worst are cold sweats, confined to the head, face, and neck; these in an acute fever prognosticate death, or in a milder one, a prolongation of the disease; and sweats which occur over the whole body, with the characters of those confined to the neck, are in like manner bad. Sweats attended with a miliary eruption, and taking place about the neck, are bad; sweats in the form of drops and of vapour are good. One ought to know the entire character of sweats, for some are connected with prostration of strength in the body, and some with intensity of the inflammation.²

7.³ That state of the hypochondrium is best when it is free of phrenitis and febrile delirium. See in particular PAULUS ÆGINETA, Book III, 6. Stephanus, in his Commentary, has several very philosophical remarks on this passage, namely, upon the rationale of the ocular deception which leads to these extraordinary movements of the hands. (Ed. Dietz, t. i, pp. 103, 104.)

¹ This is imitated pretty closely from the *Coacæ Prænotiones*, 260. Dr. Ermerins remarks that there is a greater number of symptoms in the *Prænotiones* than in the *Prognostics*. He therefore suggests the question whether there may not be a lacuna in the text. The description of the respiration preceding dissolution in the *Prænotiones* is certainly most graphic, and it appears wonderful that it should be omitted by Hippocrates in the *Prognostics*.

² The paragraph on sweats is founded on the *Coacæ Prænotiones*, 572, 573; but the *Prognostics* is much fuller than the other. The cold sweats described in this paragraph were called *syncoptic* by the ancients, and were supposed to be connected with atony of the pores of the skin. See Galen, h. l., and *De Causis Sympt.*, iii, 9. Stephanus, with rather too much logical parade, gives a good many acute and interesting remarks on this passage. He says that cold sweats are connected with a complete prostration of the innate heat (*calidum innatum*). (p. 114.)

³ The characters of the hypochondriac region are copied in part from the *Coacæ Prænotiones*, 279, 280, 282; but they are much improved in the *Prognostics*. It will be remarked that in the *Epidemics* great attention is paid to the state of the

from pain, soft, and of equal size on the right side and the left. But if inflamed, or painful, or distended; or when the right and left sides are of disproportionate sizes;—all these appearances are to be dreaded. And if there be also pulsation in the hypochondrium, it indicates perturbation or delirium; and the physician should examine the eyes of such persons; for if their pupils be in rapid motion, such persons may be expected to go mad. A swelling in the hypochondrium, that is hard and painful, is very bad, provided it occupy the whole hypochondrium; but if it be on either side, it is less dangerous when on the left. Such swellings at the commencement of the disease prognosticate speedy death; but if the fever has passed twenty days, and the swelling has not subsided, it turns to a suppuration.¹ A discharge of blood from the nose occurs to such in the first period, and proves very useful; but inquiry should be made if they have headache or indistinct vision; for if there be such, the disease will be determined thither. The discharge of blood is rather to be expected in those who are younger than thirty-five years. Such swellings as are soft, free from pain, and yield to the finger, occasion more protracted crises, and are less dangerous than the others. But if the fever continue beyond sixty days, without any subsidence of the swelling, it indicates that empyema is about to take place; and a swelling in any other part of the cavity will terminate in like manner. Such, then, as are painful, hard, and large, indicate danger of speedy death; but such as are soft, free of pain, and yield when pressed with the finger, are more chronic than these. Swellings in the belly less frequently form abscesses than those in the hypochondrium; and seldome of all, those below the navel are converted into suppuration; but you may rather expect a hemorrhage from the upper parts.

hypochondria. Stephanns remarks that pulsation *or* palpitation in the hypochondria is caused by violent throbbing of the aorta as it passes through this region, which is occasioned by the effervescence and inflammation of the important parts which are situated in it, and with which the brain is apt to sympathise. (p. 118.) Meteorism of the hypochondriac region is often mentioned in the reports of the cases described in the Epidemics.

¹ The author evidently alludes to hepatitis ending in abscess. This would seem to have been a very common termination of inflammation of the liver in Greece, as it is often described in the ancient medical works. See PAULUS ÆGINETA, B. III, 46, and the authorities quoted there in the Sydenham Society's edition.

But the suppuration of all protracted swellings about these parts is to be anticipated. The collections of matter there are to be thus judged of: such as are determined outwards are the best when they are small, when they protrude very much, and swell to a point; such as are large and broad, and which do not swell out to a sharp point, are the worst. Of such as break internally, the best are those which have no external communication, but are covered and indolent; and when the whole place is free from discoloration. That pus is best which is white, homogeneous, smooth, and not at all fetid; the contrary to this is the worst.

8.¹ All dropsies arising from acute diseases are bad; for they do not remove the fever, and are very painful and fatal. The most of them commence from the flanks and loins, but some from the liver; in those which derive their origin from the flanks and loins the feet swell, protracted diarrhœas supervene, which neither remove the pains in the flanks and loins, nor soften the belly;² but in dropsies which are connected with the liver there is a tickling cough, with scarcely any perceptible expectoration, and the feet swell; there are no evacuations from the bowels, unless such as are hard and forced; and there are swellings about the belly, sometimes on the one side and sometimes on the other, and these increase and diminish by turns.³

9. It is a bad symptom when the head, hands, and feet are

¹ The paragraph on the prognostics relating to dropsies is founded in a great measure on the *Coacæ Prænotiones*, 454. The ancient writers who treat systematically of dropsy generally describe four varieties of it, namely, dropsy from disease of the liver, from disease of the spleen, from fever, and from a sudden draught of cold water. See *De Morbis*, and PAULUS ÆGINETA, B. III, 48, Sydenham Society's edition.

² On this variety I have remarked in the Comment. on Paulus Ægineta: "Hippocrates refers one species of dropsy to disease of the parts situated in the loins, by which Galen and Stephanus agree that he means the jejunum, mesaraic veins, and kidneys." (Paulus Ægineta, l. c.) M. Littré accordingly holds it probable that allusion is made to granular degeneration of the kidneys, that is to say, to Bright's disease. (*Opera*, &c., tom. ii, 388.)

³ Dr. Ermerins remarks that the species of dropsy here described was most probably connected with organic disease of the parts situated in the abdominal region, arising from inflammation with which they had been previously attacked.

cold, while the belly and sides are hot; but it is a very good symptom when the whole body is equally hot.¹ The patient ought to be able to turn round easily, and to be agile when raised up; but if he appear heavy in the rest of his body as well as in his hands and feet, it is more dangerous; and if, in addition to the weight, his nails and fingers become livid, immediate death may be anticipated; and if the hands and feet be black it is less dangerous than if they be livid, but the other symptoms must be attended to; for if he appear to bear the illness well, and if certain of the salutary symptoms appear along with these, there may be hope that the disease will turn to a deposition, so that the man may recover; but the blackened parts of the body will drop off. When the testicles and member are retracted upwards, they indicate strong pains, and danger of death.²

10. With regard to sleep—as is usual with us in health, the patient should wake during the day and sleep during night. If this rule be anywise altered it is so far worse: but there will be little harm provided he sleep in the morning for the third part of the day; such sleep as takes place after this time is more unfavorable; but the worst of all is to get no sleep either night or day; for it follows from this symptom that the insomnolency

¹ This paragraph is pretty closely taken from the *Coacæ Prænotiones*, 492. A good deal of stress is laid upon the state of the temperature of the extremities in the reports of the febrile cases contained in the *Epidemics*. He announces it as a general truth that coldness of the extremities in acute diseases is bad. (*Aphor.* vii, 1.) Sprengel considers that he has stated this fact in too general terms, as there are many exceptions to it. (*Hist. de la Méd.*, tom. i, 317.)

² This is taken in part from the *Coacæ Prænotiones*, 493. Sprengel finds great fault with Hippocrates for laying it down as a rule, that in cases of gangrene a black colour of the part is less dangerous than a livid. Dr. Ermerins, however, espouses the side of Hippocrates, and maintains that our author has acutely pointed out the difference between gangrene proving critical, and gangrene connected with weakness of the vital actions in the part. In the former case the part becomes perfectly black, whereas in the other it is livid. He mentions that he observed in an hospital at the same time a case of mortification from cold, and another of the same from want and congelation; that in the former the part was black, and the patient recovered; whilst in the other the arms were livid, and the patient soon died. (*Specimen Hist. Med.*, p. 68.) Stephanus, by the way, gives nearly the same explanation of this remark. (p. 142.) Perhaps our author had in view the plague of Athens, in which the disease often terminated favorably in mortification of the fingers or toes. (*Thucyd.*, ii, 49.)

is connected with sorrow and pains, or that he is about to become delirious.¹

11. The excrement is best which is soft and consistent, is passed at the hour which was customary to the patient when in health, in quantity proportionate to the ingesta; for when the passages are such, the lower belly is in a healthy state.² But if the discharges be fluid, it is favorable that they are not accompanied with a noise, nor are frequent, nor in great quantity; for the man being oppressed by frequently getting up, must be deprived of sleep; and if the evacuations be both frequent and large, there is danger of his falling into deliquium animi.³ But in proportion to the ingesta he should have evacuations twice or thrice in the day, once at night and more copiously in the morning, as is customary with a person in health. The fæces should become thicker when the disease is tending to a crisis; they ought to be yellowish and not very fetid. It is favorable that round worms be passed with the discharges when the disease is tending to a crisis.⁴ The belly, too, through the whole disease, should be soft and moderately distended; but excrements that are very watery, or white, or green, or very red, or frothy, are all bad. It is also bad when the discharge is small, and viscid, and white, and greenish, and smooth; but still more deadly appearances are the black, or fatty, or livid, or verdigris-green, or fetid. Such as are of varied characters indicate greater duration of the complaint, but are no less dangerous; such as those which resemble scrapings,⁵ those which are bilious, those resembling leeks, and the black; these being sometimes passed together, and sometimes singly.⁶ It is best when wind passes without noise, but it is better that flatulence should pass even thus than that it

¹ A considerable portion of the Prognostics from Sleep are taken from the *Coacæ Prænotiones*, 497. This part is elegantly rendered by Celsus: "Ubi nocturna vigilia premitur, etiamsi interdium somnus accedit; ex quo tamen peior est, qui inter quartam horam et noctem est, quam qui matutino tempore ad quartam. Pessimum tamen est, si somnus neque noctu, neque interdium accedit; id enim fere sine continuo dolore esse non potest." (ii, 4.) Stephanus gives a philosophical disquisition on the nature and causes of sleep. (pp. 142-8.)

² This is pretty closely taken from the *Coacæ Prænotiones*, 601.

³ A small part of this is to be found in the *Coacæ Prænotiones*, 609.

⁴ Part of this is borrowed from the *Coacæ Prænotiones*, 601.

⁵ Strigentosa: that is to say, resembling the scrapings or strippings of the bowels.

⁶ This in part is borrowed from the *Coacæ Prænotiones*, 604, 631.

should be retained; and when it does pass thus, it indicates either that the man is in pain or in delirium, unless he gives vent to the wind spontaneously.¹ Pains in the hypochondria, and swellings, if recent, and not accompanied with inflammation, are relieved by borborygmi supervening in the hypochondrium, more especially if it pass off with fæces, urine, and wind; but even although not, it will do good by passing along, and it also does good by descending to the lower part of the belly.²

12. The urine is best when the sediment is white, smooth, and consistent during the whole time, until the disease come to a crisis, for it indicates freedom from danger, and an illness of short duration; but if deficient, and if it be sometimes passed clear, and sometimes with a white and smooth sediment, the disease will be more protracted, and not so void of danger. But if the urine be reddish, and the sediment consistent and smooth, the affection, in this case, will be more protracted than the former, but still not fatal.³ But farinaceous sediments in the urine are bad, and still worse are the leafy;⁴ the white and thin are very bad, but the furfuraceous are still worse than these. Clouds carried about in the urine are good when white, but bad if black. When the urine is yellow and thin, it indicates that the disease is unconcocted; and if it (the disease) should be protracted, there may be danger lest the patient should not hold out until the urine be concocted.⁵ But the most deadly of all kinds of urine are the fetid, watery, black, and thick; in adult men and women the black is of all kinds of urine the worst, but in children, the watery.⁶ In those who pass thin and crude urine for a length of time, if

¹ This is pretty closely copied from the *Coacæ Prænotiones*, 495.

² This is taken from the *Coacæ Prænotiones*, 281. Several of the other ancient writers on medicine, both Greek and Arabian, have treated fully on the characters of the alvine discharges; but, upon the whole, have not added much to the information contained in the *Coacæ Prænotiones* and *Prognostics*. See the *Commentary on PAULUS ÆGINETA*, B. II, 13. Stephanus has many interesting observations on the prognostics from the urine. He remarks that the urine is a good index of the condition which the digestive process is in, and more especially the process of sanguification. (p. 162.)

³ This is closely copied from the *Coacæ Prænotiones*, 575.

⁴ According to Stephanus, both the farinaceous and leafy sediments are the products of a melting of the solid parts, as a consequence of inflammatory heat. (p. 165.)

⁵ A small portion of the above occurs in the *Coacæ Prænotiones*, 578.

⁶ For part of this our author is indebted to the *Coacæ Prænotiones*, 580.

they have otherwise symptoms of convalescence, an abscess may be expected to form in the parts below the diaphragm.¹ And fatty substances floating on the surface are to be dreaded, for they are indications of melting. And one should consider respecting the kinds of urine, which have clouds, whether they tend upwards or downwards, and the colours which they have; and such as fall downwards, with the colours as described, are to be reckoned good and commended; but such as are carried upwards, with the colours as described, are to be held as bad, and are to be distrusted.² But you must not allow yourself to be deceived if such urine be passed while the bladder is diseased; for then it is a symptom of the state, not of the general system, but of a particular viscus.³

13. That vomiting is of most service which consists of phlegm and bile mixed together, and neither very thick nor in great quantity; but those vomitings which are more unmixed are worse. But if that which is vomited be of the colour of leeks, or livid, or black, whatever of these colours it be, it is to be reckoned bad; but if the same man vomit all these colours, it is to be reckoned a very fatal symptom. But of all the vomitings, the livid indicates the most imminent danger of death, provided it be of a fetid smell. But all the smells which are somewhat putrid and fetid, are bad in all vomitings.⁴

14. The expectoration in all pains about the lungs and sides, should be quickly and easily brought up, and a certain degree of yellowness should appear strongly mixed up with the sputum. But if brought up long after the commencement of the pain, and of a yellow or ruddy colour, or if it occasions much cough, or be not strongly mixed, it is worse; for that

¹ See *Coacæ Prænotiones*, 582.

² This is partly taken from the *Coacæ Prænotiones*, 577.

³ Galen, in his Commentary, justly praises Hippocrates for the acuteness of the remark contained in this sentence, since both, with regard to the urinary and fecal discharges, it must be highly important to determine whether their characters be indicative of the condition of the general system, or of the viscus by which they are secreted. (*Opera*, v, p. 142; ed. Basil.) The ancients paid great attention to the characters of the urine in disease, and their knowledge of the subject will be admitted, even at the present day, to have been remarkable. The works of some of the later authorities, particularly of Theophilus and Actuarius, are well deserving of an attentive perusal. See *PAULUS ÆGINETA*, Vol. I, p. 225.

⁴ This is partly taken from the *Coacæ Prænotiones*, 556.

which is intensely yellow is dangerous, but the white, and viscid, and round, do no good. But that which is very green and frothy is bad; but if so intense as to appear black, it is still more dangerous than these; it is bad if nothing is expectorated, and the lungs discharge nothing, but are gorged with matters which boil (as it were) in the air-passages. It is bad when coryza and sneezing either precede or follow affections of the lungs, but in all other affections, even the most deadly, sneezing is a salutary symptom.¹ A yellow spittle mixed up with not much blood in cases of pneumonia, is salutary and very beneficial if spit up at the commencement of the disease, but if on the seventh day, or still later, it is less favorable. And all sputa are bad which do not remove the pain. But the worst is the black, as has been described. Of all others the sputa which remove the pain are the best.²

15. When the pains in these regions do not cease, either with the discharge of the sputa, nor with alvine evacuations, nor from venesection, purging with medicine, nor a suitable regimen, it is to be held that they will terminate in suppurations.³ Of empyemata such as are spit up while the sputum is

¹ These characters of the sputa are partly borrowed from the Coacæ Prænotiones, 390, 399.

² They are founded on the Coacæ Prænotiones, 390, 391.

³ This is taken in part from the Coacæ Prænotiones, 392, 394. The succeeding paragraphs on empyema are also partly derived from the Coacæ Prænotiones, 393, 402, 428. I may be allowed to remark in this place that modern pathologists are agreed that abscesses after pneumonia are of rare occurrence; at the same time, however, purulent infiltration and its natural consequence, expectoration of pus, are not so very uncommon results of the disease. True pulmonary abscess or empyema is commonly occasioned by chronic inflammation. I am inclined to think that the ancients applied the term also to the cavities in the lungs produced by the softening of tubercles. It is difficult otherwise to account for the frequent mention of empyemata in the works of the ancient authorities on medicine, especially in the Hippocratic treatises. See *De Locis in Homine*, p. 415, ed. Foës; and tom. i, p. 306, ed. Kühn, et alibi. M. Littré makes the following remarks on the descriptions of empyema which occur in the Hippocratic treatises: "On remarquera dans le *Pronostic*, et cette remarque s'étend à plusieurs autres des écrits Hippocratiques, qu'une très-large place est faite aux affections de la poitrine, péripleumonies et pleurésies. Il paraîtrait que, sous le climat de la Grèce, ces affections ont une grande fréquence, plus peut-être qu'elles n'en ont même dans notre climat. La description, fort abrégée il est vraie, qu'en donne Hippocrate, me porte à penser que, si cette description est exacte, elles ne suivent pas la même marche que parmi nous. En effet, que sont ces empyèmes que, suivant Hippocrate, se font jour au dehors sous forme d'expectoration

still bilious, are very fatal, whether the bilious portion be expectorated separate, or along with the other; but more especially if the empyema begin to advance after this sputum on the seventh day of the disease. It is to be expected that a person with such an expectoration shall die on the fourteenth day, unless something favorable supervene. The following are favorable symptoms: to support the disease easily, to have free respiration, to be free from pain, to have the sputa readily brought up, the whole body to appear equally warm and soft, to have no thirst, the urine, and fæces, sleep, and sweats to be all favorable, as described before; when all these symptoms concur, the patient certainly will not die; but if some of these be present and some not, he will not survive longer than the fourteenth day. The bad symptoms are the opposite of these, namely, to bear the disease with difficulty, respiration large and dense, the pain not ceasing, the sputum scarcely coughed up, strong thirst, to have the body unequally affected by the febrile heat, the belly and sides intensely hot, the forehead, hands, and feet cold; the urine, and excrements, the sleep,

purulente? On peut croire, que dans les dénominations d'empyèmes sont compris les épanchements pleurétiques; mais les épanchements pleurétiques ne se font pas jour au dehors, ils se guérissent par résorption; alors, que sont ces empyèmes signalés par Hippocrate, comme terminaison des péripneumonies, et ces expectorations qui en procurent l'évacuation? Il m'est impossible de répondre à ces questions: peut-être des observations faites dans la Grèce même, permettraient de résoudre la difficulté." (*Œuvres Complètes d'Hippocrate*, tom. ii, p. 97.) Perhaps, as I have hinted above, the most probable answer that could be returned to the questions put by M. Littré would be, that many of the cases of pneumonia terminating in empyema, which occur in the Hippocratic treatises, were what are now described as cases of acute phthisis. See Louis on Phthisis, ii, 2. In confirmation of my supposition that many of the cases of empyema described by the ancients were, in fact, cases of phthisis, I would refer to PAULUS ÆGINETA, B. III, 32, where it will be seen that the two diseases, phthisis and empyema, are treated of under the same head. See also the second book of the *Prorrhetics*, tom. i, pp. 198-201; ed. Kühn.

M. Littré reverts to this subject in the *Argument to the Coacæ Prænotiones*, tom. v, p. 576, where he relates, from two recent authorities, a case of empyema after pleurisy, and another after pneumonia, in both of which the pus was evacuated by the mouth. He also quotes the remark of an English writer, Dr. Twining, that, in and about Bengal, abscess of the lungs after pneumonia is by no means very rare. Still M. Littré admits that the paucity of such cases in modern works must lead to the conclusion either that Hippocrates had not observed correctly, or that this termination is more rare now than formerly. I leave the reader to judge whether my suggestion stated above does not remove this difficulty.

and sweats, all bad, agreeably to the characters described above ; if such a combination of symptoms accompany the expectoration, the man will certainly die before the fourteenth day, and either on the ninth or eleventh. Thus then one may conclude regarding this expectoration, that it is very deadly, and that the patient will not survive until the fourteenth day. It is by balancing the concomitant symptoms whether good or bad, that one is to form a prognosis ; for thus it will most probably prove to be a true one. Most other suppurations burst, some on the twentieth, some on the thirtieth, some on the fortieth, and some as late as the sixtieth day.¹

16. One should estimate when the commencement of the suppuration will take place, by calculating from the day on which the patient was first seized with fever, or if he had a rigor, and if he says that there is a weight in the place where he had pain formerly, for these symptoms occur in the commencement of suppurations. One then may expect the rupture of the abscesses to take place from these times according to the periods formerly stated. But if the empyema be only on either side, one should turn him and inquire if he has pain on the other side ; and if the one side be hotter than the other, and when laid upon the sound side, one should inquire if he has the feeling of a weight hanging from above, for if so, the empyema will be upon the opposite side to that on which the weight was felt.²

17. Empyema may be recognised in all cases by the following symptoms : In the first place, the fever does not go off, but is slight during the day, and increases at night, and copious sweats supervene, there is a desire to cough, and the patients

¹ "The observations of Andral have in some measure confirmed the opinion of Hippocrates and other authors, ancient and modern, that there are certain days in the duration of the disease in which there is a greater tendency to amelioration. Of ninety-three cases, he found twenty-three give way on the seventh, thirteen on the eleventh, eleven on the fourteenth, and nine on the twentieth days. The recoveries in the remaining cases commenced on twelve out of forty-two non-critical days, as many as eleven being ascribed to the tenth day. Thus the recoveries on critical days averaged as high as fourteen, while those on non-critical scarcely exceeded three." (Dr. C. J. B. Williams on Pneumonia, *Cyclop. of Pract. Med.*, vol. iii, p. 405.) See also Andral, *Clin. Med.*, c. ii, p. 365.

² Stephanus has a lengthened and most important commentary on this passage, containing an elaborate disquisition on empyema. (pp. 184-91.)

expectorate nothing worth mentioning, the eyes become hollow, the cheeks have red spots on them, the nails of the hands are bent, the fingers are hot especially their extremities, there are swellings in the feet, they have no desire of food, and small blisters (phlyctænæ) occur over the body. These symptoms attend chronic empyemata, and may be much trusted to; and such as are of short standing are indicated by the same, provided they be accompanied by those signs which occur at the commencement, and if at the same time the patient has some difficulty of breathing. Whether they will break earlier or later may be determined by these symptoms; if there be pain at the commencement, and if the dyspnœa, cough, and ptyalism be severe, the rupture may be expected in the course of twenty days or still earlier; but if the pain be more mild, and all the other symptoms in proportion, you may expect from these the rupture to be later; but pain, dyspnœa, and ptyalism, must take place before the rupture of the abscess. Those patients recover most readily whom the fever leaves the same day that the abscess bursts,—when they recover their appetite speedily, and are freed from the thirst,—when the alvine discharges are small and consistent, the matter white, smooth, uniform in colour, and free of phlegm, and if brought up without pain or strong coughing. Those die whom the fever does not leave, or when appearing to leave them it returns with an exacerbation; when they have thirst, but no desire of food, and there are watery discharges from the bowels; when the expectoration is green or livid, or pituitous and frothy; if all these occur they die, but if certain of these symptoms supervene, and others not, some patients die and some recover, after a long interval. But from all the symptoms taken together one should form a judgment, and so in all other cases.

18. When abscesses form about the ears, after peripneumonic affections, or depositions of matter take place in the inferior extremities and end in fistula, such persons recover. The following observations are to be made upon them: if the fever persist, and the pain do not cease, if the expectoration be not normal, and if the alvine discharges be neither bilious, nor free and unmixed; and if the urine be neither copious nor have its proper sediment, but if, on the other hand, all the other salutary symptoms be present, in such cases abscesses

may be expected to take place. They form in the inferior parts when there is a collection of phlegm about the hypochondria; and in the upper when the hypochondria continue soft and free of pain, and when dyspnœa having been present for a certain time, ceases without any obvious cause.¹ All deposits which take place in the legs after severe and dangerous attacks of pneumonia, are salutary, but the best are those which occur at the time when the sputa undergo a change; for if the swelling and pain take place while the sputa are changing from yellow and becoming of a purulent character, and are expectorated freely, under these circumstances the man will recover most favorably, and the abscess becoming free of pain, will soon cease; but if the expectoration is not free, and the urine does not appear to have the proper sediment, there is danger lest the limb should be maimed, or that the case otherwise should give trouble. But if the abscesses disappear and go back, while expectoration does not take place, and fever prevails, it is a bad symptom; for there is danger that the man may get into a state of delirium and die. Of persons having empyema after peripneumonic affections, those that are advanced in life run the greatest risk of dying; but in the other kinds of empyema younger persons rather die.² In cases of empyema treated by the cautery or incision, when the matter is pure, white, and not fetid, the patient recovers; but if of a bloody and dirty character, he dies.³

19. Pains accompanied with fever which occur about the loins and lower parts, if they attack the diaphragm, and leave the parts below, are very fatal. Wherefore one ought to pay attention to the other symptoms, since if any unfavorable one supervene, the case is hopeless: but if while the disease is determined to the diaphragm, the other symptoms are not bad, there is great reason to expect that it will end in empyema.⁴ When the bladder is hard and painful, it is an extremely bad and mortal symptom, more especially in cases

¹ This is taken pretty closely from the *Coacæ Prænotiones*, 395.

² A part of this is copied from the *Coacæ Prænotiones*, 396.

³ It will be seen in our analysis of several of the Hippocratic treatises, such as *De Affect. Intern.*, *De Morbis*, &c., that it was the common practice in such cases to evacuate the matter either by the cautery or the knife. See also *Aphorism*, vii, 44.

⁴ Part of this is borrowed from the *Coacæ Prænotiones*, 108.

attended with continued fever ; for the pains proceeding from the bladder alone are enough to kill the patient ; and at such a time the bowels are not moved, or the discharges are hard and forced. But urine of a purulent character, and having a white and smooth sediment, relieves the patient. But if no amendment takes place in the characters of the urine, nor the bladder become soft, and the fever is of the continual type, it may be expected that the patient will die in the first stages of the complaint. This form attacks children more especially, from their seventh to their fifteenth year.¹

20. Fevers come to a crisis on the same days as to number on which men recover and die. For the mildest class of fevers, and those originating with the most favorable symptoms, cease on the fourth day or earlier ; and the most malignant, and those setting in with the most dangerous symptoms, prove fatal on the fourth day or earlier. The first class of them as to violence ends thus : the second is protracted to the seventh day, the third to the eleventh, the fourth to the fourteenth, the fifth to the seventeenth, and the sixth to the twentieth. Thus these periods from the most acute disease ascend by fours up to twenty. But none of these can be truly calculated by whole days, for neither the year nor the months can be numbered by entire days. After these in the same manner, according to the same progression, the first period is of thirty-four days, the second of forty days, and the third of sixty days. In the commencement of these it is very difficult to determine those which will come to a crisis after a long interval ; for these beginnings are very similar, but one should pay attention from the first day, and observe further at every additional tetrad, and then one cannot miss seeing how the disease will terminate. The constitution of quartans is agreeable to the same order. Those which will come to a crisis in the shortest space of time, are the easiest to be judged of ; for the differences of them are greatest from the commencement, thus those who are going to recover breathe freely, and do not suffer pain, they sleep during the night, and have the other salutary symptoms, whereas those that are to die have difficult respiration, are delirious, troubled

¹ This is in part derived from the *Coacc Prænotiones*, 471. Galen, in his commentary, is at pains to explain that by a hard bladder Hippocrates means a bladder in a state of inflammation.

with insomnolency, and have the other bad symptoms. Matters being thus, one may conjecture, according to the time, and each additional period of the diseases, as they proceed to a crisis. And in women, after parturition, the crises proceed agreeably to the same ratio.¹

21. Strong and continued headaches with fever, if any of the deadly symptoms be joined to them, are very fatal. But if without such symptoms the pain be prolonged beyond twenty days, a discharge of blood from the nose or some abscess in the inferior parts may be anticipated; but while the pain is recent, we may expect in like manner a discharge of blood from the nose, or a suppuration, especially if the pain be seated above the temples and forehead; but the hemorrhage is rather to be looked for in persons younger than thirty years, and the suppuration in more elderly persons.²

22. Acute pain of the ear, with continual and strong fever, is to be dreaded; for there is danger that the man may become delirious and die. Since, then, this is a hazardous spot, one ought to pay particular attention to all these symptoms from the commencement. Younger persons die of this disease on the seventh day, or still earlier, but old persons much later; for the fevers and delirium less frequently supervene upon them, and on that account the ears previously come to a suppuration, but at these periods of life, relapses of the disease coming on, generally prove fatal. Younger persons die before the ear suppurates; only if white matter run from the ear, there may

¹ The subject of the critical days is not touched upon in the *Coacæ Prænotiones*, so that the contents of this section are either original or taken from some source with which we are totally unacquainted. Galen, indeed, does not hesitate to declare that Hippocrates himself was the first who treated of the critical days; but whether he had any competent authority for pronouncing this opinion cannot be satisfactorily determined. The critical days are incidentally treated of in the *Epidemics and Aphorisms*; but, as we have stated in our critique on the Hippocratic treatises in the Preliminary Discourse, the work 'On Critical Days' is in all probability spurious. The system of the critical days taught by Hippocrates was adopted by almost all the ancient authorities, with the exception of Archigenes and his followers, who, however, were not numerous nor of any great name, with the exception of Celsus. See the Commentary on PAULUS ÆGINETA, B. II, 7, Syd. Soc. edition.

² The contents of this section are borrowed in a great measure from the *Coacæ Prænotiones*, 160. Dr. Ermerins remarks that the headache here described is probably of a catarrhal or rheumatic nature. (*Specimen Hist. Med. Inaug., &c.*, p. 84.)

he hopes that a younger person will recover, provided any other favorable symptom be combined.¹

23. Ulceration of the throat with fever, is a serious affection, and if any other of the symptoms formerly described as being bad, be present, the physician ought to announce that his patient is in danger.² Those quinsies are most dangerous, and most quickly prove fatal, which make no appearance in the fauces, nor in the neck, but occasion very great pain and difficulty of breathing; these induce suffocation on the first day, or on the second, the third, or the fourth.³ Such as, in like manner, are attended with pain, are swelled up, and have redness (erythema) in the throat, are indeed very fatal, but more protracted than the former, provided the redness be great.⁴ Those cases in which both the throat and the neck are red, are more protracted, and certain persons recover from them, especially if the neck and breast be affected with erythema, and the erysipelas be not determined inwardly.⁵ If neither the erysipelas disappear on the critical day, nor any abscess form outwardly, nor any pus be spit up, and if the patient fancy himself well, and be free from pain, death or a relapse of the erythema is to be apprehended. It is much less hazardous when the swelling and redness are determined outwardly; but if determined to the lungs, they superinduce delirium, and frequently some of these cases terminate in empyema.⁶ It is

¹ This is taken in great measure from the *Coacæ Prænotiones*, 189. Galen, in his commentary, remarks that patients die of violent pains of the ear, owing to the brain sympathising, which brings on delirium, and sometimes occasions sudden death. I may be allowed to remark that every experienced physician must have met with such cases.

² A considerable part of this section on ulcerated sore-throat is extracted from the *Coacæ Prænotiones*. The present sentence is from § 276. The medical reader will not fail to remark that Hippocrates displays a wonderfully accurate acquaintance with these affections.

³ This is founded on the contents of the *Coacæ Prænotiones*, 363. The disease here described is evidently angina laryngæa.

⁴ This is taken in part from the *Coacæ Prænotiones*, 364. As Dr. Ermerins remarks in his note on it, the disease here described is evidently angina pharyngæa.

⁵ This is closely copied from the *Coacæ Prænotiones*, 365. The danger of erythematous swelling being determined inwards, is well understood now-a-days.

⁶ This is taken, with slight alterations, from the *Coacæ Prænotiones*, 365, 367. The latter clause is more fully expressed in the *Coacæ Prænotiones* than in the *Prognostics*. "In those cases in which cyanache is determined to the lungs, some die in seven days, and some escaping these get into a state of empyema, unless they have a pituitous expectoration." This is evidently a correct description of the disease spreading to the lungs. *Digitized by Microsoft®*

very dangerous to cut off or scarify enlarged uvulæ while they are red and large, for inflammations and hemorrhages supervene; but one should try to reduce such swellings by some other means at this season. When the whole of it is converted into an abscess, which is called Uva, or when the extremity of the variety called Columella is larger and round, but the upper part thinner, at this time it will be safe to operate. But it will be better to open the bowels gently before proceeding to the operation, if time will permit, and the patient be not in danger of being suffocated.¹

24. When the fevers cease without any symptoms of resolution occurring, and not on the critical days, in such cases a relapse may be anticipated.² When any of the fevers is protracted, although the man exhibits symptoms of recovery, and there is no longer pain from any inflammation, nor from any other visible cause, in such a case a deposit, with swelling and pain, may be expected in some one of the joints, and not improbably in those below. Such deposits occur more readily and in less time to persons under thirty years of age; and one should immediately suspect the formation of such a deposit, if the fever be protracted beyond twenty days; but to aged persons these less seldom happen, and not until the fever be much longer protracted. Such a deposit may be expected, when the fever is of a continual type, and that it will pass into a quartan, if it become intermittent, and its paroxysms come on in an irregular manner, and if in this form it approach autumn. As deposits form most readily in persons below thirty years of age, so quartans most commonly occur to persons beyond that age. It is proper to know that deposits occur most readily in winter, that then they are most protracted, but are less given to return.³ Whoever, in a fever that is not of a fatal character, says that he has pain in his head, and that something dark appears to be before his eyes, and that he has pain at the stomach, will be seized with vomiting of bile; but

¹ No part of this last clause is to be found in the *Coacæ Prænotiones*. The operations of excising and burning the diseased uvula are minutely described by Paulus Ægineta and other of the ancient authorities. See PAULUS ÆGINETA, B. VI, 31. I need scarcely remark that both these operations have been revived of late years.

² This is taken with little variation from the *Coacæ Prænotiones*, 146.

³ A part of what precedes is taken from the *Coacæ Prænotiones*, 143; all that follows, with the exception of a short sentence, is original.

if a rigor also attack him, and the inferior parts of the hypochondrium are cold, vomiting is still nearer at hand; and if he eat or drink anything at such a season, it will be quickly vomited. In these cases, when the pain commences on the first day, they are particularly oppressed on the fourth and the fifth; and they are relieved on the seventh, but the greater part of them begin to have pain on the third day, and are most especially tossed on the fifth, but are relieved on the ninth or eleventh; but in those who begin to have pains on the fifth day, and other matters proceed properly with them, the disease comes to a crisis on the fourteenth day. But when in such a fever persons affected with headache, instead of having a dark appearance before their eyes, have dimness of vision, or flashes of light appear before their eyes, and instead of pain at the pit of the stomach, they have in their hypochondrium a fulness stretching either to the right or left side, without either pain or inflammation, a hemorrhage from the nose is to be expected in such a case, rather than a vomiting. But it is in young persons particularly that the hemorrhage is to be expected, for in persons beyond the age of thirty-five, vomitings are rather to be anticipated. Convulsions occur to children if acute fever be present, and the belly be constipated, if they cannot sleep, are agitated, and moan, and change colour, and become green, livid, or ruddy. These complaints occur most readily to children which are very young up to their seventh year; older children and adults are not equally liable to be seized with convulsions in fevers, unless some of the strongest and worst symptoms precede, such as those which occur in frenzy. One must judge of children as of others, which will die and which recover, from the whole of the symptoms, as they have been specially described.¹ These things I say respecting acute diseases, and the affections which spring from them.

25. He who would know correctly beforehand those that will recover, and those that will die, and in what cases the disease will be protracted for many days, and in what cases

¹ Our author here and elsewhere impresses it upon his readers that it is from the *tout ensemble* of the symptoms that a judgment is to be formed in every case. This is evidently a remark of the most vital importance in forming a prognosis. Galen's observations in the succeeding commentary are very interesting, and deserve an attentive perusal.

for a shorter time, must be able to form a judgment from having made himself acquainted with all the symptoms, and estimating their powers in comparison with one another, as has been described, with regard to the others, and the urine and sputa, as when the patient coughs up pus and bile together. One ought also to consider promptly the influx of epidemical diseases and the constitution of the season.¹ One should likewise be well acquainted with the particular signs and the other symptoms, and not be ignorant how that, in every year, and at every season, bad symptoms prognosticate ill, and favorable symptoms good, since the aforesaid symptoms appear to have held true in Libya, in Delos, and in Scythia;² from which it may be known that, in the same regions, there is no difficulty in attaining a knowledge of many more things than these; if having learned them, one knows also how to judge and reason correctly of them. But you should not complain because the name of any disease may happen not to be described here, for you may know all such as come to a crisis in the afore-mentioned times, by the same symptoms.³

¹ That is to say, the physician ought to get speedily acquainted with the nature of the epidemics which prevail at every particular season. I need scarcely remark that this is a subject which is largely treated of in the works of our English Hippocrates, Sydenham. Hippocrates himself is very full on this head, more especially in his Epidemics and Aphorisms, as we shall see below.

² It has excited a great deal of discussion and difference of opinion to determine what our author means by specifying these three places; but the explanation given by Galen in his Commentary seems to me quite satisfactory. According to him, the meaning of our author is that good and bad symptoms tell the same in all places, in the hot regions of Libya, the cold of Scythia, and the temperate of Delos. It is further to be borne in mind that Odessus in Scythia, and Cyrene in Libya, were the extremities of the Grecian world, whilst Delos may be regarded as its centre. It is proper to remark, however, that by the three places mentioned, Erotian understands the three quarters of the earth—Africa, Asia, and Europe. See under *Λιβύη*.

³ The meaning of this last sentence has been supposed to be somewhat ambiguous; but to me it appears evidently to be this, that the rules of prognosis, as laid down above, apply to all diseases of an acute character, whether their names happen to be mentioned in the course of this work or not, so that it should not be considered a defect in the work that any one is omitted.

APPENDIX

TO

THE BOOK OF PROGNOSTICS.

As announced in the Preliminary Discourse (Sect. II, 18), I shall now proceed to give an abstract of the principal matters contained in the SECOND BOOK OF PRORRHETICS, which appear to me to be highly interesting, and as they relate to the subjects treated of in the Prognostics, they may be more suitably introduced here than in any other place.

The author commences the treatise with expressing his disapproval of certain modes of making prognostics which he had seen practised. He says he had heard of many and famous predictions having been made by physicians, such as he himself did not pretend that he could make. Such, for example, as for a physician to call in upon a patient who was looked upon as being in a desperate condition by another physician, and predict that he would not die, but would lose his sight. Or to predict with regard to another patient supposed to be in a bad way, that he will recover, but will become lame of a hand. And of a third who, to all appearance, cannot recover, to predict that he will get well, but that his toes will blacken and putrefy. Similar predictions are related under this class. Another mode of prediction is to prophecy to buyers and traders, to one death, to another madness, and to the rest diseases, and that from what is now occurring, or has occurred before, and all the predictions to turn out true. Another kind of predictions relates to Athletæ, and those who practise gymnastic and laborious exercises for the cure of diseases, where the practitioner pretends to so much exactness, that if the patient is guilty of any act of omission or commission in regard to food, drink, or venery, the physician will detect it. He himself makes no pretensions to any such skill in divination, but announces it as his object to describe the symptoms by which

it may be known whether a man will die or live, and whether his disease will be of short or of long duration. With regard to the predictions of abscesses, lameness, death, or madness, the author holds that they can only be made after the morbid conditions leading to them have fairly set in. He strongly disapproves of all ostentatious modes of making predictions, and gives it as his advice that in all such cases the greatest prudence and reserve should be observed, since if a man becomes an adept in this art of prognostications, he will gain great credit with his patient, whereas if he fall into mistakes, he will incur odium, and will be looked upon as being deranged.

With regard to the prognostics made by those who practise gymnastics, he recommends them not to be made in a charlatan manner, but with suitable caution, and directs minute attention to be paid to the circumstances of the patient, which one has superior advantages in observing under this system. He says, for example, that a physician who feels a patient's belly and pulse, pays attention to the breathing at the nostrils, and listens to the speech, and sound of the respiration, will be less likely to be deceived in forming a prognostic on his patients than he who neglects these things. He expresses himself, however, as being incredulous as to the possibility of detecting any little transgressions of orders which a patient may commit, although greater departures from instructions may be suspected. After some general observations in respect to diet, and other matters relating to it, he proceeds to a more circumstantial description of the symptoms upon which a prognosis is to be founded. And first, with regard to the alvine dejections, those of persons who live a laborious life, and use food and drink sparingly, are small and hard, and are passed every day, every third day, or every fourth day, but if they pass the last period there is danger of the man's being seized with fever or diarrhœa. When the stools are so liquid that they do not assume a shape, they are all of a worse character in these cases. The dejections of persons who lead an active life are less copious than those of the indolent, provided they use the same amount of food. Liquid dejections taking place on the seventh day, and quickly coming to a crisis, are beneficial, if they occur all at once, and are not repeated. But if accompanied with fever, or if the diarrhœa is prolonged, all such dejections are bad,

whether bilious, pituitous, or of indigested matters, and require a particular regimen and mode of treatment.

With regard to the urine, it should be in proportion to the drink that is taken, and somewhat thicker than the fluid that is drunk. If it be more copious than natural, this indicates either that the patient has disobeyed orders as to the amount of his drink, or that his body is in a state of atrophy. If the urine is passed in deficient quantity, with a noise, it indicates either that the man stands in need of purging, or that the bladder is diseased. A small quantity of blood passed without fever and pain does not indicate anything bad, but proves a solution to a state of lassitude. But if in large quantity, with the addition of any of these symptoms, it is to be dreaded. But if the urine be passed with pain, and if pus be passed along with the urine in a fever, the physician should announce that the patient will thus be relieved of his complaints.¹ Thick urine having a thin sediment indicates some pain and swelling about the joints. All the other sediments which occur in the urine of persons who practise exercises are connected with disease about the bladder; this will be clearly shown by the obstinate pains with which they are accompanied. The author, although he states that he had been conversant with the teachers of prognostics from urine, and their children and disciples, seems to express himself doubtful as to the possibility of acquiring a great degree of accuracy in regard to these matters.

Respecting dropsy, consumption, gout, and epilepsy, he states generally that if they are hereditary they are difficult to remove. A favorable prognosis is to be formed in dropsy when the patient's viscera are sound, when his strength is firm, the digestion and respiration natural, when he is free of pain, the temperature of the body moderate, and when there is no wasting of the extremities. It is favorable when there is no cough, thirst, nor dryness of the tongue, when the bowels are easily moved by medicine, and when, at other times, the dejections are consistent. Dropsy, supervening along with fever, upon a great discharge of blood, is of a most intractable nature, and the physician should intimate the danger to some other person beforehand. When great swellings suddenly

¹ See Epidem., i and iii.

subside and rise again, there is more hope in such a case than in dropsies connected with a discharge of blood. He concludes his observations on dropsies with the remark, that they are apt to deceive the patients, so that they desert their physicians and thus perish.

With regard to consumptive patients, he says, he has the same observations to make with regard to the sputa and cough as he had written with regard to empyema.¹ If the patient is to recover, the sputa should be white, equable, of one colour, without phlegm; the defluxion from the head should be determined to the nose; there should be no fever, nor anorexia, nor thirst; the alvine discharges firm, proportionate to the ingesta, and the patient should not get thin. The best form of the chest is when it is quadrangular and hairy, and when the cartilage is small, and covered with flesh. Young persons, who become affected with empyema from determination (metastasis?), or fistula, or from any other similar cause, or from the retrocession of an abscess, do not recover unless many of the favorable symptoms combine in the case. They die, most commonly, in autumn, which proves peculiarly fatal in protracted diseases. Of all others, virgins, and women suffering from amenorrhœa, seldomest recover; and in their cases there is no hope unless menstruation be restored. All sexes, he seems to say (but the meaning appears to me rather ambiguous), have a better chance of recovery, when there is a discharge of blood, especially in those cases in which there are pains in the back and chest, connected with black bile; and if, after the evacuation, there be a remission of the pain; if the cough and fever do not set in; and if the thirst be tolerable. He seems to state (but the text is in an unsatisfactory condition), that relapses take place unless there be deposits in the place, the best of which are those which contain most blood; and that in those cases in which there are pains in the chest, if the patients get emaciated, and cough, and a dyspnœa supervenes, without fever or empyema, they should be asked whether, when they

¹ Empyema is treated of in the Prognostics, the first book of Prorrhetics, the Coacæ Prænotiones, and the work De Morbis. Which of these is here alluded to cannot be determined for certain; it seems probable, however, that it is to the preceding book of Prorrhetics.

cough, and have difficulty of breathing, the sputa be compact, and attended with little smell.

With regard to persons affected with the gout, those who are aged, have tofi in their joints, who have led a hard life, and whose bowels are constipated, are beyond the power of medicine to cure. But, the best natural remedy for them is, an attack of dysentery, or other determination to the bowels. Persons, under opposite circumstances, may be cured by a skilful physician.

The prognosis in epilepsy is unfavorable when the disease is congenital, and when it endures to manhood, and when it occurs to a grown person, and without any obvious cause. When connected with the head it is particularly to be apprehended, but least so when it seems to be derived from the hands or feet. The cure may be attempted in young persons, but not in old.

In the case of children, he mentions various complaints, such as distortion of the eyes, tubercles about the neck, pain in the bowels, omental hernia, &c., which, upon inquiry, will be found to be the consequences of an attack of epilepsy.

The judgment to be formed in the case of ulcers is to be founded on the age of the patient, the situation of the sore, and its appearance.

Strumous tubercles, which end in suppuration, occur most frequently in young persons. Adults are subject to bad favi, internal cancers, and herpetic sores, after epinyctis, until they pass sixty. Old persons are subject to cancers, both deep-seated and superficial, which never leave them. They are particularly intractable when seated in the armpits, the loins, and the thighs.

Of affections of the joints, the most dangerous are those seated in the thumb and great toe. When there is a chronic sore on the side of the tongue the surgeon should examine whether it be not occasioned by the sharp edge of a tooth.¹

The most dangerous wounds are those which implicate the large veins (blood-vessels), in the neck and groins; then those

¹ This important observation is thus rendered by Celsus: "Quæ in latere lingue ulcera nascuntur diutissimè durant. Videndumque est, num contra deus aliquis acutior sit, qui sauescere sæpe ulcus eo loco non sinit, ideoque limandus est." (vi, 12.)

of the brain and liver; next, those of the bowels and bladder. These cases are all dangerous, but not uniformly fatal, as some suppose. Much depends upon constitution, as to liability to fever and inflammation after a wound. Sometimes, also, the wounds of smaller vessels prove fatal by inducing hemorrhage, fever, or delirium. In all recent wounds, however, the physician should endeavour to afford assistance.

Of spreading ulcers, the most fatal are such mortifications as are very deep, black, and dry; and those are bad and dangerous which are accompanied with a black ichorous discharge. Those which are white and mucous are less dangerous, but are more subject to relapse, and become inveterate. Herpes is the least dangerous of the spreading sores, but is most difficult to remove about deep-seated cancers.¹ An ephemeral fever, with very white and thick pus, is beneficial in such a case; also, sphacelus of a nerve, of a bone, or of both, in deep-seated and black mortifications. For a free discharge of pus takes place and carries off the mortification.

The prognostics in wounds of the head are given in nearly the same terms as laid down in the treatises on that subject, and therefore I need not enter minutely into an exposition of what is stated regarding them here. Those in the upper part of the head, more especially if they implicate a suture, are said to be particularly dangerous. The author directs the surgeon to inquire whether, at the time of the accident, the patient fell down or became comatose, as in this case greater danger is to be apprehended.

Large wounds of the joints, if they involve the connecting nerves, necessarily leave the limb maimed. Several other observations connected with these injuries are added, of which one of the most important is the direction to practise flexion and extension of the limb, frequently, with the view, no doubt, of preventing rigidity of the joint.

Large excisions in the arm becoming inflamed end in supurations, which require to be evacuated by the knife or cautery. Injuries of the spinal marrow, whether from disease or accident, are attended with loss of motion and sensibility, retention of the alvine and urinary discharges; but, after

¹ Allusion seems to be made to herpes exedens.

a time, involuntary evacuations take place, which are soon followed by death. When the throat is frequently filled with blood, and there is no headache or cough, nor any other morbid symptoms, the physician should examine whether there be not an ulcer or a leech in the part.

With regard to the eyes, the prognostics are given with so much prolixity of detail that I must be content with a brief abstract of them. Much attention is paid to the characters of the discharge from the eyes in diseases of them, namely, of the glutinous matter and tears; thus, if the gum be white and soft, the tears mixed with it not very hot, and the swelling light and loose, under these circumstances the eyelids are glued up during the night, so that the eye is free of pain, and thus the disease is without danger, and of short duration. The other appearances of the eye, and the discharges, are also minutely given. When the discharge is green or livid, the tears copious and hot, a burning heat in the head, and pains darting through the head to the eye, there must necessarily be ulceration in the eye; and there is much reason to apprehend that it will burst. If, when one can get a sight of the eye, it should be found burst, and the pupil projecting above the rupture, it is bad and difficult to restore; and, if there be sloughing, the eye will be wholly useless. According to the form and depth of the ulcers must be the subsequent cicatrices. These are minutely described according to their different varieties. Mention is also made of the prognostics from the eyes in fevers, as described by the author in another work. It is most likely that allusion is here made to the first book of 'Prorrhetics.' In conclusion, the surgeon is directed to pay great attention to the state of the urine in diseases of the eyes.

Dysenteries, when they set in with fever, alvine discharges of a mixed character, or with inflammation of the liver, or of the hypochondrium, or of the stomach, such as are painful, with retention of the food and thirst, all these are bad; and the more of these symptoms there are, the greater the danger; and the fewer, the more hope is there of recovery. Children from five to ten years of age are the most apt to die of this complaint; the other ages less so. Such dysenteries as are of a beneficial nature, and are attended with blood and scrapings of the bowels, cease on the seventh, or fourteenth, or twentieth, or

thirtieth day, or within that period. In such cases even a pregnant woman may recover and not suffer abortion.

All cases of lientery are said to be of a bad character when they are continued and protracted, both day and night, and when the dejections are either very crude, or black, soft, and fetid; for they occasion thirst and determine the fluids otherwise than to the bladder, give rise to ulcerations (aphthæ?) in the mouth, redness and ephelis¹ of all colours, and at the same time the belly is in a state of ferment, and has a foul, wrinkled appearance externally. This disease is most to be dreaded by old persons; it is formidable to men of middle age, but less so in the other ages. The indications of cure, it is acutely stated, are to determine the fluids to the urine, to relieve the body from its atrophy, and change the colour of the skin.

All the other varieties of diarrhœa without fever are of short duration and mild; for they will all cease when washed out, or of their own accord. The discharge may be predicted as about to cease when, upon touching the belly, there is no movement, and flatulence passes with the discharge. Eversion of the gut takes place in the case of middle-aged persons having piles, of children affected with the stone, and in protracted and intense discharges from the bowels, and of old persons having mucous concretions (scybalæ?).

Women may be judged of whether they are in a fit state for conception or not by attending to the following circumstances:—In the first place to their shapes. Women of smaller stature more readily conceive than taller persons; the thin than the fat; the white than the ruddy; the dark than the pale; those who have prominent veins than the contrary. In oldish women it is bad to have much flesh, but a good thing to have swelled and large breasts. In addition, inquiry should be made whether or not the menstruation be regular as to time and quantity. And it should be ascertained whether the uterus be healthy, of a dry temperament, and soft; neither in a state of retraction nor prolapsus; and its mouth neither turned aside, nor too close, nor too open. When any of these obstructions come in the way, it is impossible that conception can take place.

Such women as cannot conceive, but appear green, without

fever, and the viscera are not in fault; these will say that the head is pained, and that the menstrual discharge is vitiated and irregular. But such of these as have the proper colour, are of a fat habit of body, the veins are inconspicuous, they have no pains, and the menses either never appear at all, or are scanty and intense, and this is one of the most difficult states of sterility to remove. In other cases the health is not to blame, but the fault lies in the position of the womb. The other contingencies in this place are attended with pains, discoloration, and wasting.

Ulceration in the womb from parturition, an abscess of a chronic nature, or from any other cause, is necessarily accompanied with fevers, buboes, and pains in the place; and if the lochial discharge be also suppressed, all these evils are more intense and inveterate, along with pains of the hypochondrium and head. And when the ulcer heals, the part necessarily is smoother and harder, and the woman is less adapted for conception. If, however, the ulceration be in the right side only, the woman may conceive of a female child, or if in the left, of a male. When a woman cannot conceive, and fever comes on with a slight cough, inquiry should be made whether she has any ulcer about the uterus, or any other of the complaints I have described; for if she has no complaint in that region to account for her loss of flesh and sterility, it may be expected that she will have vomiting of blood, and the catamenia will necessarily be suppressed. But if the fever be carried off by the evacuation of blood, and if the catamenia appear, she will then prove with child. But if looseness of the bowels having a bad character take place before there is an evacuation of blood, there is danger lest the woman perish before a vomiting of blood can take place.

In cases of false conception, in which women are deceived by the non-appearance of the menses, and by the increase of the belly and movement in it, they will be found to have had headache and pains about the neck and hypochondria, and there is no milk in the breasts except a little of a watery character. But when the swelling of the womb passes away they will conceive, unless there be any other impediment. For this affection is beneficial in so far as it produces a change in the uterus, so that afterwards the woman may prove with

child. Women with child have not these pains unless the headache be habitual to them, and in addition they have milk in their breasts. Women affected with chronic discharges are to be asked whether they have pains in the head and loins, and in the lower part of the belly, and whether their teeth be set on edge, and if they have dimness of sight, and noises in their ears. Such women as vomit bile for several days while in a fasting state, though they are not with child nor have fever, are to be asked whether they have vomited up round lumbrici, and if they say not, they should be warned that this will happen to them. This affection happens principally to married women, then to virgins, and less seldom to other people.

Pains without fever are not deadly, but mostly prove protracted, and have many changes and relapses. Several varieties of headache are described, and the prognosis in each laid down. The natural cure of them is a coryza, a discharge of mucus from the nose, or sneezing. Pains spreading from the head to the neck and back, are relieved by abscesses, expectoration of pus, hemorrhoids, exanthemata on the body, or ptyriasis on the head.

Heaviness and pruritus in the head, either in a part or through the whole of it, if, on inquiry, they extend to the tip of the tongue, indicate a confirmed disease, and one difficult to remove. They are best removed by the occurrence of an abscess. But those cases which are accompanied with vertigo are difficult to cure, and are apt to pass into mania. Other diseases in the head, of a very strong and protracted character, occur to both men and women, but especially to young persons, and virgins at the season of manhood, and especially at the catamenial period. Women, however, are less subject to pruritus and melancholic affections than the men, unless the menses have disappeared.

Both men and women who have long had a bad colour, but not in the form of jaundice, are subject to headaches, eat stones and earth, and have piles. Those who have green colours, without decided jaundice, are affected in like manner, only instead of eating stones and earth, they are more subject to pains in the hypochondriac region. Persons who are pale for a length of time, and have the face tumid, will be found to have headache,

or pains about the viscera, or some disease in the anus ; and in most cases, not one, but many, or all these evils make their appearance.

Nyctalopia is most apt to attack young persons, either males or females, and to pass off spontaneously on the fortieth day or in seven months, and in some cases it endures for a whole year. Its duration may be estimated from the strength of the disease and the age of the patient. They are relieved by deposits which determine downwards, but these rarely occur in youth. Married women and virgins that have the menstrual discharge regular are not subject to the complaint. Persons having protracted defluxions of tears who are attacked with nyctalopia, are to be questioned whether they had any previous complaint in the head.

Such persons as have frequent pains in the vertex and temples, without fever or loss of colour, unless they have some other obvious deposit in the face, or speak in a rough tone, or have pain in the teeth, may be expected to have a hemorrhage from the nose. Those who have bleeding at the nose, although they may appear to be otherwise in good health, will be found to have enlarged spleen, or pain in the head, or flashes of light before their eyes. Most of these patients have both headache and affection of the spleen.

The gums are diseased and the mouth fetid in persons who have enlarged spleens. But persons who, although they have enlarged spleens are exempt from hemorrhages and fetor of the mouth, have malignant ulcers on the legs and black cicatrices. But if they have any obvious deposit in the countenance, or if their speech be rough, or if they have toothache, a hemorrhage from the nose may be expected. Those who have great swellings below the eyes will be found to have enlarged spleens. And if there come on swellings in the feet, and if they appear to be dropsical, the belly and loins must be attended to.

Distortions of the countenance, if not sympathetic with some other part of the body, quickly pass off either spontaneously or by remedial means. The others are of an apoplectic nature. In other cases, when the diseased part wastes from want of motion, there can be no relief afforded. But when wasting does not take place there may be recovery. With regard to the time when this may occur, it is to be

prognosticated by attending to the severity of the disease, to its duration, to the age of the patient, and to the season, it being known that of all cases the inveterate, and such as are the consequences of repeated attacks, are the worst, and the most difficult to remove, and those in aged persons. Autumn and winter are more unfavorable seasons for such complaints than spring and summer.

Pains in the shoulder, which, passing down the arms, occasion torpor and pains, do not usually terminate in deposits, but the patients get better by vomiting black bile. But when the pains remain in the shoulders, or extend to the back, the patients are relieved by vomiting pus or black bile. They are to be judged of thus:—If their breathing be free, and if they be slender, it is rather to be expected that they will vomit black bile. But if they have more difficulty of breathing, and if there is any unusual colour on the countenance, whether reddish or black, it is to be expected that they will rather spit blood. It should also be attended to whether there be swellings on the feet. This disease attacks men most violently from forty to sixty years of age. At this period of life ischiatic diseases are most troublesome.

Ischiatic diseases are to be thus judged of:—In the case of old persons, when the torpor and coldness of the loins and legs are very strong, and when they lose the power of erections, and the bowels are not moved, or with difficulty, and the fæces are passed with much mucus, the disease will be very protracted, and it should be announced beforehand that the disease will not last shorter time than a year from its commencement; and amendment is to be looked for in spring and summer. Ischiatic diseases are no less painful in young men, but are of shorter duration, for they pass off in forty days; and neither is the torpor great, nor is there coldness of the legs and loins. In those cases in which the disease is seated in the loins and leg, but the patient does not suffer so much as to be confined to bed, examine whether any concretions have taken place in the hip-joint, and make inquiry whether the pain extends to the groin; for if both these symptoms be present, the disease will be of long duration. And the physician should also inquire whether there be torpor in the thigh, and if it extend to the ham; and if he says so, he is to be again asked if it spreads

along the leg to the ankle of the foot. Those who confess to the most of these symptoms are to be told that the limb will be sometimes hot and sometimes cold; but those persons in whom the pain leaves the loins, and is turned downwards, are to be encouraged; but when the disease does not leave the hip and loins, such persons are to be warned that it is to be dreaded. In those cases in which there are pains and swellings about the joints, and they do not pass off, after the manner of gout, you will find the bowels enlarged, and a white sediment in the urine; and, if you inquire, the patient will admit that the temples are often pained, and he will say that he has nightly sweats. If the urine have not this sediment, nor do the sweats take place, there is danger either that the joint will become lame, or that the tumour called meliceris will form in it. This disease forms in those person who in their youth had epistaxis, and in whom it had ceased afterwards. They are to be interrogated whether they had discharges of blood in their youth, and if they have pruritus in the breast and back. And the same thing happens to those who have severe pains in the bowels, without disorder of them, or who have hemorrhoids. This is the origin of these complaints. But if the patients have a bad colour, they are to be interrogated whether their head be pained, for they will say that it is. In those cases in which the bowels are pained on the right side, the pains are stronger, and especially when the pain terminates in the hypochondrium at the liver. Such pains are immediately relieved if borborygmi take place in the belly. But when the pain ceases, they pass thick and green urine. The disease is not deadly, but very protracted. But when the disease is already of long standing, the patients have dimness of sight in consequence of it. But they are to be interrogated whether, when young, they had a flow of blood, and regarding the dimness of vision, the greenness of the urinary discharge, and regarding the borborygmi, if they took place and gave relief; for they will confess to all these symptoms.

Lichen, leprosy, and leucè, when they occur in young children and infants, or when they appear at first small, and gradually increase in the course of a long time—in these cases the eruption is not to be regarded as a deposit, but as a disease; but when they set in rank and suddenly, this case is a deposit.

Leucè also arises from the most fatal diseases, such as the disease called phthisis ;¹ but leprosy and lichen are connected with black bile. These complaints are the more easily cured the more recent they are, and the younger the patients, and the more soft and fleshy the parts of the body in which they occur.

¹ Foës inclines to think that the proper reading in this place is *νοῦσος φοινικίη*, and not *φθινικίη*, and that Galen alludes to this passage in his Exegesis under the former of these terms, where he says that by *φοινικίη νοῦσος* was probably meant elephantiasis. The other reading, however, would seem quite applicable, for I have known phthisis and leprosy combined in the same case.

ON REGIMEN IN ACUTE DISEASES.

ON REGIMEN IN ACUTE DISEASES.

THE ARGUMENT.

IN this treatise two very important questions are discussed : first, a nosological question, regarding the proper distinction of diseases from one another ; and secondly, a therapeutical, respecting the rules by which the regimen in acute diseases ought to be regulated. The former of these is of a polemical nature, being an attack directed against the physicians of the Cnidian school of medicine, who distinguished diseases from one another in an arbitrary manner, from incidental varieties in their constitution, and without a proper attention to their true constitution and identity. As will be seen in the annotations, the Cnidians pretended to recognise several varieties of disease connected with bile,—several fanciful divisions of diseases of the bladder, and so forth ; to which mode of distinguishing diseases there would obviously be no end, since of incidental varieties in any case there can be no limit. The other question discussed in this treatise relates to what may justly be pronounced to be one of the most important points connected with the practice of medicine, namely, the proper regimen in acute diseases ; that is to say, in idiopathic fevers and febrile diseases, comprising most of those diseases now classed under the head of *Zymotic*, and which constitute by far the highest item in our bills of mortality at the present day. Our author distinguishes them by the names of pleurisy, pneumonia, phrenitis, lethargy, causus, and their cognate diseases, including fever of the continual type. Now it is to be borne in mind, that the phrenitis,¹ lethargy, and causus of Hippocrates, were all epidemic fevers, so that, with the exception of pleurisy and pneumonia, all the

¹ The phrenitis of Sydenham in like manner was an epidemical fever, and not an idiopathic inflammation of the brain. See Opera, p. 56 ; ed. Syd. Soc. That Hippocrates regarded phrenitis as a variety of causus, attended with determination to the brain, is obvious from Epidem. i. See Op. Galen., tom. v, p. 371 ; ed. Basil.

diseases here treated of are fevers of the country in which Hippocrates resided. One, then, cannot well imagine a question which from the commencement of the medical Art must have been felt of higher importance than this,—how so numerous and formidable a class of diseases ought to be treated. In the attempt to solve it, every imaginable mode of treatment, as might have been expected beforehand, was tried, and its effects determined by experience. Herodicus, the master of Hippocrates in gymnastics, applied his panacea in the treatment of febrile diseases, and, as we are informed, with the most disastrous results. “Herodicus,” says the author of the sixth Book of Epidemics, “killed persons in fever by promenading, much wrestling, and fomentations.” (§ iii, 18.) It may *now* appear wonderful that so extraordinary a mode of practice should have ever been attempted in this case; but while men of all ranks continue to resort for the cure of all sorts of diseases to any individual who has got a single hobby with which he constantly works to his own profit, whether it be *gymnastics*, or *shampooing*, or the *wet sheet*, we may expect to hear that such rash experiments have been repeated. Truly mankind pay as dearly for their tame submission to the insane practices of professional chiefs, as the Greeks are represented by the poet to have suffered from the follies of their princes :

“Quicquid delirant Reges, plectuntur Achivi.”¹

And surely it is much to be desired that men would learn a lesson from the Past, and not allow every new page in the history of society and of the profession to furnish a repetition of the oft-told tale of supine credulity on the one side, and of audacious folly on the other. From what has been stated, it will readily be understood that it was soon settled that active exercise is inadmissible in febrile diseases.² It would next come to be determined, what rule was to be followed with regard to

¹ Horace, Serm. i, 2.

² One mode of exercise, namely, gestation, is to be excepted, which had at least one distinguished advocate in ancient times. Celsus writing of it says, “Asclepiades etiam in recenti vehementique, præcipueque ardente febre, ad discutiendam eam, gestatione dixit utendum: sed id periculose fit; meliusque quiete ejusmodi impetus sustinetur.” (ii, 15.) A great modern authority on fever, Dr. R. Jackson, speaks favorably of this practice, although, as we see, it is so pointedly condemned by Celsus. Celsus, however, admits of gestation in that species of remittent fever which was called lethargus. (l. iii, 20.)

the administration of food in fevers. On this point, as will be seen below in our annotations, the most diametrically opposite plans of treatment were essayed. One authority administered the most highly nutritious articles of food, namely, fleshies, to his patients, while, on the other hand, some wasted them by enforcing a total abstinence for several days. Experience, we may be well assured, was not long in deciding against both the starving and the gluttony system: the palled appetite would soon refuse to accept of solids, and the parched tongue would speedily crave some allowance of liquids. Even before the days of Hippocrates, there is every reason to suppose that these extreme modes of treatment had been abandoned; but still he complains that in his time many important points in the treatment of acute diseases were wholly undetermined, such as the following: whether plain drink, that is to say water, was to be administered;—or, water seasoned by the admixture of something farinaceous, such as the decoction of barley;—whether the same should be given so thick as to constitute a nutritious gruel, or strained so as to form merely a drink;—whether wine should be given in small quantity, or more copiously;—whether any of these things should be given from the commencement of the disease, or not until after an interval of certain days. Hippocrates informs us that the most discordant opinions prevailed upon these points, and his professed object, in this treatise, is to reduce the rules of practice to certain fixed principles. How our author performs this task, the reader is left to judge for himself; it may be interesting, however, to know, that Galen with all his devoted admiration of Hippocrates, is not disposed to admit that his solution of the question at issue is quite lucid and satisfactory. This opinion Galen pronounces on two separate occasions; in his commentary on this treatise, and in his great Work ‘On the Tenets of Hippocrates and Plato.’ As I look upon his observations contained in the latter Work to be of great importance towards understanding the bearing of this treatise, I shall not scruple to introduce a translation of the greater part of them in this place.

The ninth book of the Work we have mentioned opens with an elaborate disquisition on the logical principles which ought to guide us in deciding with regard to identity and difference, both in Philosophy and Medicine: on the former of these

subjects he quotes freely from Plato, and on the other from Hippocrates. Coming, then, to the question in hand, he says:—"And thus Hippocrates proceeded in the work 'On the Regimen of Acute Diseases,' finding fault with the Cuidian physicians, as being ignorant of the differences of diseases with regard to genus and species; and he himself points out the definitions according to which that which appears to be one, being divided becomes many, not only in the case of diseases, but also in that of all other things; in which we find that many of the most celebrated physicians fall into mistakes, even with regard to the remedies. For some, coming to the particular use of them, have established a most immethodical method of instruction; whilst others, stating a very general precept, lay down a rule which at first sight appears very methodical, but in truth is very bad, and hence they disagree among themselves; some, as for example those treating of the remedy for a certain affection, such as pleurisy, declaring it to be venesection, others purging, some fomentations by means of sponges, and others of bags, or something of the like kind. And they differ, in the same manner, with regard to the use and disuse of the bath, of oxymel, of hydromel, and of water, of wine, and of ptisan, either giving of the strained juice only, or of the barley portion only; and some, with regard to food, giving discordant decisions as to the differences of the sick, and the indications which a pleuritic affection requires. And that he, as being the first discoverer, has handled these subjects in rather a confused manner, I have shown in my Commentary on the treatise which has been improperly entitled, 'Against the Cuidian Sentences,' and 'On the Ptisan.' But in order that those who are desirous of learning, may have a clear exposition of this question in a brief form, I shall not scruple to give here a summary of it. In the commencement of pleuritic attacks, when the side is just beginning to be pained, inasmuch as the nature of the disease is not yet obvious, he directs fomentations, otherwise called heating applications, to be tried, and he explains the materials of which they consist. And then, if the complaint is not removed, it is to be ascertained whether the patient took food recently, and whether the bowels have been moved, and he gives instructions what should be done in these cases. But if the disease does not yield to these means, he gives definitions

of those cases which require venesection and purging, and those in which one should use hydromel for drink, or oxymel, or water until the crisis, without giving any food; and those in which the juice of ptisan is to be used, or the barley along with it, and when food is to be administered. In like manner, with regard to the administration of wine, it is determined in what cases it is to be given, and in what not, and when, and of what quality. And in like manner respecting baths, and other matters of the like kind. And as a twofold mistake is committed with regard to the divisions (of diseases), some doing it in a deficient manner, and others carrying this process to excess, Hippocrates, finding fault with both, expresses himself thus, in the beginning of the book: 'Some of them, indeed, were not ignorant of the many varieties of each complaint, and their manifold division, but when they wish to tell clearly the members (species?) of each disease, they do not write correctly; for the species would be almost innumerable if every symptom experienced by the patients were held to constitute a disease, and receive a different name.' And again, respecting the remedies, as being deficient, he writes thus: 'And not only do I not give them credit on this account, but also because those they use are few in number.' Afterwards, assuming what is of great importance to the question, he does not give a clear solution of it, and therefore the whole bearing of the question is misunderstood by many physicians. I have, therefore, given an exposition of the whole subject, in my first Commentary 'On the Regimen of Acute Diseases;' and it is necessary to show the import of it briefly. The question is given by Hippocrates in the following terms: 'But it appears to me that those things are more especially deserving of being consigned to writing, which are undetermined by physicians, notwithstanding that they are of vital importance, and either do much good or much harm. By undetermined, I mean such as these: wherefore certain physicians, during their whole lives, are constantly administering unstrained ptisans, and fancy they thus accomplish the cure properly, whereas others take great pains that the patient may not swallow a particle of the barley (thinking it would do much harm), but strain the juice through a cloth before giving it: others, again, will neither give thick ptisan nor the juice, some until the seventh day of the disease, and

some until after the crisis. Physicians are not in the practice of mooted such questions, nor perhaps, if mooted, would a solution of them be readily found, although the whole Art is thereby exposed to much censure from the vulgar, who fancy that really there is no such science as Medicine, since, in acute diseases, practitioners differ so much among themselves, that those things which one administers, as thinking it the best that can be given, another holds to be bad.' And a little afterwards: 'I say, then, that this question is a most excellent one, and allied to very many others, and some of the most vital importance in the Art: for, that it can contribute much to the recovery of the sick, and to the preservation of health in the case of those who use it well, and that it promotes the strength of those who take gymnastic exercises, and is useful to whatever one may wish to apply it.' The inquiry regarding the differences of opinion among practitioners, he says, is of the greatest consequence, not only to the sick, for the recovery of health, but also to those in health, for the preservation of it, and to those who practise it for the recovery and preservation of deportment. And he afterwards adds, 'to whatever one may wish;' as indicating that the solution of this inquiry is applicable not only to medicine but to all the other arts to which one may choose to apply it. For it is wonderful that physicians practising an art, in which the remedies applied may be determined by experience whether they are beneficial or hurtful, should yet make the most conflicting statements respecting those things which are beneficial and those which are prejudicial. For, in philosophy, it is not to be wondered at that there should be no end to most disputes, since these things cannot be clearly determined by experience; and therefore some hold that the world is uncreated, some that it was created, some that there is nothing beyond its boundary, some that there is, and some declaring what that which is contained is, and some pronouncing it to be a vacuum, having no substance in it, and some holding that worlds in inconceivable numbers, and infinite, exist. For such discrepancy of opinion cannot be set at rest by any clear appeal to the senses. But it is not so with respect to the benefit or injury derived from remedies administered to the body, since the differences among physicians, in this case, may be decided by experience, as to which of them are beneficial and which injurious. Wherefore the solution of this

question is not very clearly stated by Hippocrates, and on that account it has excited the observation of almost all the commentators on this book. It is this: some of the sick require abstinence from food, until the disease come to a crisis, and some require food, and of these some require the unstrained ptisan, and some the strained, as also some require still more substantial food, and, moreover, some require oxymel, or hydromel, and some water, or wine. Wherefore to those physicians who have cultivated the Art upon experience alone, that only appears beneficial which perchance has seemed useful in most cases. Neither do they venture to try the opposite mode of regimen, for fear of failure. He alone, then, who knows the constitution of the sick, and the nature of the disease, and the powers of the remedy which is administered, and the time in which it ought to be used, will be able rationally to devise the remedy to be applied, and confirm his expectation of it by experience."

Galen gives other remarks, not devoid of interest, on the same subject, but these want of room obliges me to pass by. I may mention, however, that after giving, in the form of extract, the passage on wine (§ 12), he makes the remark, that if the question be put whether wine should be given to persons in fever, the proper answer to it would be, that it is to be given in some certain cases, and in others not. (See tom. v, p. 773, ed. Kühn.) Thus far Galen.

Before quitting this subject, I would beg leave to make a few remarks on some points of medical practice which are here treated of, and which appear to me to be either overlooked, or not satisfactorily determined at the present day; and also upon some modern innovations on the practice of the ancients. As far as I have observed, it is quite a common practice now to administer food, such as farinaceous gruels, or animal broths, without much reserve, after evacuation of the system either by purging or bleeding. Now it will be seen that Hippocrates forbids food to be administered at such a season, as the body, being weakened by the depletion, is unable to digest it properly, and consequently what is given as a support to the frame proves a load to it. To the reason here assigned for this practice, might be added that the vascular system, having been emptied, greedily absorbs the food before it is properly digested. I am not sure that this physiological principle is stated in any of the works of Hippocrates, but it is frequently to be met with in the

works of Galen, and in those of the toxicologists, from Nicander to Actuarius. See PAULUS ÆGINETA, Book V. 2, Syd. Soc. edit.

I would beg leave to call the attention of my professional readers to the guarded and judicious manner in which pleurisy is treated by our author, beginning with hot fomentations to the side, and gradually advancing to the more active means, namely, purging and venesection. It will be remarked that Hippocrates holds depletion to be the only legitimate mode of removing the pain of the side, and that his commentator, in illustration of his meaning, pointedly condemns the use of narcotics in this case. Now this is a most important consideration, as bearing on a mode of practice which has obtained much favour of late years; I allude, of course, to the treatment by a combination of mercurials and opium. The experience of some thirty years would seem to decide in its favour, but how often have certain methods of treatment in other cases obtained the sanction of professional favour for a much longer period, and yet in the end been abandoned as positively prejudicial? In my younger days I knew old practitioners, of the highest reputation, who administered these medicines in scrofula,—in cancer,—in every case! One cannot think of the change in professional opinions on the mercurial treatment of syphilis, since the days of John Hunter, without the most painful feeling of distrust in all modes of treatment where one cannot recognise some reasonable bond of connexion between the remedy applied and the effects produced, or where long experience and analogy are in favour of them, and where the judgment runs no risk of being imposed upon by fallacious appearances and collateral circumstances. In a word, who does not feel disposed, in the practice of medicine, constantly to recur to the great truth proclaimed by our author in his first Aphorism? “Experience is fallacious, and judgment is difficult.”

I am almost afraid further to put the question to the profession of the present day, whether or not the administration of antimonials in pleuro-pneumonia be an improvement on the ancient practice, or the reverse? Shall we say, then, that experience has decided that this substance (antimony), which, when applied to the cuticle, or to its prolongation, the epithelium of the stomach and bowels, occasions pain, heat, and vascular congestion, produces the very opposite effects on the lungs, when absorbed into the blood and conveyed to them? I dare

not venture to answer these questions myself, but suggest them as deserving to be reconsidered, with serious impartiality, by the profession. I trust, however, it will not be supposed that I incline to stand up for ancient modes of practice, because they are old, or to condemn modern methods because they are new; I merely state the reflections which the comparison of ancient and modern usages, on this important subject, has suggested to me.

Our author, it will be seen, attaches much importance to the administration of the ptisan, or decoction of barley, in pleuro-pneumonia. Our modern Hippocrates, I mean, of course, Sydenham, was equally partial to this practice,¹ which is still very much followed on the continent.

It will be remarked, that Hippocrates says nothing of counter-irritants to the skin, in the treatment of pleurisy, all his external applications being of the soothing kind. The stimulant treatment, however, is not altogether modern, having been recommended in certain cases by the Arabians. (See PAULUS ÆGINETA, Vol. I, p. 501.) Celsus also approves of sinapisms to the side. (iv, 6.)

The use of the bath and of the *douche*, or affusion of hot water in febrile diseases, is an important question, which well deserves to be reconsidered by the profession. (See the annotations on § 18.)

The reader will no doubt have been struck with the remark of Galen, in the extract given above, that our author's plan in the present work is deficient in method, because he himself was the discoverer of the subject-matters to which it relates. Galen then seems to have been of opinion that it was too much to expect from any individual, that he should produce a work which would be remarkable at the same time for the originality of its materials, and for the methodical arrangement of them. In confirmation of Galen's judgment in this case, I would direct attention to the difference that there is between this treatise and the 'Prognostics;' for all must admit that the matters of which the latter work is composed are admirably methodised, and we have shown above that they were derived in a great measure from the previous labours of the Aselepiadæ.

¹ Observ. Med., vi, 3, 4.

ON REGIMEN IN ACUTE DISEASES.

THOSE who composed what are called 'The Cnidian Sentences'¹ have described accurately what symptoms the sick experience in every disease, and how certain of them terminate; and in so far a man, even who is not a physician, might describe them correctly, provided he put the proper inquiries to the sick themselves what their complaints are. But those symptoms which the physician ought to know beforehand, without being informed of them by the patient, are, for the most part, omitted, some in one case and some in others, and certain symptoms of vital importance for a conjectural judgment.² But when, in addition to the diagnosis, they describe how each complaint should be treated, in these cases I entertain a still greater difference of opinion with them respecting the rules they have laid down; and not only do I not agree with them on this account, but also because the remedies they use are few in number; for, with the exception of acute diseases, the only medicines which they give are drastic purgatives, with whey, and milk at certain times. If, indeed, these remedies had been good and suitable to the complaints in which they are recommended, they would have been still more deserving of recommendation, if, while few in number, they

¹ The Cnidian Sentences in all probability were the results of the observations and theories made in the Temple of Health at Cnidos. We may reasonably conclude from what we know of them, that, like the Coacæ Prænotiones at Cos, the Cnidian Sentences at Cnidos were looked up to in the time of Hippocrates as the great guides to medical practice. How much, then, it is to be regretted that they have not come down to us like the other! It is clear, however, from Galen's Commentary, that the work was extant in his time, and from it, as will be seen, we are enabled to draw a few particulars respecting the theoretical and practical views of the Cnidians. Le Clerc considers it likely that Euryphon was the author of the Cnidian Sentences (*Ilist. Phys.*, i, 3, 30); but it is evident, from the terms in which Hippocrates refers to them, that they were not the work of a single author. He makes mention, it will be remarked, of more than one person being concerned in remodelling them.

² By this our author means that the Cnidians neglected Prorrhetics and Prognostics. This must be obvious to every person who has entered properly into the spirit of the Hippocratic system of medicine.

were sufficient; but this is by no means the case. Those, indeed, who have remodelled these 'Sentences' have treated of the remedies applicable in each complaint more in a medical fashion. But neither have the ancients written anything worth mentioning respecting regimen, although this be a great omission. Some of them, indeed, were not ignorant of the many varieties of each complaint, and their manifold divisions, but when they wish to tell clearly the numbers (species?) of each disease they do not write correctly;¹ for their species would be almost innumerable if every symptom experienced by the patients were held to constitute a disease, and receive a different name.²

2. For my part, I approve of paying attention to everything relating to the art, and that those things which can be done well or properly should all be done properly; such as can be quickly done should be done quickly; such as can be neatly done should be done neatly; such operations as can be performed without pain should be done with the least possible pain; and that all other things of the like kind should be done better than they could be managed by the attendants. But I would more especially commend the physician who, in acute diseases, by which the bulk of mankind are cut off, conducts the treatment better than others. Acute diseases are those which the ancients named pleurisy, pneumonia, phrenitis, lethargy, causus, and the other diseases allied to these, including the continual fevers. For, unless when some general form of pestilential disease is epidemic, and diseases are sporadic and [not] of a similar character, there are more deaths from these

¹ The text of this sentence is in a very unsatisfactory state, and much difference of opinion has prevailed respecting the meaning. See the annotations of Littré, and the remarks of Galen, as quoted in the Argument.

² Galen, in his Commentary, mentions that the Cnidians described seven species of diseased bile, and twelve diseases of the bladder; and, again, four diseases of the kidneys; and, moreover, four species of strangury, four species of tetanus, and four of jaundice; and, again, three species of phthisis. Galen, having made this statement, remarks that they looked to the peculiarities of the body, instead of regarding the identity of the diatheses, as was done by Hippocrates. In other words, they split diseases into endless varieties, instead of attending to the essence or general nature of each. The system of Hippocrates, then, was founded on a rational prognosis, whereas that of the Cnidians was founded on mistaken principles of diagnosis. The principles of the Hippocratic system are admirably explained and developed in Galen's great work *On the Method of Cure, or Therapeutics*.

diseases than from all the others taken together.¹ The vulgar, indeed, do not recognise the difference between such physicians and their common attendants, and are rather disposed to commend and censure extraordinary remedies. This, then, is a great proof that the common people are most incompetent, of themselves, to form a judgment how such diseases should be treated: since persons who are not physicians pass for physicians owing most especially to these diseases, for it is an easy matter to learn the names of those things which are applicable to persons labouring under such complaints. For, if one names the juice of ptisan, and such and such a wine, and hydromel, the vulgar fancy that he prescribes exactly the same things as the physicians do, both the good and the bad, but in these matters there is a great difference between them.

3. But it appears to me that those things are more especially deserving of being consigned to writing which are undetermined by physicians, notwithstanding that they are of vital importance, and either do much good or much harm. By undetermined I mean such as these, wherefore certain physicians, during their whole lives, are constantly administering unstrained ptisans, and fancy they thus accomplish the cure properly, whereas others take great pains that the patient should not swallow a particle of the barley (thinking it would do much harm), but strain the juice through a cloth before giving it; others, again, will neither give thick ptisan nor the juice, some until the seventh day of the disease, and some until after the crisis.² Physicians are not in the practice of mooted such questions; nor, perhaps, if mooted, would a solution of them

¹ Galen, in his Commentary on this passage, states that when a disease of a mild character prevailed generally, it was called an epidemic; and when of a malignant nature, it was called the plague. (See further PAULUS ÆGINETA, Book II, 36, Syd. Soc. edition.) It will be remarked that I have included the word (*not*) in brackets. This I have done because not only the reading, as given in the common editions of Galen, is in its favour, but because the sense appears to me to require it. Surely when diseases are of an epidemic character they are similar; but when they are sporadic, they are not similar. M. Littré, however, rejects it altogether.

² The question here mooted is certainly one of the most important that can well be entertained, namely, whether or not a certain portion of nutriment ought to be given to persons labouring under fever. It would appear, from what is stated by Galen upon the authority of Erasistratus, that the most diametrically opposite modes of practice had been followed by different individuals—that some had starved their

be found ; although the whole art is thereby exposed to much censure from the vulgar, who fancy that there really is no such science as medicine, since, in acute diseases, practitioners differ so much among themselves, that those things which one administers as thinking it the best that can be given, another holds to be bad ; and, in this respect, they might say that the art of medicine resembles augury, since augurs hold that the same bird (omen) if seen on the left hand is good, but if on the right bad : and in divination by the inspection of entrails you will find similar differences ; but certain diviners hold the very opposite of these opinions.¹ I say, then, that this question is a most excellent one, and allied to very many others, some of the most vital importance in the Art, for that it can contribute much to the recovery of the sick, and to the preservation of health in the case of those who are well ; and that it promotes the strength of those who use gymnastic exercises, and is useful to whatever one may wish to apply it.

4. Ptisan, then, appears to me to be justly preferred before all the other preparations from grain in these diseases, and I commend those who made this choice,² for the mucilage of it

patients altogether for a considerable time ; whereas, on the other hand, a physician of the name of Petronas allowed his patients flesh and wine. Our author, it will be remarked, does not allude to these extreme modes of practice in this place, but enters at great length into the question whether or not unstrained ptisan (*or* barley gruel) should be administered in fevers, and, if so, under what circumstances.

¹ Galen, in his Commentary, has some very interesting remarks on the differences of opinion among the diviners. This, in fact, may well be supposed, since, as will now be pretty generally acknowledged, the whole art was founded upon conjecture and deception. The comparison of medicine to divination is therefore very discredit-able to the former.

² Our author now enters upon the consideration of one of his principal objects in the present work, namely, to describe the modes of preparing ptisan (*or* the decoction of barley), and its uses in acute diseases. He is so full on this subject that the present treatise is quoted by Athenæus (*Deipnos.* ii, 16), by the name of the work *On the Ptisan*. Galen states that, on the principle that diseases are to be cured by their contraries, as the essence of a febrile disease is combined of heat and dryness, the indication of cure is to use means of a cooling and moistening nature, and that the ptisan fulfils both these objects. I may be allowed to remark in this place, that probably there is not a more important rule in the whole practice of medicine than this, that fevers are to be treated by things of a cooling and diluent nature. I may mention further regarding the ptisan of the ancients, that it would appear to have been very little different from the decoction of barley, as now in use ; that is to say,

is smooth, consistent, pleasant, lubricant, moderately diluent, quenches thirst if this be required, and has no astringency; gives no trouble nor swells up in the bowels, for in the boiling it swells up as much as it naturally can. Those, then, who make use of ptisan in such diseases, should never for a day allow their vessels to be empty of it, if I may say so, but should use it and not intermit, unless it be necessary to stop for a time, in order to administer medicine or a clyster. And to those who are accustomed to take two meals in the day it is to be given twice, and to those accustomed to live upon a single meal it is to be given once at first, and then, if the case permit, it is to be increased and given twice to them, if they appear to stand in need of it. At first it will be proper not to give a large quantity nor very thick, but in proportion to the quantity of food which one has been accustomed to take, and so as that the veins may not be much emptied. And, with regard to the augmentation of the dose, if the disease be of a drier nature than one had supposed,¹ one must not give more of it, but should give before the draught of ptisan, either hydromel or wine, in as great quantity as may be proper; and what is proper in each case will be afterwards stated by us. But if the mouth and the passages from the lungs be in a proper state as to moisture, the quantity of the draught is to be increased, as a general rule, for an early and abundant state of moisture indicates an early crisis, but a late and deficient moisture indicates

it was prepared from pearl-barley roughly pounded and boiled for a time in water. As will be seen by the text, it was given to the sick either strained or entire, according to circumstances. A similar decoction was prepared from wheat, and was called *ππισάνη πυρίνη*. See Galen (*De Aliment.*, i.) The simple term ptisan, however, is always to be understood as applying to the decoction of barley.

¹ Galen gives the following illustration of what is meant by a disease of a peculiarly dry nature. In pneumonia, pleurisy, and in all the affections about the lungs and trachea, the disease is held to be of a dry nature when there is no expectoration from the parts affected; and in any complaints about the liver, the mesentery, the stomach, the small or great intestines, or spleen, when the belly is either entirely constipated, or when the discharges brought away by artificial means are dry and scybalous; and diseases of the arteries and veins are known to be dry by the dryness of the tongue, and the parched appearance of the whole body. In the same manner external ulcers are accounted dry when there is no discharge from them. And ophthalmies are held to be dry when there is no discharge from the eyes or nose. And, in short, all diseases are recognised as being dry which are not attended with any discharge.

a slower crisis.¹ And these things are as I have stated for the most part; but many other things are omitted which are important to the prognosis, as will be explained afterwards. And the more that the patient is troubled with purging, in so much greater quantity is it to be given until the crisis, and moreover until two days beyond the crisis, in such cases as it appears to take place on the fifth, seventh, or ninth day, so as to have respect both for the odd and even day: after this the draught is to be given early in the day, and the other food in place is to be given in the evening. These things are proper, for the most part, to be given to those who, from the first, have used ptisan containing its whole substance; for the pains in pleuritic affections immediately cease of their own accord whenever the patients begin to expectorate anything worth mentioning, and the purgings become much better, and empyema much more seldom takes place, than if the patients used a different regimen, and the crises are more simple, occur earlier, and the cases are less subject to relapses.

5. Ptisans are to be made of the very best barley, and are to be well boiled, more especially if you do not intend to use them strained. For, besides the other virtues of ptisan, its lubricant quality prevents the barley that is swallowed from proving injurious, for it does not stick nor remains in the region of the breast; for that which is well boiled is very lubricant, excellent for quenching thirst, of very easy digestion, and very weak, all which qualities are wanted. If, then, one do not pay proper attention to the mode of administering the ptisan, much harm may be done; for when the food is shut up in the bowels, unless one procure some evacuation speedily, before administering the draught, the pain, if present, will be exasperated; and, if not present, it will be immediately created, and the respiration will become more frequent, which does mischief, for it dries the lungs, fatigues the hypochondria, the hypogastrium, and diaphragm. And moreover if, while the pain of the side persists,

¹ It is curious to remark that a double charge was founded against our author on the ground of his treatment of febrile cases, as here laid down. The followers of Thessalus held that he gorged his patients with too much food, whereas Erasistratus and his followers held that he starved them. Galen, on the other hand, contends that the practice of Hippocrates is the *juste milieu* between these two extremes. (Opera, tom. v, p. 47; ed. Basil.)

and does not yield to warm fomentations, and the sputa are not brought up, but are viscid and unconcocted, unless one get the pain resolved, either by loosening the bowels, or opening a vein, whichever of these may be proper;—if to persons so circumstanced ptisan be administered, their speedy death will be the result.¹ For these reasons, and for others of a similar kind still more, those who use unstrained ptisan die on the seventh day, or still earlier, some being seized with delirium, and others dying suffocated with orthopnoea and râles.² Such persons the ancients thought *struck*, for this reason more especially, that when dead the affected side was livid, like that of a person who had been struck. The cause of this is that they die before the pain is resolved, being seized with difficulty of respiration, and by large and rapid breathing, as has been already explained, the spittle becoming thick, acid, and unconcocted, cannot be brought up, but, being retained in the bronchi of the lungs, produces râles; and, when it has come to this, death, for the most part, is inevitable; for the sputa being retained prevent the breath from being drawn in, and force it speedily out, and thus the two conspire together to aggravate the mischief; for the sputa being retained renders the respiration frequent, while the respiration being frequent thickens the sputa, and prevents them from being evacuated. These symptoms supervene, not only if ptisan be administered unseasonably, but still more if any other food or drink worse than ptisan be given.

6. For the most part, then, the results are the same, whether the patient have used the unstrained ptisan or have used the juice alone; or even only drink; and sometimes it is necessary to

¹ This sentence shows that Hippocrates understood thoroughly the proper treatment of pleurisy. When the disease did not yield to fomentations, but the pain continued, either a vein was opened or the bowels moved; for without first using these means, it was reckoned fatal practice to administer ptisan. Galeu relates that it was also considered an unsafe practice to give opium, mandragora, or hyoseyamus for the purpose of alleviating the pain, instead of having recourse to venesection or purging for the removal of it. This is a practical remark well deserving of the most serious consideration.

² How briefly, and yet how graphically, our author has described the termination of pleurisy! It is singular that no succeeding author has written so learnedly of râles in affections of the breast as Hippocrates, down at least to the time of Lacnec, who repeatedly acknowledges his obligations to our author.

proceed quite differently. In general, one should do thus : if fever commences shortly after taking food, and before the bowels have been evacuated, whether with or without pain, the physician ought to withhold the draught until he thinks that the food has descended to the lower part of the belly ; and if any pain be present, the patient should use oxymel, hot if it is winter, and cold if it is summer ; and, if there be much thirst, he should take hydromel and water.¹ Then, if any pain be present, or any dangerous symptoms make their appearance, it will be proper to give the draught neither in large quantity nor thick, but after the seventh day, if the patient be strong. But if the earlier-taken food has not descended, in the case of a person who has recently swallowed food, and if he be strong and in the vigour of life, a clyster should be given, or if he be weaker, a suppository is to be administered, unless the bowels open properly of themselves. The time for administering the draught is to be particularly observed at the commencement and during the whole illness ; when, then, the feet are cold, one should refrain from giving the ptisan, and more especially abstain from drink ; but when the heat has descended to the feet, one may then give it ; and one should look upon this season as of great consequence in all diseases, and not least in acute diseases, especially those of a febrile character, and those of a very dangerous nature. One may first use the juice, and then the ptisan, attending accurately to the rules formerly laid down.

7. When pain seizes the side, either at the commencement or at a later stage, it will not be improper to try to dissolve the pain by hot applications.² Of hot applications the most powerful is hot water in a bottle, or bladder, or in a brazen vessel, or in an earthen one ; but one must first apply something soft to the side, to prevent pain. A soft large sponge, squeezed out

¹ I need scarcely remark that the seasonable administration of drink, and especially of water, is one of the most important points connected with the treatment of febrile diseases. This is so much the case that, as Galen remarks in his Commentary on this passage, fevers may often be extinguished at once by a large quantity of water given in due season. This subject is fully treated of by him in his *Methodus Medendi*.

² The professional reader will not fail to remark, what is pointed out in strong language by Galen, how judiciously our author commences with the most gentle means, and gradually rises to the most powerful and dangerous ; namely, bleeding and the administration of drastic purgatives. One cannot help being further struck with the rich supply of information which he has on the simple subject of fomentations.

of hot water and applied, forms a good application ; but it should be covered up above, for thus the heat will remain the longer, and at the same time the vapour will be prevented from being carried up to the patient's breath, unless when this is thought of use, for sometimes it is the case. And further, barley or tares may be infused and boiled in diluted vinegar, stronger than that it could be drunk, and may then be sewed into bladders and applied; and one may use bran in like manner. Salts or toasted millet in woollen bags are excellent for forming a dry fomentation, for the millet is light and soothing. A soft fomentation like this soothes pains, even such as shoot to the clavicle. Venesection, however, does not alleviate the pain unless when it extends to the clavicle. But if the pain be not dissolved by the fomentations, one ought not to foment for a length of time, for this dries the lungs and promotes suppuration ; but if the pain point to the clavicle, or if there be a heaviness in the arm, or about the breast, or above the diaphragm, one should open the inner vein at the elbow, and not hesitate to abstract a large quantity, until it become much redder, or instead of being pure red, it turns livid,¹ for both these states occur. But if the pain be below the diaphragm, and do not point to the clavicle, we must open the belly either with black hellebore² or peplium,³ mixing the black hellebore with carrot or seseli,⁴ or cumin, or anise, or any other of the fragrant herbs ; and with the peplium the juice of sulphium⁵ (assafœtida), for these substances, when mixed up together, are of a similar nature.⁶ The black hellebore acts more pleasantly and effectually

¹ By livid (*πελιόν*) is here meant the colour intermediate between red and black. See Galen, h. l.

² Probably the *Helleborus niger*. See PAULUS ÆGINETA, Vol. III, p. 108.

³ The *Euphorbia peplus*. See Ibid., Vol. III, p. 294.

⁴ Probably the *Seseli tortuosum*. See Ibid., Vol. III, p. 330 ; and Dierbach, *Arzn. der Hipp.* p. 186.

⁵ A species of assafœtida, probably the *Laserpetium derias*. PAULUS ÆGINETA, Vol. III, p. 339.

⁶ It is worthy of remark, that our author directs aromatics to be mixed with the purgatives. The reason for prescribing them, as Galen states, was to counteract the bad effects of the purgatives upon the stomach. The ancients, in my opinion, acted much more wisely in this respect than the moderns generally do, for the latter are constantly administering the most nauseous cathartics to their patients without taking any pains to obviate their bad effects upon the stomach. On the ancient modes of administering purgatives, see PAULUS ÆGINETA, B. VII, 4.

ally than the peplium, while, on the other hand, the peplium expels wind much more effectually than the black hellebore, and both these stop the pain, and many other of the laxatives also stop it, but these two are the most efficacious that I am acquainted with. And the laxatives given in draughts are beneficial, when not very unpalatable owing to bitterness, or any other disagreeable taste, or from quantity, colour, or any apprehension. When the patient has drunk the medicine, one ought to give him to swallow but little less of the ptisan than what he had been accustomed to; but it is according to rule not to give any draughts while the medicine is under operation;¹ but when the purging is stopped then he should take a smaller draught than what he had been accustomed to, and afterwards go on increasing it progressively, until the pain cease, provided nothing else contra-indicate. This is my rule, also, if one would use the juice of ptisan, (for I hold that it is better, on the whole, to begin with taking the decoction at once, rather than by first emptying the veins before doing so, or on the third, fourth, fifth, sixth, or seventh day, provided the disease has not previously come to a crisis in the course of this time), and similar preparations to those formerly described are to be made in those cases.

8. Such are the opinions which I entertain respecting the administering of the ptisan; and, as regards drinks, whichever of those about to be described may be administered, the same directions are generally applicable. And here I know that physicians are in the practice of doing the very reverse of what is proper, for they all wish, at the commencement of diseases, to starve their patients for two, three, or more days, and then to administer the ptisans and drinks; and perhaps it appears to them reasonable that, as a great change has taken place in the body, it should be counteracted by another great change. Now, indeed, to produce a change is no small matter, but the change must be effected well and cautiously, and after the change the administration of food must be conducted still more

¹ Galen, in his Commentary, remarks that the common herd of physicians followed the very opposite rule to that here laid down by Hippocrates, that is to say, they administered food copiously after evacuations. According to Galen, the object of Hippocrates in proscribing food of all descriptions at that season is, because the powers of the system, being then weakened, are unable either to bear food or to digest it.

so. Those persons, then, would be most injured if the change is not properly managed, who used unstrained ptisans; they also would suffer who made use of the juice alone; and so also they would suffer who took merely drink, but these least of all.

9. One may derive information from the regimen of persons in good health what things are proper; for if it appear that there is a great difference whether the diet be so and so, in other respects, but more especially in the changes, how can it be otherwise in diseases, and more especially in the most acute? But it is well ascertained that even a faulty diet of food and drink steadily persevered in, is safer in the main as regards health than if one suddenly change it to another. Wherefore, in the case of persons who take two meals in the day, or of those who take a single meal, sudden changes induce suffering and weakness; and thus persons who have not been accustomed to dine, if they shall take dinner, immediately become weak, have heaviness over their whole body, and become feeble and languid, and if, in addition, they take supper, they will have acid eructations, and some will have diarrhœa whose bowels were previously dry, and not having been accustomed to be twice swelled out with food and to digest it twice a day, have been loaded beyond their wont. It is beneficial, in such cases, to counterbalance this change, for one should sleep after dinner, as if passing the night, and guard against cold in winter and heat in summer; or, if the person cannot sleep, he may stroll about slowly, but without making stops, for a good while, take no supper, or, at all events, eat little, and only things that are not unwholesome, and still more avoid drink, and especially water. Such a person will suffer still more if he take three full meals in the day, and more still if he take more meals; and yet there are many persons who readily bear to take three full meals in the day, provided they are so accustomed. And, moreover, those who have been in the habit of eating twice a day, if they omit dinner, become feeble and powerless, averse to all work, and have heartburn; their bowels seem, as it were, to hang loose, their urine is hot and green, and the excrement is parched; in some the mouth is bitter, the eyes are hollow, the temples throb, and the extremities are cold, and the most of those who have thus missed their dinner cannot eat supper; or, if they do sup, they load their stomach,

and pass a much worse night than if they had previously taken dinner. Since, then, an unwonted change of diet for half a day produces such effects upon persons in health, it appears not to be a good thing either to add or take from. If, then, he who was restricted to a single meal, contrary to usage, having his veins thus left empty during a whole day, when he supped according to custom felt heavy, it is probable that if, because he was uneasy and weak from the want of dinner, he took a larger supper than wont, he would be still more oppressed; or if, wanting food for a still greater interval, he suddenly took a meal after supper, he will feel still greater oppression. He, then, who, contrary to usage, has had his veins kept empty by want of food, will find it beneficial to counteract the bad effects during that day as follows: let him avoid cold, heat, and exertion, for he could bear all these ill; let him make his supper considerably less than usual, and not of dry food, but rather liquid; and let him take some drink, not of a watery character, nor in smaller quantity than is proportionate to the food, and on the next day he should take a small dinner, so that, by degrees, he may return to his former practice. Persons who are bilious in the stomach bear these changes worst, while those who are pituitous, upon the whole, bear the want of food best, so that they suffer the least from being restricted to one meal in the day, contrary to usage. This, then, is a sufficient proof that the greatest changes as to those things which regard our constitutions and habits are most especially concerned in the production of diseases, for it is impossible to produce unseasonably a great emptying of the vessels by abstinence, or to administer food while diseases are at their acme, or when inflammation prevails; nor, on the whole, to make a great change either one way or another with impunity.¹

10. One might mention many things akin to these respecting the stomach and bowels, to show how people readily bear such food as they are accustomed to, even if it is not naturally good, and drink in like manner, and how they bear unpleasantly such food as they are not accustomed to, even although not bad, and so in like manner with drink; and as to the effects of eating much flesh, contrary to usage, or garlic, or assafoetida, or the stem of the plant which produces it, or things of a similar kind

¹ See Celsus, I. 3.

possessed of strong properties, one would be less surprised if such things produce pains in the bowels, but rather when one learned what trouble, swelling, flatulence, and tormina the cake (maza) will raise in the belly when eaten by a person not accustomed to it; and how much weight and distension of the bowels bread will create to a person accustomed to live upon the maza; and what thirst and sudden fulness will be occasioned by eating hot bread, owing to its desiccant and indigestible properties; and what different effects are produced by fine and coarse bread when eaten contrary to usage, or by the cake when unusually dry, moist, or viscid; and what different effects polenta produces upon those who are accustomed and those who are unaccustomed to the use of it; or drinking of wine or drinking of water, when either custom is suddenly exchanged for the other; or when, contrary to usage, diluted wine or undiluted has been suddenly drunk, for the one will create water-brash in the upper part of the intestinal canal and flatulence in the lower, while the other will give rise to throbbing of the arteries, heaviness of the head, and thirst; and white and dark-coloured wine, although both strong wines, if exchanged contrary to usage, will produce very different effects upon the body, so that the one need the less wonder that a sweet and strong wine, if suddenly exchanged, should have by no means the same effect.

11. Let us here briefly advert to what may be said on the opposite side; namely, that a change of diet has occurred in these cases, without any change in their body, either as to strength, so as to require an increase of food, or as to weakness, so as to require a diminution. But the strength of the patient is to be taken into consideration, and the manner of the disease, and of the constitution of the man, and the habitual regimen of the patient, not only as regards food but also drink. Yet one must much less resort to augmentation, since it is often beneficial to have recourse to abstraction, when the patient can bear it, until the disease having reached its acme and has become concocted. But in what cases this must be done will be afterwards described. One might write many other things akin to those which have been now said, but there is a better proof, for it is not akin to the matter on which my discourse has principally turned, but the subject-matter itself is a most seasonable proof. For some

at the commencement of acute diseases have taken food on the same day, some on the next day; some have swallowed whatever has come in their way, and some have taken *cyceon*.¹ Now all these things are worse than if one had observed a different regimen; and yet these mistakes, committed at that time, do much less injury than if one were to abstain entirely from food for the first two or three days, and on the fourth or fifth day were to take such food; and it would be still worse, if one were to observe total abstinence for all these days, and on the following days were to take such a diet, before the disease is concocted;² for in this way death would be the consequence to most people, unless the disease were of a very mild nature. But the mistakes committed at first were not so irremediable as these, but could be much more easily repaired. This, therefore, I think a strong proof that such or such a draught need not be proscribed on the first days to those who will use the same draughts afterwards. At the bottom, therefore, they do not know, neither those using unstrained ptisans, that they are hurt by them, when they begin to swallow them, if they abstain entirely from food for two, three, or more days; nor do those using the juice know that they are injured in swallowing them, when they do not commence with the draught seasonably. But this they guard against, and know that it does much mischief, if, before the disease be concocted, the patient swallow unstrained ptisan, when accustomed to use strained. All these things are strong proofs that physicians do not conduct the regimen of patients properly, but that in those diseases in which total abstinence from food should not be enforced on patients that will be put on the use of ptisans, they do enforce total abstinence; that in those cases in which there should be no change made from total abstinence to

¹ The *cyceon* was a mixture of various articles of food, but generally contained cheese, honey, and wine. See Athenæus (Deipnos, ii). It is described by Homer as the potion which Circe administered to the followers of Ulysses. (Odys. x, 235.) There is frequent mention of it in the Hippocratic treatises, as at De Diæta, ii; de Muliebribus, ii; and in the works of the other medical authors.

² The meaning here is somewhat obscure, but appears to be this: that if a patient fast for the first two or three days, and take food of a heavy nature on the fourth or fifth, he will be much injured; but that the mistake will be still more fatal if the fast be continued for the first four or five days, and if he then indulge freely in food at the end of these.

ptisans, they do make the change ; and that, for the most part, they change from abstinence to ptisans, exactly at the time when it is often beneficial to proceed from ptisans almost to total abstinence, if the disease happen to be in the state of exacerbation.¹ And sometimes crude matters are attracted from the head, and bilious from the region near the chest, and the patients are attacked with insomnolency, so that the disease is not concocted ; they become sorrowful, peevish, and delirious ; there are flashes of light in their eyes, and noises in their ears ; their extremities are cold, their urine unconcocted ; the sputa thin, saltish, tinged with an intense colour and smell ; sweats about the neck, and anxiety ; respiration, interrupted in the expulsion of the air,² frequent and very large ; expression of the eyelids dreadful ; dangerous *deliquia* ; tossing of the bed-clothes from the breast ; the hands trembling, and sometimes the lower lip agitated. These symptoms, appearing at the commencement, are indicative of strong delirium, and patients so affected generally die, or if they escape, it is with a deposit, hemorrhage from the nose, or the expectoration of thick matter, and not otherwise. Neither do I perceive that physicians are skilled in such things as these ; how they ought to know such diseases as are connected with debility, and which are further weakened by abstinence from food, and those aggravated by some other irritation ; those by pain, and from the acute nature of the disease, and what affections and various forms thereof our constitution and habit engender, although the knowledge or ignorance of such things brings safety or death to the patient. For it is a great mischief if to a patient debilitated by pain, and the acute nature of the disease, one administer drink, or more ptisan, or food, supposing that the debility proceeds from inanition.

¹ There is considerable difficulty as to the text at this place. See Foës in his Annotations and *Œconomica*, and a very lengthy note by Littré.

² The preternatural mode of respiration here described is several times adverted to by Galen, as at *De Dyspnœa*, iii ; *Comment. in Aphor.*, iv, 68 ; and *Comment. in h. l.* Galen seems to understand the meaning to be, that the breathing is intercepted in the inspiration. I should have rather been disposed to think that it is the expiration which is said to be interrupted. But I suppose we must bow to so great an authority as Galen ! I may mention, by the way, that his Commentary on this and the collateral passages of our author is most interesting ; but, as usual, too diffuse for my narrow limits. It relates to a most important point in medical practice, on which great ignorance and uncertainty prevail among us, even at the present day.

It is also disgraceful not to recognise a patient whose debility is connected with inanition, and to pinch him in his diet ; this mistake, indeed, is attended with some danger, but much less than the other, and yet it is likely to expose one to much greater derision, for if another physician, or a private person, coming in and knowing what has happened, should give to eat or drink those things which the other had forbidden, the benefit thus done to the patient would be manifest. Such mistakes of practitioners are particularly ridiculed by mankind, for the physician or non-professional man thus coming in, seems as it were to resuscitate the dead. On this subject I will describe elsewhere the symptoms by which each of them may be recognised.

12. And the following observations are similar to those now made respecting the bowels. If the whole body rest long, contrary to usage, it does not immediately recover its strength ; but if, after a protracted repose, it proceed to labour, it will clearly expose its weakness. So it is with every one part of the body, for the feet will make a similar display, and any other of the joints, if, being unaccustomed to labour, they be suddenly brought into action, after a time. The teeth and the eyes will suffer in like manner, and also every other part whatever. A couch, also, that is either softer or harder than one has been accustomed to will create uneasiness, and sleeping in the open air, contrary to usage, hardens the body. But it is sufficient merely to state examples of all these cases. If a person having received a wound in the leg, neither very serious nor very trifling, and he being neither in a condition very favorable to its healing nor the contrary, at first betakes himself to bed, in order to promote the cure, and never raises his leg, it will thus be much less disposed to inflammation, and be much sooner well, than it would have been if he had strolled about during the process of healing ; but if upon the fifth or sixth day, or even earlier, he should get up and attempt to walk, he will suffer much more than than if he had walked about from the commencement of the cure, and if he should suddenly make many laborious exertions, he will suffer much more than if, when the treatment was conducted otherwise, he had made the same exertions on the same days. In fine, all these things concur in proving that all great changes, either one way or

another, are hurtful. Wherefore much mischief takes place in the bowels, if from a state of great inanition more food than is moderate be administered (and also in the rest of the body, if from a state of great rest it be hastily brought to greater exertion, it will be much more injured), or if from the use of much food it be changed to complete abstinence, and therefore the body in such cases requires protracted repose, and if, from a state of laborious exertion, the body suddenly falls into a state of ease and indolence, in these cases also the bowels would require continued repose from abundance of food, for otherwise it will induce pain and heaviness in the whole body.

13. The greater part of my discourse has related to changes, this way or that. For all purposes it is profitable to know these things, and more especially respecting the subject under consideration,—that in acute diseases, in which a change is made to ptisans from a state of inanition, it should be made as I direct; and then that ptisans should not be used until the disease be concocted, or some other symptom, whether of evacuation or of irritation, appear in the intestines, or in the hypochondria, such as will be described. Obstinate insomnolency impairs the digestion of the food and drink, and in other respects changes and relaxes the body, and occasions a heated state, and heaviness of the head.¹

14. One must determine by such marks as these, when sweet, strong, and dark wine, hydromel, water, and oxymel, should be given in acute diseases.² Wherefore the sweet affects the head less than the strong, attacks the brain less, evacuates the bowels more than the other, but induces swelling of the spleen and liver; it does not agree with bilious persons, for it causes them to thirst; it creates flatulence in the upper part of the intestinal canal, but does not disagree with the lower

¹ Galen finds the language in this last sentence so confused, that he does not hesitate to declare that he is convinced the work must have been left by Hippocrates in an unfinished state, and not published until after his death. He decides that ἐφθόρησ signifies a heated state connected with humours, and not with dryness; that is to say, a condition analogous to boiling, and not to roasting.

² Galen, in his elaborate Commentary on this section, complains that our author's account of wines is imperfect, inasmuch as several varieties are omitted; at the same time it must be admitted that his observations on this head are very much to the purpose, and highly judicious. For the other ancient authorities on this subject, see PAULUS ÆGINETA, Book I, 95, Syd. Soc. edit.

part, as far as regards flatulence; and yet flatulence engendered by sweet wine is not of a transient nature, but rests for a long time in the hypochondria. And therefore it in general is less diuretic than wine which is strong and thin; but sweet wine is more expectorant than the other. But when it creates thirst, it is less expectorant in such cases than the other wine, but if it do not create thirst, it promotes expectoration better than the other. The good and bad effects of a white, strong wine, have been already frequently and fully stated in the disquisition on sweet wine; it is determined to the bladder more than the other, is diuretic and laxative, and should be very useful in such complaints; for if in other respects it be less suitable than the other, the clearing out of the bladder effected by it is beneficial to the patient, if properly administered. There are excellent examples of the beneficial and injurious effects of wine, all which were left undetermined by my predecessors. In these diseases you may use a yellow wine, and a dark austere wine for the following purposes: if there be no heaviness of the head, nor delirium, nor stoppage of the expectoration, nor retention of the urine, and if the alvine discharges be more loose and like scrapings than usual, in such cases a change from a white wine to such as I have mentioned, might be very proper. It deserves further to be known, that it will prove less injurious to all the parts above, and to the bladder, if it be of a more watery nature, but that the stronger it is, it will be the more beneficial to the bowels.

15. Hydromel, when drunk in any stage of acute disease, is less suitable to persons of a bilious temperament, and to those who have enlarged viscera, than to those of a different character; it increases thirst less than sweet wine; it softens the lungs, is moderately expectorant, and alleviates a cough; for it has some detergent quality in it, whence it lubricates the sputum.¹ Hydromel is also moderately diuretic, unless prevented by the state of any of the viscera. And it also occasions bilious discharges downwards, sometimes of a proper character, and sometimes more intense and frothy than is suitable; but

¹ I need scarcely mention that hydromel was a drink prepared by boiling honey in a large proportion of water. It was of different degrees of strength; sometimes there were only two parts of water to one of honey, and at other times from seven to eight parts were used. See PAULUS ÆGINETA, Book I, 96, Syd. Soc. edit.

such rather occurs in persons who are bilious, and have enlarged viscera. Hydromel rather produces expectoration, and softening of the lungs, when given diluted with water.¹ But unmixed hydromel, rather than the diluted, produces frothy evacuations, such as are unseasonably and intensely bilious, and too hot; but such an evacuation occasions other great mischiefs, for it neither extinguishes the heat in the hypochondria, but rouses it, induces inquietude, and jactitation of the limbs, and ulcerates the intestines and anus. The remedies for all these will be described afterwards. By using hydromel without ptisans, instead of any other drink, you will generally succeed in the treatment of such diseases, and fail in few cases; but in what instances it is to be given, and in what it is not to be given, and wherefore it is not to be given,—all this has been explained already, for the most part. Hydromel is generally condemned, as if it weakened the powers of those who drink it, and on that account it is supposed to accelerate death; and this opinion arose from persons who starve themselves to death, some of whom use hydromel alone for drink, as fancying that it really has this effect. But this is by no means always the case. For hydromel, if drunk alone, is much stronger than water, if it do not disorder the bowels; but in some respects it is stronger, and in some weaker, than wine that is thin, weak, and devoid of *bouquet*. There is a great difference between unmixed wine and unmixed honey, as to their nutritive powers, for if a man will drink double the quantity of pure wine, to a certain quantity of honey which is swallowed, he will find himself much stronger from the honey, provided it do not disagree with his bowels, and that his alvine evacuations from it will be much more copious. But if he shall use ptisan for a draught, and drink afterwards hydromel, he will feel full, flatulent, and uncomfortable in the viscera of the hypochondrium; but if the hydromel be taken before the draught, it will not have the same injurious effects as if taken after it, but will be rather beneficial. And boiled hydromel has a much more elegant appearance than the unboiled, being clear, thin, white, and transparent, but I

¹ Galen, in explanation, mentions that hydromel is of a detergent nature; and hence it clears out the air-passages, and thus promotes expectoration. When the sputa are thick and viscid, it cuts and attenuates them. (Opera, tom. v, pp. 75, 76; ed. Basil.)

am unable to mention any good quality which it possesses that the other wants. For it is not sweeter than the unboiled, provided the honey be fine, and it is weaker, and occasions less copious evacuations of the bowels, neither of which effects is required from the hydromel. But one should by all means use it boiled, provided the honey be bad, impure, black, and not fragrant, for the boiling will remove the most of its bad qualities and appearances.

16. You will find the drink, called oxymel, often very useful in these complaints, for it promotes expectoration and freedom of breathing. The following are the proper occasions for administering it. When strongly acid it has no mean operation in rendering the expectoration more easy, for by bringing up the sputa, which occasion troublesome hawking, and rendering them more slippery, and, as it were, clearing the windpipe with a feather, it relieves the lungs and proves emollient to them; and when it succeeds in producing these effects it must do much good. But there are cases in which hydromel, strongly acid, does not promote expectoration, but renders it more viscid and thus does harm, and it is most apt to produce these bad effects in cases which are otherwise of a fatal character, when the patient is unable to cough or bring up the sputa. On this account, then, one ought to consider beforehand the strength of the patient, and if there be any hope, then one may give it, but if given at all in such cases it should be quite tepid, and in by no means large doses. But if slightly acrid it moistens the mouth and throat, promotes expectoration, and quenches thirst; agrees with the viscera seated in the hypochondrium, and obviates the bad effects of the honey; for the bilious quality of the honey is thereby corrected. It also promotes flatulent discharges from the bowels, and is diuretic, but it occasions watery discharges and those resembling scrapings, from the lower part of the intestine, which is sometimes a bad thing in acute diseases, more especially when the flatulence cannot be passed, but rolls backwards; and otherwise it diminishes the strength and makes the extremities cold; this is the only bad effect worth mentioning which I have known to arise from the oxymel. It may suit well to drink a little of this at night before the draught of ptisan, and when a considerable interval of time has passed after the draught there will be nothing to

prevent its being taken. But to those who are restricted entirely to drinks without draughts of ptisan, it will therefore not be proper at all times to give it, more especially from the fretting and irritation of the intestine which it occasions, (and these bad effects it will be the more apt to produce provided there be no fæces in the intestines and the patient is labouring under inanition,) and then it will weaken the powers of the hydromel. But if it appears advantageous to use a great deal of this drink during the whole course of the disease, one should add to it merely as much vinegar as can just be perceived by the taste, for thus what is prejudicial in it will do the least possible harm, and what is beneficial will do the more good. In a word, the acidity of vinegar agrees rather with those who are troubled with bitter bile, than with those patients whose bile is black; for the bitter principle is dissolved in it and turned to phlegm, by being suspended in it; whereas black bile is fermented, swells up, and is multiplied thereby: for vinegar is a melanogogue. Vinegar is more prejudicial to women than to men, for it creates pains in the uterus.

17. I have nothing further to add as to the effects of water when used as a drink in acute diseases; for it neither soothes the cough in pneumonia, nor promotes expectoration, but does less than the others in this respect, if used alone through the whole complaint. But if taken intermediate between oxymel and hydromel, in small quantity, it promotes expectoration from the change which it occasions in the qualities of these drinks, for it produces, as it were, a certain overflow. Otherwise it does not quench the thirst, for it creates bile in a bilious temperament, and is injurious to the hypochondrium; and it does the most harm, engenders most bile, and does the least good when the bowels are empty; and it increases the swelling of the spleen and liver when they are in an inflamed state; it produces a gurgling noise in the intestines and swims on the stomach; for it passes slowly downwards, as being of a coldish and indigestible nature, and neither proves laxative nor diuretic; and in this respect, too, it proves prejudicial, that it does not naturally form fæces in the intestines: and, if it be drunk while the feet are cold, its injurious effects will be greatly aggravated, in all those parts to which it may be determined. When you suspect in these diseases either strong heaviness of the head, or

mental alienation, you must abstain entirely from wine, and in this case use water, or give a weak, straw-coloured wine, entirely devoid of *bouquet*, after which a little water is to be given in addition; for thus the strength of the wine will less affect the head and the understanding: but in which cases water is mostly to be given for drink, when in large quantity, when in moderate, when cold, and when hot; all these things have either been discussed already or will be treated of at the proper time. In like manner, with respect to all the others, such as barley-water, the drinks made from green shoots, those from raisins, and the skins of grapes and wheat, and bastard saffron, and myrtles, pomegranates, and the others, when the proper time for using them is come, they will be treated of along with the disease in question, in like manner as the other compound medicines.¹

18. The bath is useful in many diseases, in some of them when used steadily, and in others when not so. Sometimes it must be less used than it would be otherwise, from the want of accommodation; for in few families are all the conveniences prepared, and persons who can manage them as they ought to be. And if the patient be not bathed properly, he may be thereby hurt in no inconsiderable degree, for there is required a place to cover him that is free of smoke, abundance of water, materials for frequent baths, but not very large, unless this should be required. It is better that no friction should be

¹ Although, as we have shown in our analysis of the treatise on the Use of Liquids, Hippocrates and his followers were sufficiently liberal in the administration of water on proper occasions, it will be seen from the contents of this section that our author was by no means disposed to give water freely in febrile diseases, nor in affections of the chest. Whatever may now be thought of his observations on this point of practice, all must admit that they are deserving of high attention. Galen's Commentary is also very interesting. It appears from it that he disapproved of giving water alone, but always added a small proportion of wine to it in order to give it a flavour. That the quantity of wine which was added to the water must have been small, is obvious from an anecdote which he relates in this place. He says that a certain physician, who saw the insignificant amount of the wine which was put into the water, said, bantering him, "Your patient will have the pleasure of seeing the wine indeed, but will not be able to taste it." Galen, however, contends that, although the quantity thus added be small, it is sufficient to act as a stomatic, and to obviate the bad effects which the water would otherwise produce. (Opera, tom. v, p. 82; ed. Basil.) It will be perceived from the context, that Hippocrates intended to give a separate treatise on each particular disease, not considering the present work on general therapeutics sufficiently explicit, as Galen remarks.

applied, but if so, a hot soap (*smegma*)¹ must be used in greater abundance than is common, and an affusion of a considerable quantity of water is to be made at the same time and afterwards repeated. There must also be a short passage to the basin, and it should be of easy ingress and egress. But the person who takes the bath should be orderly and reserved in his manner, should do nothing for himself, but others should pour the water upon him and rub him, and plenty of waters, of various temperatures, should be in readiness for the *douche*, and the affusions quickly made;² and sponges should be used instead of the comb (*strigil*), and the body should be anointed when not quite dry. But the head should be rubbed by the sponge until it is quite dry; the extremities should be protected from cold, as also the head and the rest of the body; and a man should not be washed immediately after he has taken a draught of ptisan or a drink; neither should he take ptisan as a drink immediately after the bath. Much will depend upon whether the patient, when in good health, was very fond of the bath, and in the custom of taking it: for such persons, especially, feel the want of it, and are benefited if they are bathed, and injured if they are not. In general it suits better with cases of pneumonia than in ardent fevers; for the bath soothes the pain in the side, chest, and back; concocts the sputa, promotes expectoration, improves the respiration, and allays lassitude; for it soothes the joints and outer skin, and

¹ The smegma was an abstergent composition used by the ancients in bathing for the purpose of cleansing the skin. For a full account of the smegmata, see PAULUS ÆGINETA, Vol. III, pp. 536-41.

² Galen, in his Commentary, remarks that the physicians usually did not put their patients into the bath, but made use of the *douche*, or affusion of hot water. He adds, that persons in good health may leave the hot bath and plunge into the cold, but that this practice is not safe in the case of invalids. He recommends, then, that there should be at hand a good supply of baths of various temperatures, so that the patient may gradually pass from one of a high to others of a low temperature. By the way, I have often wondered that Dr. Currie, who certainly had no inconsiderable pretensions to classical scholarship, should have been so profoundly ignorant as he appears to have been of the use of the warm affusion by Hippocrates and Galen in the treatment of febrile diseases. His rival, Dr. Jackson, had a much more respectable acquaintance with the ancient authorities on medicine; and I have often thought it was to be regretted that the profession at that period, in giving a trial to the affusion of cold and hot water in fever, put itself under the leadership of Currie instead of Jackson.

is diuretic, removes heaviness of the head, and moistens the nose. Such are the benefits to be derived from the bath, if all the proper requisites be present; but if one or more of these be wanting, the bath, instead of doing good, may rather prove injurious; for every one of them may do harm if not prepared by the attendants in the proper manner. It is by no means a suitable thing in these diseases to persons whose bowels are too loose, or when they are unusually confined, and there has been no previous evacuation; neither must we bathe those who are debilitated, nor such as have nausea or vomiting, or bilious eructations; nor such as have hemorrhage from the nose, unless it be less than required at that stage of the disease, (with those stages you are acquainted:) but if the discharge be less than proper, one should use the bath, whether in order to benefit the whole body or the head alone. If then the proper requisites be at hand, and the patient be well disposed to the bath, it may be administered once every day, or if the patient be fond of the bath there will be no harm, though he should take it twice in the day. The use of the bath is much more appropriate to those who take unstrained ptisan, than to those who take only the juice of it, although even in their case it may be proper; but least of all does it suit with those who use only plain drink, although, in their case too it may be suitable: but one must form a judgment from the rules laid down before, in which of these modes of regimen the bath will be beneficial, and in which not. Such as want some of the requisites for a proper bath, but have those symptoms which would be benefited by it, should be bathed; whereas those who want none of the proper requisites, but have certain symptoms which contraindicate the bath, are not to be bathed.

APPENDIX
TO
THE WORK ON REGIMEN IN ACUTE DISEASES.

THE ARGUMENT.

No one can read this piece attentively without coming to the conclusion that it is not a natural continuation of the subject discussed in the preceding work, but that it is made up, in a considerable measure, of materials extracted from it. Expositions of subjects which are there given methodically are here presented in a disjointed form; and rules of practice there laid down with precision are here often delivered in a vague and indefinite shape. Still, however, it must be admitted, that the reverse is sometimes the case, and that what is presented imperfect in the former part of the work is here sometimes reproduced very much improved. It has been therefore a matter of much dispute among the critics whether this portion be the composition of Hippocrates, or whether it be altogether the work of a different hand. The most probable conjecture respecting it seems to be, that as Hippocrates in the preceding part several times announces his intention of giving a continuation of the subject, some one of his immediate disciples undertook the work which he had thus promised, and composed this treatise from fragments left by the author himself, and from materials collected from his other works. As stated by Galen in his Commentary, and as we have explained in our remarks on the 'Aphorisms,' in the second section of the Preliminary Discourse, it was a common practice, in ancient times, to add appendices to popular works. I can have no hesitation, then, in following the example of M. Littré, who recognises it as an appendix to the preceding work. But I must say that I rather incline, with Galen, to think that there are many things in it which cannot have come from Hippocrates, than to hold with

M. Littré that it is nearly or altogether his composition. But however that may be, it indisputably contains much interesting matter, for which we have every reason to believe that we are indebted to Hippocrates, either directly or at second hand. I shall now give a brief abstract of its contents.

He commences with some general observations on the nature and treatment of *causus*, the endemial fever of Greece. What is said on this head is much to the purpose, but incomplete. Then there is given a general rule for bleeding in diseases which certainly is well deserving of attention at the present day, when professional opinions on this point of medical practice are very much unsettled. Now-a-days we have abandoned all general rules of practice, and profess to be guided solely by experience; but how variable and uncertain are its results in the present case! I myself—albeit but verging towards the decline of life—can well remember the time when a physician would have run the risk of being indicted for culpable homicide if he had ventured to bleed a patient in common fever; about twenty-five years ago venesection in fever, and in almost every disease, was the established order of the day; and now what shall I state as the general practice that has been sanctioned by the experience of the present generation? I can scarcely say,—so variable has the practice in fever and in many other diseases become of late years. One thing is remarkable in the present work with regard to venesection in pneumonia and pleurisy, namely, that it is directed to be carried the length of inducing *deliquium animi*, contrary to the practice laid down in the preceding work, and to the rule which was followed by all the other ancient authorities. Another of the rules regarding bleeding here delivered is also deserving of attention, namely, that in inflammatory diseases it is improper to purge before bleeding, but that venesection should precede all other means of cure.

The section in which cynauche is treated of appears to me to be highly interesting and important. I think it may be a question whether the prognostic spirit of Hippocrates and his followers had not in a great measure anticipated all the results of modern diagnosis.

After this there follows some additional account of *causus*, which, although out of place, contains observations of considerable interest.

To the treatment of pleurisy and pneumonia we have already alluded, but the subject is so interesting that we cannot dismiss it with so brief a notice. In the ancient method of treating fevers and febrile affections three main objects would appear to have been kept in view: 1st, by depletion, to remove the morbid fluids from the general system, or to draw them off from a particular spot in which they had fixed; 2d, by diluents, to supply the waste of fluids occasioned by the preternatural heat of the body; and, 3d, to support the strength by a suitable supply of such nutriment as the system is then capable of receiving.

Now with regard to venesection, it will be seen in this and the preceding work that the practice is regulated by certain well-marked indications, namely, the seat of the pain, the condition of the patient, and the characters of the sputa. The purging is regulated by the state of matters below the chest, it being held as a general rule that clysters should be administered regularly every day during the first days of the fever. After purging comes the cooling drinks, such as oxymel. The administration of farinaceous food in a liquid state, that is to say, of unstrained ptisan, is to be regulated by the state of the sputa and urinary sediment, namely, when the sputa have put on a purulent appearance, and the sediment has become copious and reddish. Now this certainly seems to be a very intelligible and judicious rule for the administration of nutritious articles in febrile diseases. I need scarcely remark that at the present time there is scarcely a rule of practice in medicine which is worse defined than this respecting the administration of wine and other alimentary substances in febrile diseases. In proof of what is now stated, I would beg leave to refer the reader to what will be admitted to be one of the best authorities in modern literature on fever, I mean to Dr. Tweedie's elaborate article on this subject, in the 'Cyclopædia of Medicine.' It will be seen, at vol. ii, p. 208, that the rules for the administration of wine and other articles of food are by no means well defined. A cool skin and a soft pulse, when combined with debility, are the indications upon which most stress is laid; but the pulse, as long ago it was pronounced by Celsus to be, is "res fallacissima," and of this the excellent author seems to have been sensible; for the injunctions which

he gives to regulate the administration of the wine and other articles, by the effects they produce, sufficiently show that he was sensible how deficient in precision our knowledge of the subject is at present. At the same time he makes it appear that he was well aware of one important fact in the treatment of febrile diseases, which, although distinctly recognised by Hippocrates, is still frequently overlooked by ordinary practitioners, namely, that in convalescence the stomach partakes of the general debility, and is unable to digest food in any great quantity at that time.¹ M. Littré further calls attention to another rule for the administration of wine, lately laid down by Dr. Stokes, of Dublin, which is certainly a most important one, provided it is confirmed by time and experience. It is founded on auscultation, and is to this effect; that when the impulse of the heart is abnormally weak, and when there is a diminution of the proportion between the two *bruits*, or when there is a preponderance in the sound of the second *bruit*, wine may be freely administered. Now, as I have said, this rule, if sanctioned by ample experience, is undoubtedly a most excellent one; but I may be allowed to remark, that my own observations on the heart in fever have led me to the conclusion that, as I have stated respecting the pulse, its sounds are very fallacious; and I must say that the rule of Hippocrates appears more likely to prove a certain guide in this instance. For is it not a natural view of the subject, that wine and other articles of food should be withheld while the emunctories are not in a condition to cast off the recrementitious superfluities of the system; but that when the secretions are properly established, alimentary substances may be safely administered?²

¹ Dr. Tweedie's observations agree so well with those of Hippocrates, that I will give the reader an opportunity of comparing them together. "This organ (the stomach), in convalescence, partakes of the external or muscular debility, and the convalescent may as well expect to be able to carry a heavy load on his shoulders as to digest an undue quantity of food, even of a suitable kind." (p. 215.)

² The directions given by that excellent authority Alexander Trallian, for the regulation of the regimen in phrenitis, are to the same effect. Wine is to be given when there is much insomnolency, when the strength is reduced, when the fever is no longer strong and ardent, and *when concoction appears already in the wine*. The author makes the acute remark, that the remedy is attended with certain evil consequences, but that it is the part of a prudent physician to balance the good and bad effects, and administer the article in question when the good preponderate. (i, 13.)

There is another point connected with the regimen in acute diseases on which I have a remark or two to make—it is the administration of animal matters in a fluid state, such as beef-tea, or soups from fowls. These we see frequently administered in febrile cases by practitioners of the present day, but by the ancient authorities they would appear to have been entirely rejected. Which party is the safer guide in this case? For my own part, I have long thought that animal matters, when introduced into the system while in a febrile state, have a tendency to become putrid, and thereby to occasion an increase of the heat and general disorder.

After some defective observations on dysentery, our author treats of tetanus; but here Galen objects to the characters which he gives of the urine, and to his practice as regards the administration of wine. His views, however, are not very different from those which now prevail.

Having made some general remarks on the administration of hellebore, to which he was very partial, he proceeds to point out the bad effects resulting from any change in regimen. His views here are very similar to the observations contained in the preceding portion of the work, and in the treatise ‘On Ancient Medicine.’

The account of dry cholera is confused and vague. By it he would seem to mean flatulent colic, or *dry bellyache*. See Opera, ed. Littré, tom. ii, p. 388.

The paragraph on dropsy is interesting, although the views taken of the subject are incomplete. Tympanitis is recognised as a variety of dropsy. Then follow some detached observations on persons whose bowels are heated, and on the regulation of the diet, with some remarks on the different states which counter-indicate purging. At § 23 there are some practical observations on various conditions of the constitution, which it would no doubt be proper for the physician to make himself acquainted with. The contents of all the remaining paragraphs would seem to have nothing to do with the subject of this treatise.

From what is now stated the reader will readily perceive that this treatise abounds in interesting matters, which, even at the present day, may prove suggestive of important views in the theory and practice of medicine. And although the style, in the judgment of Galen, be very different from that of

Hippocrates, and the mode of thought deficient in that precision for which he is so remarkable, the treatise is unquestionably a work of great ability, and contains what we have reason to regard as the results of his experience and meditations on many important subjects. I should have thought it quite unwarrantable, therefore, to have rejected this piece from a volume which professes to give all the genuine remains of our great author. And moreover, at the risk, perhaps, of being set down as an antique devotée, I do not hesitate to declare that in my opinion this and the preceding portion, taken together, contain more original information on the important subject to which they relate than is to be found in any medical work which has been written from the days of our author down to the present time.

I shall conclude the present Argument by giving from Cælius Aurelianus the criticisms of Soranus on the opinions of our author, as delivered in these two treatises. It is to be borne in mind that Soranus was the chief of the ancient sect of physicians called *Methodici*, which was very inimically disposed towards all the others, and more especially to Hippocrates. Though most of the strictures are evidently overstrained, it cannot fail to be interesting to the reader to have an opportunity of considering them, such as they are.

After giving an elaborate analysis of our author's views, Cælius Aurelianus proceeds as follows: "His Soranus respondens ait. In calefactionibus acres esse sales, ac necessario tumorem provocare, febremque accendere, poscam etiam constringere et stricturam passionis augere. Item milium fixum graveolens et nidorosum, atque capiti grave, maximè acutè fabricitantium esse perspicimus. Spongiis etiam erat melius quæquam in dimissione patientes partes vaporare, atque oleo calido perfundere. Est præterea improprium, ac sine ratione, tunc uti phlebotomo quoties ad superiora dolor tetenderit; prohibere autem quoties ad inferiora descenderit. Oportet ergo sub hoc argumento neque difficultate tumorum partibus inferioribus impeditos phlebotomare: neque etiam podagricos si quidem inferiora tumere videantur, sed necessariò quoties dolor ad superiora tetenderit, phlebotomiam adhibendam videmus. Siquidem sæpe pejorante ventris fluore, hoc adjutorii genus prohibetur. Neque etiam (ut ait) oportet interiorem

venam dividi. Siquidem et exteriori et media divisa corpora releventur. Quippe quum e contrario interiorem prohibeant, propter magnitudinem, ne tumor augeatur. Item sanguinis mutatio iners est detractionis moderationi, sicuti de adjuutoriis scribentes demonstrabimus. Sese denique idem Hippocrates impugnat in consequentibus, dicens usque ad animi defectum faciendam detractionem, quod magis vehementer est nocens: siquidem est periculosa defectio, et neque si sit temporaliter defectionis causa, sensu carens ægrotans, dolore relevatus, videbitur (quum resumptus fuerit) rursus non dolere, quum magis atque magis ejusdem passionis debilia corpora vehementius officiant. Item purgativa medicamina (quæ Græci καθαρκικά vocant) acrimonix causa, stomachum tumentem, atque hpezocota membranam acuunt in tumorem; et in periculum ventris effusionem provocantia, magnificam passionis ingerunt vehementiam. Nutrire etiam cibo post medicamen non oportebat. Pugnat enim purgationi faciundæ illatum cibi nutrimentum. Quippe quum medicamine corruptum, officii sui careat viribus. Mitto etiam quod ex initio acescere facile ptisanæ succus perspiciatur, confectus quippe ex ordei succo, qui sit digestionem difficilis. Deline ægrotantis corpus non valet tantum sustinere nutrimentum, quantum sanitatis tempore solitum videbatur. Item mulsum ex aceto (quod oxymeli appellavit) sine discretionem accipimus. Est etiam immodica usque ad septimum diem cibi abstinentia, quam custodiendam ordinavit.¹ Quippe cum nullus vehementiam passionis sustinere valet, nisi nutrimento quamvis parvo toleratus: et neque in declinatione passionis aliquid humanius cibo largitur, sed in iisdem sorbilibus perseverandum existimat succis. At cum fuerint sputa segniora, tunc ut existimat, erit primo æger nutriendus, quomodo necessariò declinante passione occurrunt intolerato. In cæteris relinquendum temporibus absque nutrimento ægrotantem aperitissimè indicavit, quum semper plurimum utilitatis adjuutorium cibi, quam cætera possunt adjuutoria, largiatur. Omne etiam corpus erit unctione cœquandum, et non ejus particula. Quippe cum totum cibo nutriatur, ipsa quoque unctio non exerta, anxietatem ingerit ægrotanti, quæ latentem difficultatem, atque accessione veniente, corporis provocat incendium.”

¹ This can scarcely be supposed anything else than a wilful misrepresentation of our author's rule of practice in this case. See the fourth section of the preceding part.

APPENDIX TO THE WORK

ON

REGIMEN IN ACUTE DISEASES.

ARDENT fever (causus)¹ takes place when the veins, being dried up in the summer season, attract acrid and bilious humours to themselves; and strong fever seizes the whole body, which experiences aches of the bones, and is in a state of lassitude and pain. It takes place most commonly from a long walk and protracted thirst, when the veins being dried up attract acrid and hot defluxions to themselves. The tongue becomes rough, dry, and very black; there are gnawing pains about the bowels; the alvine discharges are watery and yellow; there is intense thirst, insomnolency, and sometimes wandering of the mind. To a person in such a state give to drink water

¹ The *causus* or ardent fever of the ancients was decidedly the same as the bilious remittent fever of modern authors. See PAULUS ÆGINETA, Vol. I, p. 262. We shall find many cases of it related in the Epidemics. In fact the *causus* is the ordinary fever of Greece and other countries bordering upon the Mediterranean. Galen, in his Commentary on this section, mentions that he had known it generally superinduced by drinking wine after great fatigue in summer. There can be no doubt that this was the fever of which Alexander the Great died. The description of the disease in his case, as given by Arrian from the Royal Journals (*βασίλειοι ἐφημερίδες*), has so much the air of truth, and withal appears to me so interesting, that I shall be excused introducing it in this place. "And the Royal Journals ran thus: that he drank at a jollification in the house of Medius; then rising up and being bathed, slept, and again supped with Medius, and again drank until the night was far advanced; that giving over drinking he bathed; and having bathed, ate a little, and slept there, because he was already feverish; that being carried on a litter to the sacrifices, he performed them according to his daily practice; that the sacrifices being performed, he reclined in the dining-room (*ἀνδρών*) until the dusk of evening, and there gave orders to the commander respecting the march and voyage, that those who had to proceed on foot should be prepared for marching on the fourth day, and those who were to sail on the fifth; that he was carried hence upon a couch to the river, and being placed in a boat was taken across the river to the garden, and then being again bathed, that he rested. Next day, that he again was bathed and performed the appointed sacrifices; and going into a chamber, that he reclined and conversed with Medius, and gave orders to the commanders to meet him in the morning. That having done these things, he took a little supper; and having been carried back to the chamber, that he was in a continued state of fever during the

and as much boiled hydromel of a watery consistence as he will take ; and if the mouth be bitter, it may be advantageous to administer an emetic and clyster ; and if these things do not loosen the bowels, purge with the boiled milk of asses. Give nothing saltish nor acrid, for they will not be borne ; and give no draughts of ptisan until the crisis be past. And the affection is resolved if there be an epistaxis, or if true critical sweats supervene with urine having white, thick, and smooth sediments, or if a deposit take place anywhere ; but if it be resolved without these, there will be a relapse of the complaint, or pain in the hips and legs will ensue, with thick sputa, provided the patient be convalescent. Another species of ardent fever : belly loose, much thirst, tongue rough, dry, and saltish, retention of urine, insomnolency, extremities cold. In such a case, unless there be a flow of blood from the nose, or an abscess form about the neck, or pain in the limbs, or the patient expectorate thick sputa (these occur when the belly is constipated), or pain of the hips, or lividity of the genital organs,

whole night ; that next day he bathed, and after the bath performed the sacrifices ; that he gave orders to Nearchus and the other commanders respecting the voyage, that it should take place on the third day ; that next day he bathed again, and performed the appointed sacrifices ; that the religious rites being over, he did not cease to be feverish, but that calling the commanders he gave orders for having every thing in readiness for the voyage ; that he was bathed next day, and being bathed was already in a bad state. That next day being carried to the house adjoining the bath, he performed the appointed sacrifices ; that he was in a bad state, but yet that he called to him the chiefs of his commanders, and again gave orders respecting the voyage ; that the following day he was carried with difficulty to the religious rites and sacrificed, and that notwithstanding he gave orders to the commanders respecting the voyage. That next day, although already in a bad state, he performed the appointed sacrifices ; that he gave orders that the commanders should watch in the saloon, and the chiliarchs and pentacosiarchs before the doors ; and that being altogether now in a bad state, he was carried from the garden to the palace. That when the commanders came in he recognised them, but did not speak, being now speechless ; that he was in a bad state of fever during that night and day, and during another night and day. Thus it is written in the Royal Journals." Thus far the report is no doubt to be strictly depended upon ; the historical embellishments added to it from other sources can have no interest to the professional reader. (Appiani Exped. Alexandr., vii, 37.) It deserves to be remarked, as a remarkable feature in this case, that the mind appears to have been pretty entire during the whole course of the fever. Now, this is one of the characteristics of *causus* as described by Aretæus (*Morb. Acut.*, ii, 4). It is further one of the most marked features of the yellow fever, which, from all I can learn of it, would appear decidedly to be an aggravated form of *causus*.

there is no crisis; tension of the testicle is also a critical symptom. Give attractive draughts.¹

2. Bleed in the acute affections, if the disease appear strong, and the patients be in the vigour of life, and if they have strength.² If it be quinsy or any other of the pleuritic affections, purge with electuaries; but if the patient be weaker, or if you abstract more blood, you may administer a clyster every third day, until he be out of danger, and enjoin total abstinence if necessary.

3. Hypochondria inflamed not from retention of flatus, tension of the diaphragm, checked respiration, with dry orthopnoea, when no pus is formed, but when these complaints are connected with obstructed respiration; but more especially strong pains of the liver, heaviness of the spleen, and other phlegmasiæ and intense pains above the diaphragm, diseases connected with collections of humours,—all these diseases do not admit of resolution, if treated at first by medicine, but venesection holds the first place in conducting the treatment; then we may have recourse to a clyster, unless the disease be great and strong; but if so, purging also may be necessary; but bleeding and purging together require caution and moderation. Those who attempt to resolve inflammatory diseases at the commencement by the administration of purgative medicines, remove none of the morbid humours which produce the inflammation and tension: for the diseases while unconcocted could not yield, but they melt down those parts which are healthy and resist the disease; so when the body is debilitated, the malady obtains the mastery; and when the disease has the upper hand of the body, it does not admit of a cure.³

4. When a person suddenly loses his speech, in connexion with obstruction of the veins,—if this happen without warning or any other strong cause, one ought to open the internal vein

¹ Galen admits that he did not understand the exact import of this term.

² This is a general rule of such importance that Galen wonders our author did not embody it in one of his Aphorisms. Galen's observations on venesection in this commentary, and in his two treatises on this subject, are highly important. It will be remarked that three circumstances are held to form indications of the necessity for bleeding: first, if the disease be of a strong nature; second, if the patient be in the vigour of life; and, third, if his strength be entire.

³ This section, as Galen remarks, contains a list of the principal cases in which venesection is to be had recourse to.

of the right arm, and abstract blood more or less according to the habit and age of the patient. Such cases are mostly attended with the following symptoms: redness of the face, eyes fixed, hands distended, grinding of the teeth, palpitations, jaws fixed, coldness of the extremities, retention of airs in the veins.¹

5. When pains precede, and there are influxes of black bile and of acrid humours, and when by their pungency the internal parts are pained, and the veins being pinched and dried become distended, and getting inflamed attract the humours running into the parts, whence the blood being vitiated, and the airs collected there not being able to find their natural passages, coldness comes on in consequence of this stasis, with vertigo, loss of speech, heaviness of the head, and convulsion, if the disease fix on the liver, the heart, or the great vein (*vena cava?*); whence they are seized with epilepsy or apoplexy, if the defluxions fall upon the containing parts,² and if they are dried up by airs which cannot make their escape; such persons having been first fomented are to be immediately bled at the commencement, while all the peccant vapours and humours are buoyant, for then the cases more easily admit of a cure; and then supporting the strength and attending to the crises, we may give emetics, unless the disease be alleviated; or if the bowels be not moved, we may administer a clyster and give the boiled milk of asses, to the amount of not less than twelve heminae, or if the strength permit, to more than sixteen.

6. Quinsy takes place when a copious and viscid defluxion from the head, in the season of winter or spring, flows into the jugular veins, and when from their large size they attract a greater defluxion; and when owing to the defluxion being of a cold and viscid nature it becomes enfarcted, obstructing the passages of the respiration and of the blood, coagulates the surrounding blood, and renders it motionless and stationary, it being naturally cold and disposed to obstructions. Hence they are seized with convulsive suffocation, the tongue turning livid, assuming a rounded shape, and being bent owing to the veins

¹ I need scarcely point out to the professional reader that these symptoms are very descriptive of congestion in the brain, threatening an attack either of apoplexy or epilepsy. See the treatise on the Sacred Disease.

² Meaning apparently the great vessels. See Galen's Commentary.

which are seated below the tongue (for when an enlarged uvula, which is called *uva*, is cut, a large vein may be observed on each side). These veins, then, becoming filled, and their roots extending into the tongue, which is of a loose and spongy texture, it, owing to its dryness receiving forcibly the juice from the veins, changes from broad and becomes round, its natural colour turns to livid, from a soft consistence it grows hard, instead of being flexible it becomes inflexible, so that the patient would soon be suffocated unless speedily relieved. Bleeding, then, in the arm, and opening the sublingual veins, and purging with the electuaries, and giving warm gargles, and shaving the head, we must apply to it and the neck a cerate, and wrap them round with wool, and foment with soft sponges squeezed out of hot water; give to drink water and hydromel, not cold; and administer the juice of ptisan when, having passed the crisis, the patient is out of danger. When, in the season of summer or autumn, there is a hot and nitrous defluxion from the head (it is rendered hot and acrid by the season), being of such a nature it corrodes and ulcerates, and fills with air, and orthopnoea attended with great dryness supervenes; the fauces, when examined, do not seem swollen; the tendons on the back part of the neck are contracted, and have the appearance as if it were tetanus; the voice is lost, the breathing is small, and inspiration becomes frequent and laborious. In such persons the trachea becomes ulcerated, and the lungs engorged, from the patient's not being able to draw in the external air. In such cases, unless there be a spontaneous determination to the external parts of the neck, the symptoms become still more dreadful, and the danger more imminent, partly owing to the season, and the hot and acrid humours which cause the disease.¹

7. When fever seizes a person who has lately taken food,

¹ The description here given of *cynanche*, more especially of the variety in which the ulceration spreads down to the trachea and produces engorgement of the lungs, is most characteristic, and bespeaks a great practical acquaintance with the disease. Judged of in a becoming spirit of candour, it must be admitted that even at the present day we have scarcely made any advancement in our knowledge of this subject. What are our descriptions of ulcerous sore-throat, diphtherite, œdema glottidis, croup, and laryngismus stridulus, but reproductions in a divided and (may I be allowed to suggest?) a less accurate form, of the general views here presented by our author? For an abstract of the views of the other ancient authorities in medicine, see PAULUS

and whose bowels are loaded with fæces which have been long retained, whether it be attended with pain of the side or not, he ought to lie quiet until the food descend to the lower region of the bowels, and use oxymel for drink ; but when the load descends to the loins, a clyster should be administered, or he should be purged by medicine ; and when purged, he should take ptisan for food and hydromel for drink ; then he may take the cerealia, and boiled fishes, and a watery wine in small quantity, at night, but during the day, a watery hydromel. When the flatus is offensive, either a suppository or clyster is to be administered ; but otherwise the oxymel is to be discontinued, until the matters descend to the lower part of the bowels, and then they are to be evacuated by a clyster. But if the ardent fever (*causus*) supervene when the bowels are empty, should you still judge it proper to administer purgative medicine, it ought not be done during the first three days, nor earlier than the fourth. When you give the medicine, use the ptisan, observing the paroxysms of the fevers, so as not to give it when the fever is setting in, but when it is ceasing, or on the decline, and as far as possible from the commencement. When the feet are cold, give neither drink nor ptisan, nor anything else of the kind, but reckon it an important rule to refrain until they become warm, and then you may administer them with advantage. For the most part, coldness of the feet is a symptom of a paroxysm of the fever coming on ; and if at such a season you apply those things, you will commit the greatest possible mistake, for you will augment the disease in no small degree. But when the fever ceases, the feet, on the contrary, become hotter than the rest of the body ; for when the heat leaves the feet, it is kindled up in the breast, and sends its flame up to the head. And when all the heat rushes upwards, and is exhaled at the head, it is not to be wondered at that the feet become cold, being devoid of flesh, and tendinous ; and besides, they contract cold, owing to their distance

ÆGINETA, Book III, 27. Aretæus deserves particularly to be consulted (*Morb. Acut.*, i, 7). It will be remarked that our author speaks of a spontaneous determination to the skin, as being calculated to remove the urgent symptoms within. Galen, in commenting upon this clause, states that some physicians were in the practice of applying to the skin certain medicines possessed of ulcerative powers, in order to determine to the surface, and thus imitate Nature's mode of cure.

from the hotter parts of the body, an accumulation of heat having taken place in the chest: and again, in like manner, when the fever is resolved and dissipated, the heat descends to the feet, and, at the same time, the head and chest become cold. Wherefore one should attend to this; that when the feet are cold, the bowels are necessarily hot, and filled with nauseous matters; the hypochondrium distended: there is jactitation of the body, owing to the internal disturbance; and aberration of the intellect, and pains; the patient is agitated, and wishes to vomit, and if he vomits bad matters he is pained; but when the heat descends to the feet, and the urine passes freely, he is every way lightened, even although he does not sweat; at this season, then, the ptisan ought to be given; it would be death to give it before.¹

8. When the bowels are loose during the whole course of fevers, in this case we are most especially to warm the feet, and see that they are properly treated with cerates, and wrapped in shawls, so that they may not become colder than the rest of the body; but when they are hot, no fomentation must be made to them, but care is to be taken that they do not become cold; and very little drink is to be used, either cold water or hydromel. In those cases of fever where the bowels are loose, and the mind is disordered, the greater number of patients pick the wool from their blankets, scratch their noses, answer briefly when questions are put to them, but, when left to themselves, utter nothing that is rational. Such attacks appear to me to be connected with black bile. When in these cases there is a colliquative diarrhœa, I am of opinion that we ought to give the colder and thicker ptisans, and that the drinks ought to be binding, of a vinous nature, and rather astringent. In cases of fever attended from the first with vertigo, throbbing of the head, and thin urine, you may expect the fever to be exacerbated at the crisis; neither need it excite wonder, although there be delirium. When, at the commencement, the urine is cloudy or thick, it is proper to purge gently, provided this be otherwise proper; but when the urine at first is thin, do not purge such patients, but, if thought necessary, give a clyster: such

¹ Though the contents of this section are by no means devoid of interest, it must be obvious to the reader that the observations on *causus* are out of place here. See the Commentary of Galen.

patients should be thus treated ; they should be kept in a quiet state, have unguents applied to them, and be covered up properly with clothes, and they should use for drink a watery hydromel, and the juice of ptisan as a draught in the evening; clear out the bowels at first with a clyster, but give no purgative medicines to them, for, if you move the bowels strongly, the urine is not concocted, but the fever remains long, without sweats and without a crisis. Do not give draughts when the time of the crisis is at hand, if there be agitation, but only when the fever abates and is alleviated. It is proper to be guarded at the crises of other fevers, and to withhold the draughts at that season. Fevers of this description are apt to be protracted, and to have determinations, if the inferior extremities be cold, about the ears and neck, or, if these parts are not cold, to have other changes ; they have epistaxis, and disorder of the bowels. But in cases of fever attended with nausea, or distension of the hypochondria, when the patients cannot lie reclined in the same position, and the extremities are cold, the greatest care and precaution are necessary ; nothing should be given to them, except oxymel diluted with water ; no draught should be administered, until the fever abate and the urine be concocted ; the patient should be laid in a dark apartment, and recline upon the softest couch, and he should be kept as long as possible in the same position, so as not to toss about, for this is particularly beneficial to him. Apply to the hypochondrium linseed by inunction, taking care that he do not catch cold when the application is made ; let it be in a tepid state, and boiled in water and oil. One may judge from the urine what is to take place, for if the urine be thicker, and more yellowish, so much the better ; but if it be thinner, and blacker, so much the worse ;¹ but if it undergo changes, it indicates a prolongation of the disease, and the patient, in like manner, must experience a change to the worse

¹ I would beg leave to direct the attention of the medical reader to the observations of our author in this and many other places on the characters of the urine in fevers. That in febrile diseases the sediment is wanting previous to the crisis, and that at and after the crisis, when favorable, the sediment becomes remarkably copious, I believe to be certain facts ; and yet I question if, with all our boasted improvements in urology, they be generally known and attended to. I have called attention in the Argument to the important rule of practice which our author founds on the state of the urine at the crisis.

and the better. Irregular fevers should be let alone until they become settled, and, when they do settle, they are to be treated by a suitable diet and medicine, attending to the constitution of the patient.

9. The aspects of the sick are various; wherefore the physician should pay attention, that he may not miss observing the exciting causes, as far as they can be ascertained by reasoning, nor such symptoms as should appear on an even or odd day, but he ought to be particularly guarded in observing the odd days, as it is in them, more especially, that changes take place in patients. He should mark, particularly, the first day on which the patient became ill, considering when and whence the disease commenced, for this is of primary importance to know. When you examine the patient, inquire into all particulars; first how the head is, and if there be no headache, nor heaviness in it; then examine if the hypochondria and sides be free of pain; for if the hypochondrium be painful, swelled, and unequal, with a sense of satiety, or if there be pain in the side, and, along with the pain, either cough, tormina, or belly-ache, if any of these symptoms be present in the hypochondrium, the bowels should be opened with clysters, and the patient should drink boiled hydromel in a hot state. The physician should ascertain whether the patient be apt to faint when he is raised up, and whether his breathing be free; and examine the discharges from the bowels, whether they be very black, or of a proper colour, like those of persons in good health, and ascertain whether the fever has a paroxysm every third day, and look well to such persons on those days. And should the fourth day prove like the third, the patient is in a dangerous state.¹ With regard to the symptoms, black stools prognosticate death; but if they resemble the discharges of a healthy person, and if such is their appearance every day, it is a favorable symptom; but when the bowels do not yield to a suppository, and when, though the respiration be natural, the patient when raised to the night-table, or even in bed, be seized with delirium, you may expect that the patient, man or woman, who experiences these symptoms, is about to fall into a state of delirium. Attention also should be paid to the hands, for if

¹ He means by this, that the disease is not of an intermittent type.

they tremble, you may expect epistaxis; and observe the nostrils, whether the breath be drawn in equally by both; and if expiration by the nostrils be large, a convulsion is apt to take place; and should a convulsion occur to such a person, death may be anticipated, and it is well to announce it beforehand.

10. If, in a winter fever, the tongue be rough, and if there be swoonings, it is likely to be the remission of the fever. Nevertheless such a person is to be kept upon a restricted diet, with water for drink, and hydromel, and the strained juices, not trusting to the remission of the fevers, as persons having these symptoms are in danger of dying; when, therefore, you perceive these symptoms, announce this prognostic, if you shall judge proper, after making the suitable observations. When, in fevers, any dangerous symptom appears on the fifth day, when watery discharges suddenly take place from the bowels, when deliquium animi occurs, or the patient is attacked with loss of speech, convulsions, or hiccup, under such circumstances he is likely to be affected with nausea, and sweats break out under the nose and forehead, or on the back part of the neck and head, and patients with such symptoms shortly die, from stoppage of the respiration.¹ When, in fevers, abscesses form about the legs, and, getting into a chronic state, are not concocted while the fever persists, and if one is seized with a sense of suffocation in the throat, while the fauces are not swelled, and if it do not come to maturation, but is repressed, in such a case there is apt to be a flow of blood from the nose: if this, then, be copious, it indicates a resolution of the disease, but if not, a prolongation of the complaint; and the less the discharge, so much worse the symptoms, and the more protracted the disease; but if the other symptoms are very favorable, expect in such a case that pains will fall upon the feet; if then they attack the feet, and if these continue long in a very painful and inflamed state, and if there be no resolution, the pains will extend by degrees to the neck, to the clavicle, shoulder, breast, or to some articulation, in which an inflammatory tumour will necessarily form. When these are reduced, if the hands are contracted, and become trembling, convulsion and delirium

¹ This seems the most appropriate meaning in this place, but the passage may also signify "a state of great emphysema or meteorism." See Galen.

seize such a person ; but blisters break out on the eyebrow, erythema takes place, the one eyelid being tumefied overtops the other, a hard inflammation sets in, the eye becomes strongly swelled, and the delirium increases much, but makes its attacks rather at night than by day. These symptoms more frequently occur on odd than on even days, but, whether on the one or the other, they are of a fatal character. Should you determine to give purgative medicines in such cases, at the commencement, you should do so before the fifth day, if there be borborygmi in the bowels, or, if not, you should omit the medicines altogether. If there be borborygmi, with bilious stools, purge moderately with scammony ; but with regard to the treatment otherwise, administer as few drinks and draughts as possible, until there be some amendment, and the disease is past the fourteenth day. When loss of speech seizes a person, on the fourteenth day of a fever, there is not usually a speedy resolution, nor any removal of the disease, for this symptom indicates a protracted disease ; and when it appears on that day, it will be still more prolonged. When, on the fourth day of a fever, the tongue articulates confusedly, and when there are watery and bilious discharges from the bowels, such a patient is apt to fall into a state of delirium ; the physician ought, therefore, to watch him, and attend to whatever symptoms may turn up. In the season of summer and autumn an epistaxis, suddenly occurring in acute diseases, indicates vehemence of the attack, and inflammation in the course of the veins, and on the day following, the discharge of thin urine ; and if the patient be in the prime of life, and if his body be strong from exercise, and brawny, or of a melancholic temperament, or if from drinking he has trembling hands, it may be well to announce beforehand either delirium or convulsion ;¹ and if these symptoms occur on even days, so much the better ; but on critical days, they are of a deadly character. If, then, a copious discharge of blood procure an issue to the fulness thereof about the nose, or what is collected about the anus, there will be an abscess, or pains in the hypochondrium, or testicles, or in the limbs ; and when these are resolved, there will be a discharge

¹ It is impossible not to recognise here a brief sketch of *delirium tremens*. The trembling hands from drinking, with the subsequent delirium, can leave no doubts on the subject. See further Littré, tom. ii, p. 382.

of thick sputa, and of smooth, thin urine. In fever attended with singultus, give assafœtida, oxymel, and carrot, triturated together, in a draught; or galbanum in honey, and cumin in a linctus, or the juice of ptisan. Such a person cannot escape, unless critical sweats and gentle sleep supervene, and thick and acrid urine be passed, or the disease terminate in an abscess: give pine-fruit¹ and myrrh in a linctus, and further give a very little oxymel to drink; but if they are very thirsty, some barley-water.

11. Peripneumonia, and pleuritic affections, are to be thus observed: If the fever be acute, and if there be pains on either side, or in both, and if expiration be attended with pain, if cough be present, and the sputa expectorated be of a blond or livid colour, or likewise thin, frothy, and florid, or having any other character different from the common, in such a case, the physician should proceed thus: if the pain pass upwards to the clavicle, or the breast, or the arm, the inner vein in the arm should be opened on the side affected, and blood abstracted according to the habit, age, and colour of the patient, and the season of the year, and that largely and boldly, if the pain be acute, so as to bring on deliquium animi,² and afterwards a clyster is to be given. But if the pain be below the chest, and if very intense, purge the bowels gently in such an attack of pleurisy, and during the act of purging give nothing; but after the purging give oxymel. The medicine is to be administered on the fourth day; on the first three days after the commencement, a clyster should be given, and if it does not relieve the patient, he should then be gently purged, but he is to be watched until the fever goes off, and till the seventh day; then if he appear to be free from danger, give him some unstrained ptisan, in small quantity, and thin at first, mixing it with honey. If the expectoration be easy, and the breathing free, if his sides be free of pain, and if the fever be gone, he may take the ptisan thicker, and in larger quantity, twice a day. But if he

¹ The fruit of the *pinus pinaster*. See PAULUS ÆGINETA, Vol. III, p. 301.

² It will be remarked, that in this place the author directs that the bleeding should be carried to a greater extent than in the former part of this treatise. In general, the ancient authorities forbade the abstraction of blood until it induced lipothymia. This is decidedly the rule of practice laid down by Aretæus (De Curat. Morb. Acut., ii, 1).

do not progress favorably, he must get less of the drink, and of the draught, which should be thin, and only given once a day, at whatever is judged to be the most favorable hour; this you will ascertain from the urine. The draught is not to be given to persons after fever, until you see that the urine and sputa are concocted, (if, indeed, after the administration of the medicine he be purged frequently, it may be necessary to give it, but it should be given in smaller quantities and thinner than usual, for from inanition he will be unable to sleep, or digest properly, or wait the crisis;) but when the melting down of crude matters has taken place, and his system has cast off what is offensive, there will then be no objection. The sputa are concocted when they resemble pus, and the urine when it has reddish sediments like tares. But there is nothing to prevent fomentations and cerates being applied for the other pains of the sides; and the legs and loins may be rubbed with hot oil, or anointed with fat; linseed, too, in the form of a cataplasm, may be applied to the hypochondrium, and as far up as the breasts. When pneumonia is at its height, the case is beyond remedy if he is not purged, and it is bad if he has dyspnœa, and urine that is thin and acrid, and if sweats come out about the neck and head, for such sweats are bad, as proceeding from the suffocation, *râles*, and the violence of the disease which is obtaining the upper hand, unless there be a copious evacuation of thick urine, and the sputa be concocted; when either of these come on spontaneously, that will carry off the disease. A linctus for pneumonia: Galbanum and pine-fruit in Attic honey; and southernwood in oxymel; make a decoction of pepper and black hellebore, and give it in cases of pleurisy attended with violent pain at the commencement. It is also a good thing to boil opoponax in oxymel, and, having strained it, to give it to drink; it answers well, also, in diseases of the liver, and in severe pains proceeding from the diaphragm, and in all cases in which it is beneficial to determine to the bowels or urinary organs, when given in wine and honey; when given to act upon the bowels, it should be drunk in larger quantity, along with a watery hydromel.

12. A dysentery, when stopped, will give rise to an aposteme, or tumour, if it do not terminate in fevers with sweats,

or with thick and white urine, or in a tertian fever, or the pain fix upon a varix, or the testicle, or on the hip-joints.¹

13. In a bilious fever, jaundice coming on with rigor before the seventh day carries off the fever, but if it occur without the fever, and not at the proper time, it is a fatal symptom.

14. When the loins are in a tetanic state, and the spirits in the veins are obstructed by melancholic humours, venesection will afford relief.² But when, on the other hand, the anterior tendons are strongly contracted, and if there be sweats about the neck and face, extorted by the violent pain of the parched and dried tendons of the sacral extremity (these are very thick, sustaining the spine, and giving rise to very great ligaments, which terminate in the feet), in such a case, unless fever and sleep come on, followed by concocted urine and critical sweats, give to drink a strong Cretan wine, and boiled barley-meal for food; anoint and rub with ointments containing wax; bathe the legs and feet in hot water, and then cover them up; and so in like manner the arms, as far as the hands, and the spine, from the neck to the sacrum, are to be wrapped in a skin smeared with wax; this must extend to the parts beyond, and intervals are to be left for applying fomentations, by means of leather bottles filled with hot water, then, wrapping him up in a linen cloth, lay him down in bed. Do not open the bowels, unless by means of a suppository, when they have been long of being moved. If there be any remission of the disease, so far well, but otherwise, pound of the root of bryonia³ in fragrant wine, and that of the carrot, and give to the patient fasting early in the morning, before using the affusion, and immediately afterwards let him eat boiled barley-meal in a tepid state, and as much as he can take, and in addition let him drink, if he will, wine well diluted. If the disease yield to these means, so much the better, but, if otherwise, you must prognosticate accordingly.

15. All diseases are resolved either by the mouth, the bowels,

¹ Galen, in his Commentary, remarks that this account of dysentery is vague, the species of dysentery here alluded to not being properly defined.

² This case is vague and undefined. I suppose the author alludes to opisthotonos in this sentence, and to emprosthotonos in the succeeding part of this section.

³ *Bryonia dioica*. See Dierbach, &c. p. 131.

the bladder, or some other such organ. Sweat is a common form of resolution in all these cases.¹

16. You should put persons on a course of hellebore who are troubled with a defluxion from the head. But do not administer hellebore to such persons as are labouring under empyema connected with abscesses, hæmoptysis, and intemperament, or any other strong cause, for it will do no good; and if anything unpleasant occur the hellebore will get the blame of it. But if the body have suddenly lost its powers, or if there be pain in the head, or obstruction of the ears and nose, or ptyalism, or heaviness of the limbs, or an extraordinary swelling of the body, you may administer the hellebore, provided these symptoms be not connected with drinking, nor with immoderate venery, nor with sorrow, vexation, nor insomnolency, for, if any of these causes exist, the treatment must have respect to it.

17. From walking arise pains of the sides, of the back, of the loins, and of the hip-joint, and disorder of the respiration has often been from the same cause, for, after excesses of wine and flatulent food, pains shoot to the loins and hips, accompanied with dysuria.² Walking is the cause of such complaints, and also of coryza and hoarseness.

18. Disorders connected with regimen, for the most part, make their attack accordingly as any one has changed his habitual mode of diet.³ For persons who dine contrary to custom experience much swelling of the stomach, drowsiness, and fulness; and if they take supper over and above, their belly is disordered; such a person will be benefited by sleeping after taking the bath, and by walking slowly for a considerable time after sleep; if, then, the bowels be moved, he may dine and drink a small quantity of wine not much diluted; but if the bowels are not opened, he should get his body rubbed with hot oil, and, if thirsty, drink of some weak and white wine, or a sweet wine, and take repose; if he does not sleep he should

¹ Galen, in his Commentary, remarks that the modes of solution in fevers are not completely given in this place; for example, our author omits those by the uterus and the nose.

² The text is in a very unsettled state.

³ The substance of this section occurs in the preceding part of this work, which certainly amounts to a strong presumption that the present treatise is not genuine. Very similar views are also laid down in the treatise On Ancient Medicine.

repose the longer. In other respects he should observe the regimen laid down for those who have taken a debauch. With regard to the bad effects of drinks, such as are of a watery nature pass more slowly through the body, they regurgitate, as it were, and float about the hypochondria, and do not flow readily by urine; when filled up with such a drink, he should not attempt any violent exertion, requiring either strength or swiftness, but should rest as much as possible until the drink has been digested along with the food; but such drinks as are stronger or more austere, occasion palpitation in the body and throbbing in the head, and in this case the person affected will do well to sleep, and take some hot draught for which he feels disposed; for abstinence is bad in headache and the effects of a surfeit. Those who, contrary to usage, restrict themselves to one meal, feel empty and feeble, and pass hot urine in consequence of the emptiness of their vessels; they have a salt and bitter taste in the mouth; they tremble at any work they attempt; their temples throb; and they cannot digest their supper so well as if they had previously taken their dinner. Such persons should take less supper than they are wont, and a pudding of barley-meal more moist than usual instead of bread, and of potherbs the dock, or mallow, and pisan, or beets, and along with the food they should take wine in moderation, and diluted with water; after supper they should take a short walk, until the urine descend and be passed; and they may use boiled fish.

Articles of food have generally such effects as the following:¹ Garlic occasions flatulence and heat about the chest, heaviness of the head, and nausea, and any other habitual pain is apt to be exasperated by it; it is diuretic, which, in so far, is a good property which it possesses: but it is best to eat it when one means to drink to excess, or when intoxicated. Cheese produces flatulence and constipation, and heats the other articles of food; and it gives rise to crudities and indigestion, but it is worst of all to eat it along with drink after a full meal. Pulse of all kinds are flatulent, whether raw, boiled, or fried; least so when macerated in water, or in a green

¹ On the Dietetics of the ancients, see the Commentary on PAULUS ÆGINETA, Vol. I, pp. 106-86.

state; they should not be used except along with food prepared from the cerealia. Each of these articles, however, has had effects peculiar to itself. The vetch, whether raw or boiled, creates flatulence and pain. The lentil is astringent, and disorders the stomach if taken with its hull. The lupine has the fewest bad effects of all these things. The stalk and the juice of silphium (*assafetida*), pass through some people's bowels very readily, but in others, not accustomed to them, they engender what is called dry cholera;¹ this complaint is more especially produced by it if mixed with much cheese, or eaten along with beef. Melancholic diseases are most particularly exacerbated by beef, for it is of an unmanageable nature, and requires no ordinary powers of stomach to digest it; it will agree best with those who use it well boiled and pretty long kept. Goats' flesh has all the bad properties of beef; it is as indigestible, more flatulent, and engenders acid eructations and cholera; such as has a fragrant smell, is firm, and sweet to the taste, is the best, when well baked and cooled; but those kinds which are disagreeable to the taste, have a bad smell, and are hard, such are particularly bad, and especially if very fresh; it is best in summer and worst in autumn. The flesh of young pigs is bad, either when it is too raw or when it is over-roasted, for it engenders bile and disorders the bowels. Of all kinds of flesh, pork is the best; it is best when neither very fat, nor, on the other hand, very lean, and the animal had not attained the age of what is reckoned an old victim; it should be eaten without the skin, and in a coldish state.

19. In dry cholera the belly is distended with wind, there is rumbling in the bowels, pain in the sides and loins, no dejections, but, on the contrary, the bowels are constipated. In such a case you should guard against vomiting, but endeavour to get the bowels opened. As quickly as possible give a clyster of hot water with plenty of oil in it, and having rubbed the patient freely with unguents, put him into hot water, laying him down in the basin, and pouring the hot water upon him by degrees; and if, when heated in the bath, the bowels be

¹ By dry cholera would seem to be meant flatulent colic. See Galen's Commentary. It is also described below, and further with great accuracy by Alexander Trallian (vii, 16).

moved, he will be freed from the complaint. To a person in such a complaint it will do good if he sleep, and drink a thin, old, and strong wine; and you should give him oil, so that he may settle, and have his bowels moved, when he will be relieved. He must abstain from all other kinds of food; but when the pain remits, give him asses' milk to drink until he is purged. But if the bowels are loose, with bilious discharges, tormina, vomitings, a feeling of suffocation, and gnawing pains, it is best to enjoin repose, and to drink hydromel, and avoid vomiting.

20. There are two kinds of dropsy, the one anasarca, which, when formed, is incurable; the other is accompanied with emphysema (tympanites?) and requires much good fortune to enable one to triumph over it.¹ Laborious exertion, fomentation, and abstinence (are to be enjoined). The patient should eat dry and acrid things, for thus will he pass the more water, and his strength be kept up. If he labours under difficulty of breathing, if it is the summer season, and if he is in the prime of life, and is strong, blood should be abstracted from the arm, and then he should eat hot pieces of bread, dipped in dark wine and oil, drink very little, and labour much,

¹ Galen, in his Commentary on this section, finds many things imperfectly stated, and therefore unworthy of his great author. For example, he remarks, only two varieties of dropsy are mentioned, namely, anasarca and tympanites; whereas there are three at least, and some even describe four varieties. By the three kinds of dropsy, Galen and the other ancient authorities meant anasarca, ascites, and tympanitis. (See PAULUS ÆGINETA, Book III, 48.) That tympanites should have been ranked with dropsy need excite no wonder, when we consider the resemblance of this affection to ascites. In fact I have known cases of tympanites in which paracentesis was performed by inexperienced surgeons under the impression that they were cases of ascites. See some elaborate annotations on this head by Ermerins (Specimen Hist. Med., p. 125), and by Littré (Op. Hippocrat., tom. iv, p. 415). With regard to venesection in dropsy, Galen remarks that the rule of practice is not laid down here with sufficient precision; it is only when the dropsy is connected with the suppression of the hemorrhoidal or menstrual discharge, or when the patient is in a plethoric state, that blood can be abstracted with advantage. He also finds fault with the directions for the subsequent treatment, as not being accurately given. He justly remarks, that none but persons in the vigour of life and in good health would be able to digest dark-coloured wine and pork after venesection. I may mention further that the text is faulty, that the words ἐγχειρέων γίνεσθαι ἀφυκτος should have been written ἀποκτείνει δ' ἐνθὺς ὁ ὕδωρος ἐπὶ γένηται. He attributes the mistake to the first amanuensis who wrote the words in question.

and live on well-fed pork, boiled with vinegar, so that he may be able to endure hard exercises.¹

21. Those who have the inferior intestines hot, and who pass acrid and irregular stools of a colliquative nature, if they can bear it, should procure revulsion by vomiting with hellebore; but if not, should get a thick decoction of summer wheat in a cold state, lentil soup, bread cooked with cinders, and fish, which should be taken boiled if they have fever, but roasted if not feverish; and also dark-coloured wine if free of fever; but otherwise they should take the water from medlars, myrtles, apples, services, dates, or wild vine. If there be no fever, and if there be tormina, the patient should drink hot asses' milk in small quantity at first, and gradually increase it, and linseed, and wheaten flour, and having removed the bitter part of Egyptian beans, and ground them, sprinkle on the milk and drink; and let him eat eggs half-roasted, and fine flour, and millet, and perl-spelt (*chondrus*) boiled in milk;—all these things should be eaten cold, and similar articles of food and drink should be administered.

22. The most important point of regimen to observe and be guarded about in protracted diseases, is to pay attention to the exacerbations and remissions of fevers, so as to avoid the times when food should not be given, and to know when it may be administered without danger; this last season is at the greatest possible distance from the exacerbation.

23. One should be able to recognise those who have headache from gymnastic exercises, or running, or walking, or hunting, or any other unseasonable labour, or from immoderate venery; also those who are of a pale colour, or troubled with hoarseness; those who have enlarged spleen, those who are in a state of anæmia, those who are suffering from tympanites, those having dry cough and thirst, those who are flatulent, and have the course of the blood in their veins intercepted; those persons whose hypochondria, sides, and back are distended; those having torpor; those labouring under amaurosis, or having noises in their ears; those suffering from incontinence of urine or jaundice, or whose food is passed undigested; those who have discharges of blood from the nose or anus, or who have flatulence and intense

¹ In reference to this practice Horace says:

“ Si noles sanus curres hydropicus.” (Serm. I., 1.)

pain, and who cannot retain the wind. In these cases you may do mischief, but cannot possibly do any good by purging, but may interrupt the spontaneous remissions and crises of the complaints.¹

24. If you think it expedient to let blood, see that the bowels be previously settled, and then bleed; enjoin abstinence, and forbid the use of wine; and complete the cure by means of a suitable regimen, and wet fomentations.² But if the bowels appear to be constipated, administer a soothing clyster.

25.³ If you think it necessary to give medicines, you may safely purge upwards by hellebore, but none of those should be purged downwards. The most effectual mode of treatment is by the urine, sweats, and exercise; and use gentle friction so as not to harden the constitution; and if he be confined to bed let others rub him. When the pain is seated above the diaphragm, place him erect for the most part, and let him be as little reclined as possible; and when he is raised up let him be rubbed for a considerable time with plenty of hot oil. But if the pains be in the lower belly below the diaphragm, it will be useful to lie reclined and make no motion, and to such a person nothing should be administered except the friction. Those pains which are dissolved by discharges from the bowels, by urine, or moderate sweats, cease spontaneously, if they are slight, but if strong they prove troublesome; for persons so affected either die, or at least do not recover without further mischief, for they terminate in abscesses.

¹ Galen finds many things in this section also carelessly and confusedly written, and therefore unworthy of Hippocrates. For example, the list of cases in which purging is inapplicable, Galen holds to be incomplete; and even in some of the cases specified by Hippocrates he demurs to admit his views to be correct; for example, in diseases of the spleen he contends that melanogogues are strongly indicated. Many more of the rules he considers to be vaguely and inaccurately stated. Altogether, then, he holds that it is a loss of time to devote much attention to writings of such a stamp; but, he shrewdly remarks, there is no persuading many people to study only such writings as are clear, and to leave such as are not so to the writers themselves; for it is just that, as they have paid no regard that we should understand what they have written, we should not be very anxious to find out and learn what they say.

² Galen correctly remarks that this rule is applicable in certain cases, but not in all.

³ As Galen remarks in his Commentary, something appears to be wanting here in order to indicate the disease to which these directions apply. Perhaps, as he suggests afterwards, they are meant to apply to general pains.

26. *A draught for a dropsical person.* Take three cantharides,¹ and removing their head, feet, and wings, triturate their bodies in three cupfuls (cyathi) of water, and when the person who has drunk the draught complains of pain, let him have hot fomentations applied. The patient should be first anointed with oil, should take the draught fasting, and eat hot bread with oil.

27². *A styptic.* Apply the juice of the fig inwardly to the vein; or having moulded biestings into a tent, introduce up the nostril, or push up some chalcitis with the finger, and press the cartilages of the nostrils together; and open the bowels with the boiled milk of asses: or having shaved the head apply cold things to it if in the summer season.

28. The sesamoides³ purges upwards when pounded in oxymel to the amount of a drachm and a half, and drunk; it is combined with the hellebores, to the amount of the third part, and thus it is less apt to produce suffocation.

29. *Trichiasis.* Having introduced a thread into the eye of a needle push it through the upper part of the distended eyelid, and do the same at the base of it; having stretched the threads tie a knot on them, and bind up until they drop out: and, if this be sufficient, so far well; but, if otherwise, you must do the same thing again.⁴ And hemorrhoids, in like

¹ The cantharis of the ancients was indisputably the *Mylabris cichorii*, or *M. Fusselini*. It continued to be used in ancient times as a diuretic, (see PAULUS ÆGINETA, Vol. III, p. 153;) and is well known in the East at the present day.

² All the remaining part of this work evidently consists of fragments put together, without any method or arrangement. Though not devoid of interest, they decidedly have no connexion with the treatise On Regimen in Acute Diseases. Indeed an impartial examination of the whole Appendix must satisfy any one that there are but too good grounds for holding with Galen, that the whole work is a disorderly compilation, which, although it may have been made up of notes written or dictated by Hippocrates, had certainly not been published by him.

³ It most probably is the *Reseda mediterranea*. See PAULUS ÆGINETA, Vol. III, p. 331.

⁴ This description has always been regarded as very obscure. According to Galen it is the operation which was afterwards named *anabrochismus*. See PAULUS ÆGINETA, Vol. III, pp. 262, 269. M. Littré gives the following interesting observations on this passage by M. Malgaigne: "Quoiqu'il semble que l'auteur emploie deux fils, cependant il n'est fait mention que d'une aiguille. Il paraît bien indiqué que l'aiguille traverse deux plis transverseaux en marchant de haut en bas. Voici comment je traduirais le passage en question: pour le trichiasis, avec une aiguille armée

manner, you may treat by transfixing them with a needle and tying them with a very thick and large woollen thread; for thus the cure will be more certain. When you have secured them, use a septic application, and do not foment until they drop off, and always leave one behind; and when the patient recovers, let him be put upon a course of hellebore. Then let him be exercised and sweated; the friction of the gymnasium and wrestling in the morning will be proper; but he must abstain from running, drinking, and all acrid substances, except marjoram; let him take an emetic every seven days, or three times in a month; for thus will he enjoy the best bodily health. Let him take straw-coloured, austere, and watery wine, and use little drink.

30. *For persons affected with empyema.* Having cut some bulbs of squill, boil in water, and when well boiled, throw this away, and having poured in more water, boil until it appear to the touch soft and well-boiled; then triturate finely and mix roasted cumin, and white sesames, and young almonds pounded in honey, form into an electuary and give; and afterwards sweet wine. In draughts, having pounded about a small acetabulum of the white poppy, moisten it with water in which summer wheat has been washed, add honey, and boil. Let him take this frequently during the day. And then taking into account what are to happen, give him supper.

31. *For dysentery.* A fourth part of a pound of cleaned beans, and twelve shoots of madder having been triturated, are to be mixed together and boiled, and given as a linctus with some fatty substance.

32. *For diseases of the eyes.* Washed spodium (tutty?) mixed with grease, and not of a thinner consistence than dough,

d'un fil, traversé de haut en bas le point le plus élevé (ou la base) de la paupière supérieure, après lui avoir fait former un pli, et repasser l'aiguille de la même manière un peu plus bas (ou près du bord libre); rapprochez les extrémités du fil, et fixez-les par un nœud; puis laissez-les tomber d'eux-mêmes. Si cela réussit, c'est bien: si non, il faudra recommencer." (Op. Hippocrat., tom. iii, p. xlv.) In my Commentary on PAULUS ÆGINETA (Vol. II, p. 162), I have in so far fallen into the mistake of supposing this description to apply to the lower eyelid, and M. Ermerins would appear to have done the same. See Littré, l. c. The operation by the ligation on hemorrhoids will be found more circumstantially described in the treatise on that subject, of which a translation is given in this volume.

is to be carefully triturated, and moistened with the juice of unripe raisins; and having dried in the sun, moisten until it is of the consistence of an ointment. When it becomes again dry, let it be finely levigated, anoint the eyes with it, and dust it upon the angles of the eyes.

33. *For watery eyes.* Take one drachm of ebeny and nine oboli of burnt copper, rub them upon a whetstone, add three oboli of saffron; triturate all these things reduced to a fine powder, pour in an Attic hemina of sweet wine, and then place in the sun and cover up; when sufficiently digested, use it.¹

34. *For violent pains of the eyes.* Take of chalcitis,² and of raisin, of each 1 dr., when digested for two days, strain; and pounding myrrh and saffron, and having mixed must, with these things, digest in the sun; and with this anoint the eyes when in a state of severe pain. Let it be kept in a copper vessel.

35. *Mode of distinguishing persons in an hysterical fit.* Pinch them with your fingers, and if they feel, it is hysterical; but if not, it is a convulsion.

36. *To persons in coma, (dropsy?)* give to drink meconium (*euphorbia pepylus?*) to the amount of a round Attic *leciskion* (small acetabulum³).

37. Of squama æris, as much as three specilla can contain, with the gluten of summer wheat: levigate, pound, form into pills, and give; it purges water downwards.

38. *A medicine for opening the bowels.* Pour upon figs the

¹ For the weights and measures mentioned here, and in other parts of our author's works, see the Comment. on the last section of PAULUS ÆGINETA, Syd. Soc. edit.

² A mineral, consisting principally of sulphate of copper. See PAULUS ÆGINETA, Vol. III, pp. 400-2.

³ The *μηκόνιον* was applied to three totally distinct substances: 1st, To a sort of opium, that is to say, the expressed juice of the poppy (see PAULUS ÆGINETA, Vol. III, p. 280); 2d, to the *Euphorbia pepylus*, L. (see Appendix to Dunbar's Greek Lexicon, under the name); and, 3d, to the excrement of newborn children. It is singular that the learned Foës, in his *Œconomia Hippocratica*, should apply it in this place to the last of these; for if Hippocrates had used such a substance medicinally, we may be well assured that it would not have been overlooked by Dioscorides and Galen. There is every reason, however, to suppose that it is the same as the *πέπλος* of Dioscorides and Galen, that is to say, the *Euphorbia pepylus*, which was recommended as a drastic purgative by all the ancient authorities on the *Materia Medica*, and consequently would be a medicine very applicable either in coma or dropsy.

juice of spurge, in the proportion of seven to one : then put into a new vessel and lay past when properly mixed. Give before food.

39. Pounding meconium, pouring on it water, and straining, and mixing flour, and baking into a cake, with the addition of boiled honey, give in affections of the anus and in dropsy; and after eating of it, let the patient drink of a sweet watery wine, and diluted hydromel prepared from wax : or collecting meconium, lay it up for medicinal purposes.¹

¹ All the commentators admit that the last section is obscure. It would appear to me that Galen understands the expression τὸ ἀπὸ τῶν κοπρίων as applying ἐδρικοῖς, that is to say, to affections of the anus. I have followed Littré in giving the passage a very different interpretation, but I am by no means sure that Galen may not be right.

FIRST AND THIRD BOOKS
OF
THE EPIDEMICS.

THE EPIDEMICS.

BOOK I.

THE ARGUMENT.

THE ancient physicians commonly used the term Epidemic in the same sense as it is understood now, that is to say, as applying to any disease which attacks a multitude of persons in a locality at any particular period. This, as will be seen in our annotations below, is nearly the definition which Galen gives of it; and it is generally used by Hippocrates, in the first and third books of the 'Epidemics,' in pretty much the same sense as it is used by our great modern authority on epidemics, Sydenham. But, although this be the strict sense in which the ancient authorities use the term, it must be borne in mind that, as applied to the whole seven books of the 'Epidemics,' it must be taken in a much wider signification; for there are many things treated of in them to which the term epidemic can by no means be thus applied, such as surgical cases, fragments of anatomical descriptions, philosophical speculations, empirical remedies, general reflections on various topics, and so forth. In fact, the work entitled 'The Books of Epidemics' can be viewed in no other light than as an *Adversaria*, or *Memorandum Book*, in which is collected a variety of isolated facts and detached observations, to serve as the materials for more elaborate and finished works on professional subjects. Indeed, Galen does not hesitate to give it as his opinion, that some of the most celebrated of our author's productions, such as the 'Aphorisms' and 'Prognostics,' are in a great measure made up from the materials originally laid up in

this capacious repertory of observations;¹ and, with regard to the former of these works, there is no person familiarly acquainted with it but must admit the truth of Galen's remark. But, respecting the other, although it must be obvious, upon a comparison of them, that there is a close connexion between it and the 'Epidemics,' there can be no doubt that, in composing the 'Prognostics,' Hippocrates availed himself of other materials ready prepared for his use, in the 'Prorrhetics' and 'Coan Prænotions' of his predecessors, the Asclepiadæ;² so that, of all his admired productions, it, perhaps, is the one which has the least pretension to any originality of matter. If it be thought strange that the term epidemics should have been applied to a work composed of such heterogeneous materials, I would remark, in explanation, that, although the subject-matters of which it consists are not all of this nature, the most valuable portion of them refers to epidemics, and it is not to be wondered at that the whole collection should have got its appellation from the most prominent subject to which it relates.

I shall now proceed to give a succinct analysis of the various subjects which are contained in the First and Third Books of the 'Epidemics.'

The first book opens with a description of the leading phenomena of a certain season, which is called the First Constitution; it was southerly, coldish, rainy, clouded and misty, with some intervals of drought. The most noted diseases of spring in this constitution were causus and an epidemical parotitis. But the most important subject which is handled under this head, is an epidemic phthisis, of which a very interesting description is given.

The Second Constitution is described as being northerly and humid; humid ophthalmics, dysenteries, and diarrhœas are described among the prevailing diseases of the season; but the most marked affection which is said to have occurred in this constitution, is a continual fever of a serious character, which did not come to a crisis until after it had run a long course. It is described as passing off by deposits, and principally by

¹ De Diebus Decretoriis, &c. See the Argument of the Prognostics.

dropsies, and an affection of the urinary organs. One cannot help being struck with the remark which Hippocrates makes, that he never knew a case prove fatal in which the strangury supervened. The directions as to the treatment he condenses into one general rule, which well deserves to be engraved in letters of gold, that "*the aim of the physician should be to do good to his patient, or, at least, to do no harm.*" The description of this constitution concludes with some general reflections on the prognostics in *causus* and *phrenitis*.

The Third Constitution is described as being of a very variable character; winter stormy, spring rainy, summer hot, autumn cold and dry. The ardent fevers (*or causi*) began early in the season, but did not assume a fatal character until autumn. This disease came to a crisis in four modes—by an epistaxis, by a copious flow of urine, by a deposit, or by an alvine discharge. In women, there was also sometimes a crisis by menstruation.

The Fourth Constitution is one which, by Galen and the other authorities, has been entitled the pestilential, and has attracted great attention, as being supposed to have derived its peculiar characters from the great Plague which prevailed during the Peloponnesian war, and which is described in so interesting a manner by Thucydides. Galen, not only in his Commentary, but in various other parts of his works, advocates this opinion, and it will be seen from what is stated in our annotations, that there is in reality a striking resemblance between the features of the plague, as delineated by Thucydides, and the epidemical diseases which are noticed by Hippocrates as having prevailed during this constitution. Of all the diseases here described the most remarkable is the erysipelas, which, although not of a very fatal character, was still of a formidable nature, as it frequently terminated in gangrene. *Causus*, *phrenitis*, and anthrax are also described as being common under this constitution. The last of these being a well-known symptom of the Oriental plague, it has naturally excited a good deal of speculation to determine whether or not our author here refers to the glandular plague. See our remarks on Epidem. III.

In these books it is remarkable that *phthisis* is treated of as

a febrile disease, and in particular as supervening upon attacks of the semi-tertian. There seems reason to suppose that our author means to describe a hectic fever succeeding to intermittents, which had caused organic derangement of the internal viscera, more especially of the liver and spleen. See PAULUS ÆGINETA, Book II, 32.

In the first book, fourteen cases of disease are related, and in the beginning of the third twelve, and sixteen in the end; thus making forty-two in all. It is worthy of remark, that in twenty-five of these the result was fatal. There is every reason, then, to suppose that they were selected for a purpose, but what that purpose was cannot now be easily determined. The most natural would no doubt have been to illustrate, by examples, the forms of the different diseases which are described as occurring during the Constitutions previously described. But there seems to be little or no reason to suppose that this is the object for which they are related. In proof of this, I may mention that there is not in the collection a single case of the epidemical crsipelas which is described as having been the prevailing disease during the fourth Constitution. Indeed it must strike everybody, who reads them carefully, as a singular feature in these cases, that the lineaments of a particular disease are seldom to be recognised, and this perhaps may be regarded as a proof of the faithfulness with which they have been copied from nature. In short, we here recognise the features of disease in the concrete, and not in the abstract. And is not this what we should expect in all true copies from Nature? How often does the candid physician find himself forced honestly to admit that he is at a loss what name to give to the combination of morbid actions which he is called upon to treat! The common herd of mankind would seem to fancy, as in Nature there are certain types of all animal and vegetable substances, and the botanist has no difficulty in classing such a plant, for example, as the *conium maculatum*; and the natural historian can readily pronounce that such a bird is the *alcedo Ispida*; that the physician, in like manner, upon examining the characteristic features of any case, should have no difficulty in pronouncing that it is *pleuritis*, for example, or *pneumonia*, or the like. But how often does it happen, that the complaint in question is an aggregate of symptoms, produced by pecu-

liarities of constitution, and incidental circumstances, which, taken together, constitute an *ensemble* which does not well admit of being referred to any one of the general forms of disease described in our nosological systems? Now, I say the most wonderful feature in the cases related by Hippocrates, is that they are descriptive of the symptoms observed in certain diseased individuals, instead of being, what most modern cases are, symptoms drawn to correspond with certain ideal forms of disease. What, in my opinion, likewise adds very much to the value of these cases is, that (as Galen somewhere remarks in his Commentary) the author never aimed to make his Books of Epidemics a work on Therapeutics, and hence, in noting morbid phenomena, his mind is not warped by any particular hypothesis, nor by any selfish interest, in order to place some favorite mode of practice, advocated by himself, in a favorable light. May I be permitted here to remark, that the reader will be much struck with our author's admirable talent for describing the phenomena of disease as they are actually presented to us, if he will compare the cases related by him in these two books with those of almost any modern authority whatever;—for example, with those related by the late Dr. James Hamilton, in his celebrated work on Purgative Medicines? In the latter, you look in vain for the strongly-marked features which present themselves in all the cases related by our author,—for a description of the condition of the hypochondriac region,—of the state of the animal heat in the extremities,—of the minute characters of the alvine and urinary discharges,—of the respiration,—of the patient's position in bed,—and many other symptoms, which are invariably noticed by Hippocrates. And what reasonable person will venture to deny, that the symptoms I have just now mentioned are most important features in every febrile disease, and that no one can be said to have a sufficient view of such a case, who does not take these into account? To confine our attention at present to only one of these symptoms,—can it ever be a matter of indifference what are the physical characters of so important an excretion as the urine? that is to say, whether the grosser particles of it, which usually fall to the bottom, be present in the urine or not? Yet in all the seventeen cases related in the modern work just now referred to, the characters of the urine are not given in a single

instance. And although the object of the writer is to enforce his own peculiar views, as to the utility of purgative medicines in this disease, he scarcely ever gives the minute characters of the alvine discharges, as is uniformly the case with Hippocrates; or if they are noticed at all, it is in so confused a manner that the reader is at a loss to determine whether they are produced by the disease, or by the medicines which have been administered. For the issue of the case no obvious cause is stated, but the reader is expected to draw the conclusion that, as purgatives were freely given, and a considerable proportion of the cases did well,—(agreeably to the hacknied rule, *post quod, ergo propter quod*,)—the purgatives brought about the fortunate result. Had the cases been fully and circumstantially detailed, it might have been found that, as in those related by Hippocrates, the recovery was preceded by a critical discharge of urine, accompanied with a copious sediment; and then the more probable inference would have been, that the amendment was referable to *it*, and not to the purgative medicines which were administered. It is, I regret to say, a notable example of the want of logical training in the education of professional men, in the present age, that inferences regarding a peculiar method of practice were allowed to be founded upon narratives of observations so defective, and one-sided, as those I refer to.

I cannot quit the present subject of discussion, without saying a few words in reference to what must strike the reader as a singular feature in the cases related in the books of the Epidemics; I mean the general omission of any mention of treatment. The reader will find in our annotations various remarks of Galen on this head, from which he will learn that the Great Commentator inclines to the opinion, that in all these cases the usual routine of practice was followed, but that no mention is made of medicines, unless when there was some deviation from the established rules. For example, in a certain febrile case, it is stated that the patient was bled on the eighth day, and Galen contends that venesection is noticed in this instance, merely because it was contrary to the established rule of not bleeding after the fourth day; for that if the practice had been in accordance with the general rule, it would not have been noticed at all. Now it must be admitted, that this

supposition is by no means improbable, and that examples of this usage are not wanting, even in the modern literature of medicine. To give an example, which just occurs to me: in not a few of the cases of cerebral disease related by Dr. Abercrombie, in his work 'On the Brain,' there is no allusion whatever to remedies, although no one, who recollects the vigorous system of treatment then pursued by the profession in "Modern Athens," will doubt for a moment that they must have been applied. As this eminent authority, then, when he believed that the treatment had no perceptible effect on the course which the disease ran, thought himself warranted in omitting all mention of it, it might be supposed, in like manner, that Hippocrates may have passed over the remedies applied, from some such motive or consideration. But another reason for the absence of remedies in these Reports may be readily supposed. May not Hippocrates have been at first quite undecided what was the proper plan of treatment to be adopted in these cases, and thought it the wisest course to attempt nothing rashly, but to be for a season the quiet spectator of the course which the diseases in question were naturally disposed to run, before attempting to interfere in the struggle between morbid agents with which he was imperfectly acquainted, and their great physician, as he held Nature to be? ¹ And however much the advocates for a bold system of treating diseases may be disposed to deride this expectant method, which Aesclepiades contemptuously denominated "the contemplation of death," ² it does not want the sanction of a name which is second only to Hippocrates in the literature of epidemical fevers. Sydenham admits, that with all the diligence which he had applied to the study of these diseases, he was always greatly puzzled what plan of treatment to adopt at the first breaking out of a new epidemic, and that it was only "*ingenti adhibita cautela intentisque animi nervis,*" that he could make up his mind what course of treatment to adopt in such an emergency. Need it be wondered at, then, that two thousand years earlier the modest mind of our great author should have hesitated for a time, before de-

¹ Μηδὲν ἐκῆ, μηδὲν ὑπερορῆν. (Epid. vi, 2, 12.) Νοσήσων φύσεις ἰητροί· ἀνευρίσκει ἢ φύσις αὐτῆ ἑωυτῆ τὰς ἐφόδους· ἀπαίδευτος ἢ φύσις ἑοῦσα καὶ οὐ μεθοῦσα τὰ ἔδοντα ποίει. (Ibid. vi, 5, 1.)

² Galen, De Venesect. adv. Erasist., c. iij.

cluding how to act under similar circumstances? I must own, therefore, that I have long inclined to the opinion, that, distracted with the conflicting plans of treatment adopted by his contemporaries, Hippocrates at first did little or nothing in the treatment of epidemical fevers, and that it was only after a patient study of their symptoms, and many cautious trials, that he ventured to lay down those excellent rules of treatment which he has described so admirably in his work ‘On Regimen in Acute Diseases.’ This, however, is merely my individual opinion, and the reader must receive it as such.

M. Littré, in the Argument prefixed to his translation of the Epidemics, enters very fully into the discussion of the question regarding the nature of the diseases which are treated of in the course of this work. This is a task, however, which I deem it superfluous to undertake at any length, as I have stated my opinions on this subject, in the Commentaries on the Second Book of PAULUS ÆGINETA, and after maturely weighing what has been elicited by subsequent inquirers, I find no cause to retract any of the opinions which are there advanced. That the causus of Hippocrates, and the other ancient authorities, was not the typhus of the more temperate parts of Europe, but a bilious fever, of the remittent type, must be quite apparent to every person at all acquainted with the medical literature of febrile diseases. M. Littré’s researches lead him to exactly the same conclusion, and much deference is due to his judgment in this case, as it must be admitted that a French physician is now very favorably situated for contrasting the diseases of temperate and hot climates, owing to the familiar intercourse which at present subsists between Paris and Algiers. Of all the materials which he has collected from the observations of French physicians in Algeria, the most interesting are those which he draws from a work on Fevers, by M. Maillot. The description which is there given of “la fièvre algide,” is so striking, and is so much calculated to illustrate the nature of the fevers which are treated of in this work of Hippocrates, that I shall not scruple to quote it entire.

“La fièvre algide (dit M. Maillot) n’est pas généralement, comme on le dit, la prolongation indéfinie du stade de froid; je l’ai vue rarement débiter de la sorte. Il y a même entre ces deux états *une* contraste frappante. Dans le premier stade

des fièvres intermittentes, la sensation du froid est hors de toute proportion avec l'abaissement réel de la température de la peau, tandis que, dans la fièvre algide, le froid n'est pas perçu par le malade, alors que la peau est glacée. C'est ordinairement pendant la réaction que commencent les symptômes qui la caractérisent ; souvent ils surviennent tout à coup au milieu d'une réaction qui paraissait franche. Au trouble de la circulation succède en peu d'instant et presque sans transition le ralentissement du pouls, qui devient bientôt très rare, fuit sous le doigt et disparaît ; l'abaissement de la température du corps va vite et suit la progression promptement décroissante de la circulation ; les extrémités, la face, le torse, se refroidissent successivement ; l'abdomen seul conserve encore quelque temps un peu de chaleur ; le contact de la peau donne la sensation de froid que procure le marbre. Les lèvres sont décolorées, l'haleine froide, la voix cassée, les battemens du cœur rares, incomplets, appréciables seulement par l'auscultation ; les facultés intellectuelles sont intactes, et le malade se complaît dans cet état de repos, surtout lorsqu'il succède à une fièvre violente, la physionomie est sans mobilité, l'impassibilité la plus grande est peinte sur son visage ; ses traits sont morts. La marche de cette fièvre est très insidieuse ; il n'est peut-être personne, dont elle n'ait surpris la vigilance ; avant d'être familiarisé avec l'observation des accidens de cette nature, on prend souvent pour une très grande amélioration due aux déplétions sanguines, le calme qui succède aux accidens inflammatoires ; et plus d'une fois, dans de semblables circonstances, on n'a été détrompé que par la mort soudaine du malade. Toutes les fois qu'à une réaction plus ou moins forte, on verra succéder tout à coup un ralentissement du pouls, avec pâleur de la langue et décoloration des lèvres, on ne devra hésiter à diagnostiquer une fièvre algide. La temporisation ici donne la mort, en quelques heures. Dans quelques cas très rares, j'ai cependant vu cet état algide se prolonger trois ou quatre jours. Le malade expire en conservant toutes ses facultés intellectuelles,¹ il s'éteint

¹ One cannot help being struck with the resemblance between this description and a passage in Aretæus's chapter on Causus: *Ψυχῆς κατάστασις, αἰσθησις σύμπτωσις καθαρῆ, διάνοια λεπτή, γνώμη μαντική, κ. τ. λ.* In the yellow fever of the West Indies, which would certainly appear to me to be a variety of the causus, the mind is said to be wonderfully entire to the last. Dr. Fergusson gives a very striking instance of this in describing the case of Sir James Leith, the British Governor of Guadaloupe.

comme par un arrêt de l'innervation. Lorsque la mort n'est pas le terme de cet état morbide si grave, le pouls se relève; la peau reprend sa chaleur naturelle; quelquefois alors la réaction détermine une irritation de l'encéphale ou des voies digestives; mais rarement elle est assez intense pour qu'on soit obligé de la combattre par des déplétions sanguines."¹ I shall add a remark, which M. Littré gives on the same authority: "J'ai tenu à mentionner ici l'impression qu'éprouva M. Maillot au début de sa pratique en Algérie, et qui est si instructive; car, aller subitement de France exercer la médecine dans un pays chaud, ou lire les observations d'Hippocrate, c'est tout un: l'impression est la même, le changement de scène est aussi grand."²

I cannot help remarking in this place, however, that it appears to me singular, that M. Littré should represent the febris algida as being confined to southern climates, and should speak of it as being unknown in Paris; for, at all events, there seems to be no doubt that it prevails in a more northerly region, namely, in Holland. It is thus described by the celebrated Franciscus de le Boe (*or* Sylvius), who was professor of practical medicine at Leyden about the middle of the 17th century: "*Febres algidæ observantur nonnunquam, non tantum frigore præsertim, sed frigore tantum molestæ; adeo ut aliquando et frequentius levis, aliquando et rarius nullus sequatur calor. Tales, etiam semper algidas in Nosocomio academico habuimus ita manifestas, ut non tantum incipiente, atque augescente, sed etiam vigente et declinante, imò cessante paroxysmo, id est, semper tum suo, tum adstantium, tum medicorum sensu moleste ubique frigerent, nunquam tepent, minus calerent ullibi ægri. Suntque hæ algidæ gravioræ, semper forsan quotidianæ.*"³ The febris algida is also named "rigor without heat," by the Greek authorities, and "frigus quod non calefit" by the Arabians, who, like Sylvius, as quoted above, regard it as a variety of the quotidian intermittent. See PAULUS EGINETA, Book II, 26.

M. Littré⁴ quotes the remark of an excellent English

¹ Traité des Fièvres ou Irritations Cérébro-spinales intermittentes, d'après des Observations recueillies en France, en Corse et en Afrique. Paris, 1836.

² Œuvres d'Hippocrate, &c., tom. ii, p. 565.

³ Prax. Med. nova Idea, i, 31.

Tom. ii, p. 565.

authority on fever, J. Johnson,¹ that it is singular the effects of marsh effluvia should have escaped the observation of Hippocrates, more especially as the remittent and intermittent fevers, of which he treats so fully, are mostly derived from this source. Now I must say, that I am not aware of there being any passage in the works of Hippocrates where the effects of marsh effluvia in engendering such fevers are distinctly noticed; but if Hippocrates was ignorant of this fact, in the etiology of fevers, it was well known to Galen, as may be seen on reference to his very interesting work 'On the Difference of Fevers.'² The Arabians also were familiar with the fact. See Avicenna, iv, 1, 2, 1.

In the treatise 'On Airs,' which, although not admitted by us into the list of genuine works, has considerable pretension to be so regarded, the causes of fever are treated of with great precision, and there the pestilential fevers are said to derive their origin from miasma, but whether or not under this term be included marsh effluvia, cannot be determined. But perhaps a better reason might be assigned for there being little or no allusion to malaria in the works of Hippocrates, namely, that after all, this was *not* the cause of the epidemical diseases which he describes. The following extract from a work of very high authority on fever is well deserving of consideration in this place: "A question has arisen as to whether or not the inflammatory states of fever, in warm countries, are caused by malaria, or by the other causes now instanced (excess of heat, &c.) There can be no doubt that malaria very frequently produces in the plethoric, young, and robust, who have recently arrived in a hot climate, fever of an inflammatory and continued kind; but it must also be conceded that this fever chiefly occurs, even in persons thus constituted, during the dry season, and at times and in places where the existence of malaria is doubtful, or, at least, by no means proved. It is notoriously admitted that the inflammatory states of continued fever, in both the East and West Indies, appear among those soldiers, sailors, and civilians, who have not been long in a warm country, and who have not suffered from disease since their arrival; and that they take place chiefly during the dry and warm seasons, and in situations where the usual effects of

¹ On the Influence of Tropical Climates.

² Tom. vii, p. 290; ed. Kühn.

malaria are never observed. This is the result of the experience of Jackson, Annesley, Boyle, Twining, Conwell, and the other experienced practitioners in warm countries. It agrees with my own observations, and is even admitted by Dr. Fergusson, who has gone much further than any one else in assigning malaria as the cause of intertropical fevers."¹ I may mention, moreover, that Hippocrates and his contemporaries were evidently not ignorant of the fact, that the atmosphere in the vicinity of marshes and large rivers is unwholesome to the inhabitants of warm climates. See *De Diæta*, ii, 2.

The following are part of the conclusions which M. Littré draws from his investigations into the nature of the fevers described by Hippocrates. I quote them as being strongly confirmatory of the opinions delivered by me in the Commentary on the Second Book of PAULUS ÆGINETA.

“Les fièvres décrites dans les *Epidémies* d’Hippocrate différent de nos fièvres continués.

“Les fièvres décrites dans les *Epidémies* ont, dans leur apparence générale, une similitude très grande avec celles des pays chauds.

“La similitude n’est pas moins grande dans les détails que dans l’ensemble.

“Dans les unes comme dans les autres les hypochondres sont pour un tiers des cas, le siège d’une manifestation toute spéciale.

“Dans les unes comme dans les autres, il y a une forte tendance ou refroidissement du corps, à la sueur froide et à la lividité des extrémités.”

On almost all the other diseases treated of in these books, M. Littré’s opinions, in like manner, exactly coincide with those delivered by me in the above-mentioned work. Thus he arrives at the conclusion, that the Phrenitis and Lethargus of Hippocrates were varieties of the Causus. Compare PAULUS ÆGINETA, Book III, 6, 9. He refers them to *les fièvres pernicieuses comateuses pseudo-continués*, et *les fièvres pernicieuses dolorantes pseudo-continués* of M. Maillot. It would appear from the extracts which he quotes from a work of M. Roux, on the Diseases of Morea, that a similar tendency to pass into phrenitis and lethargy is still observable in the land of Greece. The fevers of the

¹ Copland’s Dictionary of Practical Medicine, P. iv, p. 974.

East Indies also, as described by Dr. Twining,¹ appear to partake very much of the same character. In a word, the conclusions to which a patient study of modern authorities on the subject have brought me amount to this; that the fevers described by Hippocrates in his 'Epidemics,' are exactly the same as those which are now described as still prevailing in the land of Greece: that they correspond very well with those described by Cleghorn as occurring in Majorca; differ but little from those described by Pringle, Monro, and Sylvius, as happening in the Low Countries, and differ from those described by Twining, as happening in Bengal, only in a few particulars.

From the analysis of their contents given above it will readily be understood that the subject-matters of these two books are not arranged methodically. Indeed it is quite obvious from the nature of the work that the matters which are treated of in it had never been methodised by the author. Certainly then, as proposed by Desmair,² it would be a much more natural arrangement to give the four Constitutions of the seasons first, and then to give the forty-two cases together. But the present arrangement being of old standing, no editor has thought himself warranted to depart from it.

There are two important professional subjects of which it may appear surprising that there is no mention in the 'Books of the Epidemics,' I mean sphygmology and contagion. Galen repeatedly declares it as his opinion, that Hippocrates paid no attention to the characters of the arterial pulse, and that the subject was not at all studied until after his time; and as far as I can see there is no ground for calling in question this opinion of Galen. Herophilus, in fact, would appear to have been the first person that made any progress in this study. It is more remarkable that Hippocrates should omit all allusion to the other subject, more especially as the contagiousness of certain diseases would appear to have been the popular belief of his age. Thus his contemporary, Thucydides, in describing the plague, expresses himself in such terms, as puts it beyond a doubt that he regarded the disease as being of a contagious nature. And another contemporary, Isocrates, makes such

¹ Clinical Observations on the more important Diseases of Bengal. Calcutta, 1835.

² Epidém. d'Hippocrate.

observations on a certain case of empyema, by which he evidently means phthisis pulmonalis, as to show that it also was regarded as being communicable.¹ How the omission is to be accounted for I do not know, but certain it is that not the least reference to contagion, in any shape, is to be found in any of the Hippocratic treatises.

BOOK I—OF THE EPIDEMICS.

SECT. I.—CONSTITUTION FIRST.

I. IN Thasus,² about the autumnal equinox, and under the Pleiades,³ the rains were abundant, constant, and soft, with southerly winds; the winter southerly, the northerly winds faint, droughts; on the whole, the winter having the character of spring. The spring was southerly, cool, rains small in quantity. Summer, for the most part, cloudy, no rain, the Etesian winds, rare and small, blew in an irregular manner. The whole constitution of the season being thus inclined to the southerly, and with droughts early in the spring, from the preceding opposite and northerly state, ardent fevers occurred in a few instances, and these very mild, being rarely attended with hemorrhage, and never proving fatal.⁴ Swellings appeared about the ears, in many on either side, and in the greatest number on both sides, being unaccompanied by fever so as not to confine the patient to bed; in all cases they

¹ See *Ægineta*. The narrative contains the most distinct and unequivocal traces of the belief in the contagiousness of consumption.

² Thasus is an island in the Ægean sea, off the coast of Thrace, which bears the modern name of Thaso or Tasso. It was in a flourishing condition in the time of Hippocrates, and a tributary to Athens, but revolted from that power after its disasters in Sicily during the Peloponnesian war. See Herodot., vi, 47; Thucyd., i, 101; viii, 66. Galen states that it is cold, with a northerly exposure.

³ According to Galen, in his Commentary on this passage, the setting of the Pleiades takes place fifty days after the autumnal equinox. See the Argument to the treatise On Airs, &c.

⁴ We have already stated that the ardent fevers *or* *causi*, of which repeated mention is made in the Hippocratic treatises, were fevers of the remittent type, in short that they were the same as the bilious remittent fevers of Pringle and Monro.

disappeared without giving trouble, neither did any of them come to suppuration, as is common in swellings from other causes. They were of a lax, large, diffused character, without inflammation or pain, and they went away without any critical sign. They seized children, adults, and mostly those who were engaged in the exercises of the palestra and gymnasium, but seldom attacked women. Many had dry coughs without expectoration, and accompanied with hoarseness of voice. In some instances earlier, and in others later, inflammations with pain seized sometimes one of the testicles, and sometimes both;¹ some of these cases were accompanied with fever and some not; the greater part of these were attended with much suffering. In other respects they were free of disease, so as not to require medical assistance.²

2. Early in the beginning of spring, and through the summer, and towards winter, many of those who had been long gradually declining, took to bed with symptoms of phthisis; in many cases formerly of a doubtful character the disease then became confirmed; in these the constitution inclined to the phthisical.³ Many, and, in fact, the most of them, died; and of those confined to bed, I do not know if a single individual survived for any considerable time; they died more suddenly

¹ I need scarcely say that the disease here described is *cynanche parotidea*, or *parotitis*. It is a remarkable proof of our author's talent for observation, that he has pointed out the tendency of the disease to be complicated with swelling and inflammation of the testicles. Altogether the description of the disease here given is quite applicable to the *mumps* of modern times. As stated by him, the swelling of the testicles is generally painful. See the Commentary of Galen.

² On reference to Galen's Commentary it will be seen that anciently the reading of this passage was reckoned equivocal. According to one of the readings, the meaning is that those who were sick did not require to come to the latrarium for advice. See also Littré's annotations on this passage.

³ Galen thinks our author expresses himself confusedly in this place, but Littré justly defends him from this charge. According to Littré, Hippocrates means that those who had been long affected with consumption (the term used, *ὑποφθειρομένων*, rather signifies had obscure symptoms of consumption), then betook themselves to bed; but those who were in a doubtful state, then first manifested signs of confirmed phthisis; and, finally, that there were some who then for the first time felt the attack of phthisis, and that these were persons who were predisposed to it. According to Galen, the phthisical constitution is marked by a narrow and shallow chest, with the scapula protuberant behind like wings; and hence he says chests of this construction have been named *alar*. He further states that there are two forms of consumption, the one originating in a defluxion from the head, and the other being

than is common in such cases. But other diseases, of a protracted character, and attended with fever, were well supported, and did not prove fatal: of these we will give a description afterwards. Consumption was the most considerable of the diseases which then prevailed, and the only one which proved fatal to many persons. Most of them were affected by these diseases in the following manner: fevers accompanied with rigors, of the continual type, acute, having no complete intermissions, but of the form of the semi-tertians, being milder the one day, and the next having an exacerbation, and increasing in violence; constant sweats, but not diffused over the whole body; extremities very cold, and warmed with difficulty; bowels disordered, with bilious, scanty, unmixed, thin, pungent, and frequent dejections. The urine was thin, colourless, unconcocted, or thick with a deficient sediment, not settling favorably, but casting down a crude and unseasonable sediment. Sputa small, dense, concocted, but brought up rarely and with difficulty; and in those who encountered the most violent symptoms there was no concoction at all, but they continued throughout spitting crude matters. Their fauces, in most of them, were painful from first to last, having redness with inflammation; defluxions thin, small, and acrid; they were soon wasted and became worse, having no appetite for any kind of food throughout; no thirst; most persons delirious when near death. So much concerning the phthisical affections.¹

3. In the course of the summer and autumn many fevers of connected with the rupture of a vessel in the lungs. I may be allowed to mention in this place, in confirmation of our author's accuracy of observation with regard to the connexion of hemoptysis with phthisis, that Louis found hemoptysis to a greater or less extent in two thirds of his cases. (Researches on Phthisis, p. 166, Sydenham Society edition.) The same author relates several cases in which death occurred suddenly and unexpectedly, as Hippocrates states to have happened to some of his patients. (Ibid.)

¹ I am of opinion that the species of phthisis noticed in the latter part of this section was the acute form of phthisis described by Louis (p. 351). Our author, it will be remarked, states that his patients were mostly delirious when near death. Louis, in like manner, mentions delirium in, I believe, every one of the cases of acute phthisis which he relates. Galen justly remarks, that, in the ordinary forms of phthisis, delirium is not a common symptom. I would also call attention to our author's observation regarding the inflamed state of the fauces, which is also amply confirmed by the observation of Louis in this form of phthisis.

the continual type, but not violent;¹ they attacked persons who had been long indisposed, but who were otherwise not in an uncomfortable state. In most cases the bowels were disordered in a very moderate degree, and they did not suffer thereby in any manner worth mentioning; the urine was generally well coloured, clear, thin, and after a time becoming concocted near the crisis. They had not much cough, nor was it troublesome; they were not deficient in appetite, for it was necessary to give them food, (on the whole, persons labouring under phthisis were not affected in the usual manner.)² They were affected with fevers, rigors, and deficient sweats, with varied and irregular paroxysms, in general not intermitting, but having exacerbations in the tertian form. The earliest crisis which occurred was about the twentieth day, in most about the fortieth, and in many about the eightieth. But there were cases in which it did not leave them thus at all, but in an irregular manner, and without any crisis; in most of these the fevers, after a brief interval, relapsed again; and from these relapses they came to a crisis in the same periods; but in many they were prolonged so that the disease was not gone at the approach of winter. Of all those which are described under this constitution, the phthical diseases alone were of a fatal character; for in all the others the patients bore up well, and did not die of the other fevers.³

¹ The nature of the continual fevers of the ancients is fully explained in the Commentary on the twenty-seventh section of the Second Book of PAULUS ÆGINETA. Galen, in his Commentary on this passage, marks their nature very distinctly in few words. He says that such fevers as have an exacerbation of fever ending in complete apyrexia are called intermittents, whereas such as do not end in a complete remission of the fever are called continual. See further *De Diff. Febr.*, ii, 2. In a word, the continual fevers were decidedly of the remittent type. See further Donald Monro's work on *Army Diseases*, in the beginning of the chapter on the Bilious Remittent Fever.

² The introduction of phthisis in this place has created some difficulty in the interpretation, as may be seen on reference to Galen and Littré. Galen gives a very interesting account of the way in which interpolations often took place. (*Opera*, tom. v, p. 356.)

³ The text of this last sentence is in an unsettled state. The following would be a translation of it as it stands in the Basle edition of Galen's Works: "Of all the cases described under this constitution, those alone which were of a phthical character proved fatal. But they (the phthical affections?) did not supervene upon the other fevers." Provided this be the true meaning of the passage, it would merit great attention, as seeming to contain a declaration that intermittent fevers superinduced an immunity to phthisis. I need not say that this supposed fact has been exciting a great deal of interest lately in the profession, more especially in France.

SECT. II.—CONSTITUTION SECOND.

1. In Thasus, early in autumn, the winter suddenly set in rainy before the usual time, with much northerly and southerly winds. These things all continued so during the season of the Pleiades, and until their setting.¹ The winter was northerly, the rains frequent, in torrents, and large, with snow, but with a frequent mixture of fair weather. These things were all so, but the setting in of the cold was not much out of season. After the winter solstice, and at the time when the zephyr usually begins to blow, severe winterly storms, out of season, with much northerly wind, snow, continued and copious rains; the sky tempestuous and clouded; these things were protracted, and did not remit until the equinox. The spring was cold, northerly, rainy, and clouded; the summer was not very sultry, the Etesian winds blew constant, but quickly afterwards, about the rising of Arcturus, there were again many rains with north winds. The whole season being wet, cold, and northerly, people were, for the most part, healthy during winter; but early in the spring very many, indeed, the greater part, were valetudinary. At first ophthalmies set in, with rheums, pains, unconcocted discharges, small concretions, generally breaking with difficulty, in most instances they relapsed, and they did not cease until late in autumn.² During summer and autumn there were dysenteric affections, attacks of tenesmus and lientery, bilious diarrhœa, with thin, copious, undigested, and acrid dejections, and sometimes with watery stools; many had copious defluxions, with pain, of a bilious, watery, slimy, purulent

¹ It is to be borne in mind that the autumn began with the rising of Arcturus, and ended with the setting of the Pleiades. The setting of the Pleiades then indicated the commencement of winter. The classical reader will find the different seasons, strikingly defined by the rising and setting of the stars, in Virgil's *Georgics*. See in particular *Georg.* i, 221.

² Galen thus explains the origin of the ophthalmies. He says, the constitution of the air being not only cold and humid, but attended also with hurricanes, the eyes were thus injured, and consequently were the first part of the body to show symptoms of disease. The dysenteric and other alvine complaints which followed, he ascribes to the constriction of the skin induced by the cold, and to the humours of the system aggravated and increased by the humid state of the season. These humours being thus shut up by the occlusion of the pores of the skin, part of them were determined to the intestines, occasioning diarrhœa, tenesmus, dysentery, &c.; some to the bladder, inducing strangury; and some to the mouth of the stomach, occasioning vomiting.

nature, attended with strangury, not connected with disease of the kidneys, but one complaint succeeding the other; vomitings of bile, phlegm, and undigested food, sweats, in all cases a redundance of humours. In many instances these complaints were unattended with fever, and did not prevent the patients from walking about, but some cases were febrile, as will be described. In some all those described below occurred with pain. During autumn, and at the commencement of winter, there were phthisical complaints, continual fevers; and, in a few cases, ardent; some diurnal, others nocturnal, semi-tertians, true tertians, quartans, irregular fevers. All the fevers which are described attacked great numbers. The ardent fevers attacked the smallest numbers, and the patients suffered the least from them, for there were no hemorrhages, except a few and to a small amount, nor was there delirium; all the other complaints were slight; in these the crises were regular, in most instances, with the intermittents, in seventeen days; and I know no instance of a person dying of *causus*, nor becoming phrenitic.¹ The tertians were more numerous than the ardent fevers, and attended with more pain;² but these all had four periods in regular succession from the first attack, and they had a complete crisis in seven, without a relapse in any instance. The quartans attacked many at first, in the form of regular quartans, but in no few cases a transition from other fevers and diseases into quartans took place; they were protracted, as is wont with them, indeed, more so than usual. Quotidian, nocturnal, and wandering fevers attacked many persons, some of whom continued to keep up, and others were confined to bed. In most instances these fevers were prolonged under the Pleiades and till winter. Many persons, and more especially children, had convulsions from the commencement;³

¹ Galen states in his Commentary that the phrenitis is connected with inflammation of the parts about the brain. We have mentioned before that the phrenitis of the ancients was a febrile affection, and not idiopathic inflammation of the brain, as is generally supposed.

² According to Galen, the *causi* or ardent fevers are occasioned by yellow bile collected about the vessels of the liver and stomach, and the tertians by the same diffused over the whole body.

³ Galen states in his Commentary that children are peculiarly subject to convulsions owing to the weakness of their nervous system. He adds, that in their case convulsions are not attended with so much danger as in other cases. See the Hippocratic treatise *On Dentition*.

and they had fever, and the convulsions supervened upon the fevers; in most cases they were protracted, but free from danger, unless in those who were in a deadly state from other complaints. Those fevers which were continual in the main, and with no intermissions, but having exacerbations in the tertian form,¹ there being remissions the one day and exacerbations the next, were the most violent of all those which occurred at that time, and the most protracted, and occurring with the greatest pains, beginning mildly, always on the whole increasing, and being exacerbated, and always turning worse, having small remissions, and after an abatement having more violent paroxysms, and growing worse, for the most part, on the critical days. Rigors, in all cases, took place in an irregular and uncertain manner, very rare and weak in them, but greater in all other fevers; frequent sweats, but most seldom in them, bringing no alleviation, but, on the contrary, doing mischief. Much cold of the extremities in them, and these were warmed with difficulty. Insomnolency, for the most part, especially in these fevers, and again a disposition to coma. The bowels, in all diseases, were disordered, and in a bad state, but worst of all in these. The urine, in most of them, was either thin and crude, yellow, and after a time with slight symptoms of concoction in a critical form, or having the proper thickness, but muddy, and neither settling nor subsiding; or having small and bad, and crude sediments; these being the worst of all. Coughs attended these fevers, but I cannot state that any harm or good ever resulted from the cough. The most of these were protracted and troublesome, went on in a very disorderly and irregular form, and, for the most part, did not end in a crisis, either in the fatal cases or in the others; for if it left some of them for a season it soon returned again. In a few instances the fever terminated with a crisis; in the earliest of these about the eightieth day, and some of these relapsed, so that most of them were not free

¹ The fever here described is evidently the semitertian. See PAULUS ÆGINETA, Book II, 34. "The true semitertian," says M. Bartels, as quoted by M. Littré, "is a real complication of an intermittent fever with another fever of a continual type. It does not show itself but rarely in our countries; but it is more frequent in the hotter countries of Europe, although the false semitertian has oftener than once been confounded with the true. In the true, the intermittent fever is tertian; the non-intermittent is quotidian." See also Galen, Opera, tom. v, p. 362; ed. Basil.

from the fever during the winter; but the fever left most of them without a crisis, and these things happened alike to those who recovered and to those who did not. There being much want of crisis and much variety as to these diseases, the greatest and worst symptom attended the most of them, namely, a loathing of all articles of food, more especially with those who had otherwise fatal symptoms; but they were not unseasonably thirsty in such fevers. After a length of time, with much suffering and great wasting, abscesses were formed in these cases, either unusually large, so that the patients could not support them, or unusually small, so that they did no good, but soon relapsed and speedily got worse. The diseases which attacked them were in the form of dysenteries, tenesmus, lientery, and fluxes; but, in some cases, there were dropsics, with or without these complaints. Whatever attacked them violently speedily cut them off, or again, did them no good. Small rashes, and not corresponding to the violence of the disease, and quickly disappearing, or swellings occurred about the ears, which were not resolved, and brought on no crisis.¹ In some they were determined to the joints, and especially to the hip-joint, terminating critically with a few, and quickly again increasing to its original habit. Persons died of all these diseases, but mostly of these fevers, and especially infants just weaned, and older children, until eight or ten years of age, and those before puberty. These things occurred to those affected with the complaints described above, and to many persons at first without them. The only favorable symptom, and the greatest of those which occurred, and what saved most of those who were in the greatest dangers, was the conversion of it to a strangury, and when, in addition to this, abscesses were formed.² The strangury attacked, most especially, persons of the ages I have mentioned, but it also occurred

¹ The text here is in an unsatisfactory state, and, as usual in such cases, no ingenuity nor pains can do much to mend it. See Foës and Littré. I have translated the disputed words "not resolved," which seems to me to agree best with the sense. Every practical physician knows that swellings of the glands, which continue long and do not suppurate, are unfavorable in fevers.

² The modern physician will not fail to be struck with this observation as to the termination of certain cases of fever in determination to the kidneys. Galen remarks in his Commentary on this passage, that as the general system is often purged by the bowels, so is it also sometimes by the kidneys and bladder. This, he adds, is a pro-

in many others, both of those who were not confined to bed and those who were. There was a speedy and great change in all these cases. For the bowels, if they happened previously to have watery discharges of a bad character, became regular, they got an appetite for food, and the fevers were mild afterwards. But, with regard to the strangury itself, the symptoms were protracted and painful. Their urine was copious, thick, of various characters, red, mixed with pus, and was passed with pain. These all recovered, and I did not see a single instance of death among them.

5.¹ With regard to the dangers of these cases, one must always attend to the seasonable concoction of all the evacuations, and to the favorable and critical abscesses. The concoctions indicate a speedy crisis and recovery of health; crude and undigested evacuations, and those which are converted into bad abscesses, indicate either want of crisis, or pains, or prolongation of the disease, or death, or relapses; which of these it is to be must be determined from other circumstances. *The physician must be able to tell the antecedents, know the present, and foretell the future—must meditate these things, and have two special objects in view with regard to diseases, namely, to do good or to do no harm. The art consists in three things—the disease, the patient, and the physician. The physician is the servant of the art, and the patient must combat the disease along with the physician.*²

tracted and painful mode of resolution in fevers. The reader will remark the characters of the urine as stated below by our author. One cannot help being struck with his statement, that all these cases recovered. I am not aware of any modern observations bearing on this point.

¹ There is considerable difficulty here in determining the reading. See Littré, whom I have followed.

² I need scarcely remark that this passage is of classical celebrity. Galen, in his Commentary, remarks that the first time he read it he thought it unworthy of Hippocrates to lay it down as a rule of practice, that “the physician should do good to his patient, or at least no harm;” but that, after having seen a good deal of the practice of other physicians, and observed how often they were justly exposed to censure for having bled, or applied the bath, or given medicines, or wine unseasonably, he came to recognise the propriety and importance of the rule laid down by Hippocrates. The practice of certain physicians, Galen remarks, is like playing at the dice, when what turns up may occasion the greatest mischief to their patients. The last clause of this passage is very forcibly put. Galen, however, informs us that in some of the MSS. instead of “art” he found “nature;” that is to say, that the physician is “the minister (or servant) of nature.” Either of the readings, he remarks, will agree very well with the meaning of the passage.

6. Pains about the head and neck, and heaviness of the same along with pain, occur either without fevers or in fevers. Convulsions occurring in persons attacked with frenzy, and having vomitings of verdigris-green bile, in some cases quickly prove fatal. In ardent fevers, and in those other fevers in which there is pain of the neck, heaviness of the temples, mistiness about the eyes, and distension about the hypochondriac region, not unattended with pain, hemorrhage from the nose takes place,¹ but those who have heaviness of the whole head, cardi-algia and nausea, vomit bilious and pituitous matters; children, in such affections, are generally attacked with convulsions, and women have these and also pains of the uterus; whereas, in elder persons, and those in whom the heat is already more subdued, these cases end in paralysis, mania, and loss of sight.

THIRD CONSTITUTION.

7. In Thasus, a little before and during the season of Arcturus,² there were frequent and great rains, with northerly winds. About the equinox, and till the setting of the Pleiades, there were a few southerly rains: the winter northerly and parched, cold, with great winds and snow. Great storms about the equinox, the spring northerly, dryness, rains few and cold. About the summer solstice, scanty rains, and great cold until near the season of the Dog-star.³ After the Dog-days, until the season of Arcturus, the summer hot, great droughts, not in intervals, but continued and severe: no rain; the Etesian winds blew; about the season of Arcturus southerly rains until the equinox.

¹ The reader will find it interesting to refer here to the Prognostics. See also the Commentary of Galen. Let me here impress upon the reader the necessity of making frequent comparisons of the Prognostics with this work, if he would wish rightly to apprehend the bearing and meaning of the latter. That the Epidemics are entirely founded upon the principles of prognosis there can be no doubt.

² It is to be recollected that the rising of Arcturus marked the beginning of autumn, and the setting of the Pleiades the end of it. See above.

³ The season of the Dog-star was immediately after the summer solstice, namely, when the sun enters the constellation Leo. The classical reader will readily bring to his recollection the lines of Horace, which are descriptive of this season:

“Jan Procyon furit,
Et stella vesani Leonis,
Sole dies referente siccos.”

8. In this state of things, during winter, paraplegia set in, and attacked many, and some died speedily ; and otherwise the disease prevailed much in an epidemical form, but persons remained free from all other diseases.¹ Early in the spring, ardent fevers commenced and continued through the summer until the equinox. Those then that were attacked immediately after the commencement of the spring and summer, for the most part recovered, and but few of them died. But when the autumn and the rains had set in, they were of a fatal character, and the greater part then died.² When in these attacks of ardent fevers there was a proper and copious hemorrhage from the nose, they were generally saved by it, and I do not know a single person who had a proper hemorrhage who died in this constitution. Philiscus, Epaminon, and Silenus, indeed, who had a trifling epistaxis on the fourth and fifth day, died.³ The most of those seized with the disease had a rigor about the time of the crisis, and especially those who had no hemorrhage ; these had also the rigor associated. Some were attacked with jaundice on the sixth day,⁴ but these were benefited either by an urinary purgation, or a disorder of the bowels, or a copious hemorrhage, as in the case of Heraclides, who was lodged with Aristocydes : this person, though he had the hemorrhage from the nose, the purgation by the bladder, and disorder of the

¹ Galen, in his Commentary, remarks that the attacks of paraplegia (that is to say, of apoplexy) were brought on by the cold winds of the winter succeeding to a humid autumn.

² The *causi* or ardent fevers, it is worthy of remark, began this season in spring, but were not of a fatal character until autumn. In modern times the bilious remittent fever has uniformly been found to be most aggravated in autumn, and hence it has been named by some authorities the autumnal remittent fever. See the works of Sydenham, Pringle, Monro, and Cleghorn. Monro mentions that he seldom saw it in spring, but that it is common in the neighbourhood of London towards the end of summer and beginning of autumn. All these authorities are agreed that it is of a highly bilious nature.

³ Monro mentions epistaxis as occurring in the autumnal remittent fever ; he says it did not prove a crisis in any case.

⁴ The complication of the autumnal remittent fever with jaundice is noticed by Sir John Pringle (Obs. iii, 4), and by Monro (On Army Diseases, p. 161). Galen, in his Commentary, remarks that when nature is unable to evacuate the bile, it is collected in the skin, and occasions jaundice. He adds, that the occurrence of the jaundice in this case was unfavorable, owing to its taking place before the seventh day. When occurring on the seventh day, jaundice was reckoned a favorable symptom. See On Crises, 3 ; Aphorism, iv, 62, 64.

bowels, experienced a favorable crisis on the twentieth day, not like the servant of Phanagoras, who had none of these symptoms, and died. The hemorrhages attacked most persons, but especially young persons and those in the prime of life, and the greater part of those who had not the hemorrhage died :¹ elderly persons had jaundice or disorders of the bowels, such as Bion, who was lodged with Silenus. Dysenteries were epidemical during the summer, and some of those cases in which the hemorrhage occurred, terminated in dysentery, as happened to the slave of Eraton, and to Mullus, who had a copious hemorrhage, which settled down into dysentery, and they recovered. This humour was redundant in many cases, since in those who had not the hemorrhage about the crisis, but the risings about the ears disappeared, after their disappearance there was a sense of weight in the left flank extending to the extremity of the hip, and pain setting in after the crisis, with a discharge of thin urine; they began to have small hemorrhages about the twenty-fourth day, and the swelling was converted into the hemorrhage. In the case of Antiphon, the son of Critobulus, the fever ceased and came to a crisis about the fortieth day. Many women were attacked, but fewer than of the men, and there were fewer deaths among them. But most of them had difficult parturition, and after labour they were taken ill, and these most especially died, as, for example, the daughter of Telebolus died on the sixth day after delivery.² Most females had the menstrual discharge during the fever, and many girls had it then for the first time : in certain individuals, both the hemorrhage from the nose and the menses appeared; thus, in the case of the virgin daughter of Dætharses, the menses then took place for the first time, and she had also a copious hemorrhage from the nose, and I knew no instance of any one dying when one or other of these took place properly. But all those in the pregnant state that were attacked had abortions, as far as I

¹ The reader may feel interested to learn Galen's hypothesis by which he accounts for the hemorrhage in this case. He says it is produced by the redundancy of yellow bile, which, being mixed up with the blood and heating it, is carried up to the head, where it produces rupture of the vessels and hemorrhage.

² Modern observations have confirmed this account of the generally fatal issue of febrile diseases after parturition. In the Hippocratic work *On Diseases*, fever after delivery in a woman is reckoned among the cases which generally prove fatal.

observed. The urine in most cases was of the proper colour, but thin, and having scanty sediments:¹ in most the bowels were disordered with thin and bilious dejections; and many, after passing through the other crises, terminated in dysenteries, as happened to Xenophanes and Critias. The urine was watery, copious, clear, and thin; and even after the crisis, when the sediment was natural, and all the other critical symptoms were favorable, as I recollect having happened to Bion, who was lodged in the house of Silenus, and Critias, who lived with Xenophanes, the slave of Areton, and the wife of Mnesistratus. But afterwards all these were attacked with dysentery. It would be worth while to inquire whether the watery urine was the cause of this.² About the season of Arcturus many had the crisis on the eleventh day, and in them the regular relapses did not take place, but they became comatose about this time, especially children; but there were fewest deaths of all among them.

9. About the equinox, and until the season of the Pleiades, and at the approach of winter, many ardent fevers set in; but great numbers at that season were seized with phrenitis, and many died;³ a few cases also occurred during the summer. These then made their attack at the commencement of ardent fevers, which were attended with fatal symptoms; for immediately upon their setting in, there were acute fever and small rigors, insomnolency, aberration, thirst, nausea, insignificant sweats about the forehead and clavicles, but no general per-

¹ I would again request the attention of my contemporaries to the characters of the urine before a crisis, as given by Hippocrates; and, in confirmation of them, I will venture to introduce here an extract from Donald Monro's admirable account of the autumnal remittent fever: "The urine in the beginning was commonly of a high colour, though sometimes it was pale and limpid; but when the fever came to remit, there was often a small sediment after each paroxysm; and as the fever was going off, it *let fall a sediment in all.*" (Army Diseases, &c., p. 159.) The absence of the sediment in the urine before the crisis is an important fact in the history of febrile diseases, which I have reason to think is not now sufficiently adverted to.

² Galen does not hesitate to give it as his opinion that the dysentery was owing to the bile not being properly purged off by the urine.

³ The reader will find it interesting here to mark the alliance between the *causus* and phrenitis, to which we formerly adverted. Galen remarks that both arise from the same humour, that is to say, bile, which when it collects in the veins of the lower part of the body gives rise to *causus*; but from the beginning of autumn to the equinox, produces phrenitis by being determined to the brain.

spiration; they had much delirious talking, fears, despondency, great coldness of the extremities, in the feet, but more especially in their hands: the paroxysms were on the even days; and in most cases, on the fourth day, the most violent pains set in, with sweats, generally coldish, and the extremities could not be warmed, but were livid and rather cold, and they had then no thirst; in them the urine was black, scanty, thin, and the bowels were constipated; there was an hemorrhage from the nose in no case in which these symptoms occurred, but merely a trifling epistaxis; and none of them had a relapse, but they died on the sixth day with sweats.¹ In the phrenitic cases, all the symptoms which have been described did not occur, but in them the disease mostly came to a crisis on the eleventh day, and in some on the twentieth. In those cases in which the phrenitis did not begin immediately, but about the third or fourth day, the disease was moderate at the commencement, but assumed a violent character about the seventh day. There was a great number of diseases, and of those affected, they who died were principally infants, young persons, adults having smooth bodies, white skins, straight and black hair, dark eyes, those living recklessly and luxuriously; persons with shrill, or rough voices, who stammered and were passionate, and women more especially died from this form. In this constitution, four symptoms in particular proved salutary; either a hemorrhage from the nose, or a copious discharge by the bladder of urine, having an abundant and proper sediment, or a bilious disorder of the bowels at the proper time, or an attack of dysentery.² And in many cases it happened, that the crisis did not take place by any one of the symptoms which have been mentioned, but the patient passed through most of them, and appeared to be in an uncomfortable way, and yet all who were attacked with these symptoms recovered. All the symptoms which I have

¹ This is perhaps the most striking account of an aggravated form of *causus* which is anywhere to be found. Although less finished than the celebrated picture of the disease given by Aretæus, it is evidently more original. In fact, any human production which is very original cannot well be finished, and consequently a very finished work can scarcely be expected to be very original.

² It is impossible to overrate the importance of these observations on crises in fevers, provided they be correct and confirmed by general experience. Monro, without appearing to have our author in view, seems to give an ample confirmation of his doctrines on crises as here laid down.

described occurred also to women and girls; and whoever of them had any of these symptoms in a favorable manner, or the menses appeared abundantly, were saved thereby, and had a crisis, so that I do not know a single female who had any of these favorably that died. But the daughter of Philo, who had a copious hemorrhage from the nose, and took supper unseasonably on the seventh day, died. In those cases of acute, and more especially of ardent fevers, in which there is an involuntary discharge of tears, you may expect a hemorrhage from the nose, unless the other symptoms be of a fatal character, for in those of a bad description, they do not indicate a hemorrhage, but death. Swellings about the ears, with pain in fevers, sometimes when the fever went off critically, neither subsided nor were converted into pus; in these cases a bilious diarrhœa, or dysentery, or thick urine having a sediment, carried off the disease, as happened to Hermippus of Clazomenæ. The circumstances relating to crises, as far as we can recognise them, were so far similar and so far dissimilar. Thus two brothers became ill at the same hour (they were the brothers of Epigenes, and lodged near the theatre), of these the elder had a crisis on the sixth day, and the younger on the seventh, and both had a relapse at the same hour; it then left them for five days, and from the return of the fever both had a crisis together on the seventeenth day. Most had a crisis on the sixth day; it then left them for six days, and from the relapse there was a crisis on the fifth day.¹ But those who had a crisis on the seventh day, had an intermission for seven days; and the crisis took place on the third day after the relapse. Those who had a crisis on the sixth day, after an interval of six days were seized again on the third, and having left them for one day, the fever attacked them again on the next and came to a crisis, as happened to Evagon the son of Dætharses. Those in whom the crisis happened on the sixth day, had an intermission of seven days, and from the relapse there was a crisis on the fourth, as happened to the daughter of Aglaïdas. The greater part of those who were taken ill under this constitution of things, were affected in this manner, and I did not know a single case of recovery, in which there was not a relapse

¹ From Galen's Commentary it appears that the text here is in a doubtful state. See also Littré. *Digitized by Microsoft®*

agreeably to the stated order of relapses; and all those recovered in which the relapses took place according to this form: nor did I know a single instance of those who then passed through the disease in this manner who had another relapse. In these diseases death generally happened on the sixth day, as happened to Epaminondas, Silenus, and Philiscus the son of Antagoras. Those who had parotid swellings experienced a crisis on the twentieth day, but in all these cases the disease went off without coming to a suppuration, and was turned upon the bladder. But in Cratistonax, who lived by the temple of Hercules, and in the maid servant of Scymnus the fuller, it turned to a suppuration, and they died. Those who had a crisis on the seventh day, had an intermission of nine days, and a relapse which came to a crisis on the fourth day from the return of the fever, as was the case with Pantacles, who resided close by the temple of Bacchus. Those who had a crisis on the seventh day, after an interval of six days had a relapse, from which they had a crisis on the seventh day, as happened to Phanocritus, who was lodged with Gnathon the painter. During the winter, about the winter solstices, and until the equinox, the ardent fevers and frenzies prevailed, and many died. The crises, however, changed, and happened to the greater number on the fifth day from the commencement, left them for four days and relapsed; and after the return, there was a crisis on the fifth day, making in all fourteen days. The crisis took place thus in the case of most children, also in elder persons. Some had a crisis on the eleventh day, a relapse on the fourteenth, a complete crisis on the twentieth; but certain persons, who had a rigor about the twentieth, had a crisis on the fortieth. The greater part had a rigor along with the original crisis, and these had also a rigor about the crisis in the relapse. There were fewest cases of rigor in the spring, more in summer, still more in autumn, but by far the most in winter; then hemorrhages ceased.

SECT. III.

10. With regard to diseases, the circumstances from which we form a judgment of them are,—by attending to the general nature of all, and the peculiar nature of each individual,—to

the disease, the patient, and the applications,—to the person who applies them, as that makes a difference for better or for worse,—to the whole constitution of the season, and particularly to the state of the heavens, and the nature of each country ;—to the patient's habits, regimen, and pursuits ;—to his conversation, manners, taciturnity, thoughts, sleep, or absence of sleep, and sometimes his dreams, what and when they occur ;—to his picking and scratching ;¹—to his tears ;—to the alvine discharges, urine, sputa, and vomitings ; and to the changes of diseases from the one into the other ;—to the deposits, whether of a deadly or critical character ;—to the sweat, coldness, rigor, cough, sneezing, hiccup, respiration, eructation, flatulence whether passed silently or with a noise ;—to hemorrhages and hemorrhoids ;—from these, and their consequences, we must form our judgment.²

11. Fevers are,—the continual, some of which hold during the day and have a remission at night, and others hold during the night and have a remission during the day ;³ semi-tertians, tertians, quartans, quintans, septans, nonans. The most acute, strongest, most dangerous, and fatal diseases, occur in the continual fever. The least dangerous of all, and the mildest and most protracted, is the quartan, for it is not only such from itself, but it also carries off other great diseases.⁴ In what is called the semi-tertian, other acute diseases are apt to occur, and it is the most fatal of all others, and moreover phthisical persons, and those labouring under other protracted diseases,

¹ Allusion is here made to the symptoms of delirium as described in the fourth paragraph of the Prognostics. See Galen's Commentary on this passage.

² What an admirable and comprehensive enumeration of all the circumstances upon which the prognosis and diagnosis of diseases are to be founded ! Here we find nothing either wanting or redundant ; and with what conciseness and precision the whole is stated ! Galen gives an elaborate and, upon the whole, a very interesting Commentary on this section, but does not supply any new views, and there are few terms in it requiring explanation.

³ Having already stated in this work, as well as in the Commentary on PAULUS ÆGINETA, Book II, 27, my opinion respecting the nature of the continual fevers, I need not enlarge on the subject in this place. Whoever wishes for more information may find much to interest him in the Commentary of Galen. Respecting the septans and nonans, he remarks, that, although conversant with fevers from his youth, he had never met with any cases of these.

⁴ Galen, in illustration, states that epilepsy is sometimes carried off by an attack of quartan fever.

are apt to be attacked by it.¹ The nocturnal fever is not very fatal, but protracted; the diurnal is still more protracted, and in some cases passes into phthisis. The septan is protracted, but not fatal; the nonan more protracted, and not fatal. The true tertian comes quickly to a crisis, and is not fatal; but the quintan is the worst of all, for it proves fatal when it precedes an attack of phthisis, and when it supervenes on persons who are already consumptive.² There are peculiar modes, and constitutions, and paroxysms, in every one of these fevers; for example,—the continual, in some cases at the very commencement, grows, as it were, and attains its full strength, and rises to its most dangerous pitch, but is diminished about and at the crisis; in others it begins gentle and suppressed, but gains ground and is exacerbated every day, and bursts forth with all its heat about and at the crisis; while in others, again, it commences mildly, increases, and is exacerbated until it reach its aemè, and then remits until at and about the crisis.³ These varieties occur in every fever, and in every disease. From these observations one must regulate the regimen accordingly. There are many other important symptoms allied to these, part of which have been already noticed, and part will be described afterwards, from a consideration of which one may judge, and decide in each case, whether the disease be acute, and whether it will end in death or recovery; or whether it will be protracted,

¹ The semitertian was always looked upon as a very formidable form of fever. See PAULUS ÆGINETA, Book II, 34. Galen gives a prolix, but not a very distinct account of it.

² Galen, in his Commentary, states that he had often seen persons in consumption attacked with tertian and quotidian intermittents, but admits that he had no more experience of quintans than he had of septans and nonans. Avicenna, however, is not so sceptical as to the occurrence of these rare forms of intermittents. Indeed he says, he had often met with quintans, and that a trustworthy physician of great experience had assured him that he had met with nonans. (iii, 1, 3, 67.) Rhazes also would appear to acknowledge the occurrence of all these varieties of intermittent fever. (Contin., xxx, 10, 1, 409.)

³ The text is much improved in Littré's edition, so that the meaning is pretty intelligible without any commentary. Galen states in explanation, that the three varieties of fever are thus marked and distinguished from one another: in the first, the fever attains its height at the commencement, and gradually diminishes until the crisis; in the second, it begins mild, and gradually reaches its height at the crisis; in the third, the fever begins mild, gradually attains its height, and then gradually subsides until the crisis.

and will end in death or recovery ; and in what cases food is to be given, and in what not ; and when and to what amount, and what particular kind of food is to be administered.

12. Those diseases which have their paroxysms on even days have their crises on even days ; and those which have their paroxysms on uneven days have their crises on uneven days. The first period of those which have the crisis on even days, is the 4th, 6th, 8th, 10th, 14th, 20th, 30th, 40th, 60th, 80th, 100th ; and the first period of those which have their crises on uneven days, is the 1st, 3d, 5th, 7th, 9th, 11th, 17th, 21st, 27th, 31st. It should be known, that if the crisis take place on any other day than on those described, it indicates that there will be a relapse, which may prove fatal. But one ought to pay attention, and know in these seasons what crises will lead to recovery and what to death, or to changes for the better or the worse. Irregular fevers, quartans, quintans, septans, and nonans should be studied, in order to find out in what periods their crises take place.

13. FOURTEEN CASES OF DISEASE.¹

CASE I.—Philiscus, who lived by the Wall, took to bed on the first day of acute fever ; he sweated ; towards night was uneasy. On the second day all the symptoms were exacerbated ; late in the evening had a proper stool from a small clyster, the night quiet. On the third day, early in the morning and until noon, he appeared to be free from fever ; towards evening, acute fever, with sweating, thirst, tongue parched ; passed black urine ; night uncomfortable, no sleep ; he was delirious on all subjects. On the fourth, all the symptoms exacerbated, urine black ; night more comfortable, urine of a better colour. On the fifth, about mid-day, had a slight trickling of pure blood from the nose ; urine varied in character, having floating in it round bodies, resembling semen, and scattered, but which did not fall to the bottom ; a suppository having been applied, some scanty flatulent matters were passed ; night uncomfortable, little sleep, talking incoherently ; extremities altogether cold,

¹ These are all febrile diseases, and for the most part of the ardent type. In order to enter properly into the spirit of them, the reader will find it necessary to revert frequently to the Prognostics, and compare the parallel passages. See also the Argument.

and could not be warmed; urine black; slept a little towards day; loss of speech, cold sweats; extremities livid; about the middle of the sixth day he died. The respiration throughout, like that of a person recollecting himself, was rare, and large, the spleen was swelled up in a round tumour, the sweats cold throughout, the paroxysms on the even days.¹

CASE II.—Silenus lived on the Broad-way, near the house of Evalcidas. From fatigue, drinking, and unseasonable exercises, he was seized with fever. He began with having pain in the loins; he had heaviness of the head, and there was stiffness of the neck. On the first day the alvine discharges were bilious, unmixed, frothy, high coloured, and copious; urine black, having a black sediment; he was thirsty, tongue dry; no sleep at night. On the second, acute fever, stools more copious, thinner, frothy; urine black, an uncomfortable night, slight delirium. On the third, all the symptoms exacerbated; an oblong distension, of a softish nature, from both sides of the hypochondrium to the navel; stools thin, and darkish; urine muddy, and darkish; no sleep at night; much talking, laughter, singing, he could not restrain himself. On the fourth, in the same state. On the fifth, stools bilious, unmixed, smooth, greasy; urine thin, and transparent; slight absence of delirium. On the sixth, slight perspiration about the head; extremities cold, and livid; much tossing about; no passage from the bowels, urine suppressed, acute fever. On the seventh, loss of speech; extremities could no longer be kept warm; no discharge of urine. On the eighth, a cold sweat all over; red rashes with sweat, of a round figure, small, like *vari*, persistent, not subsiding; by means of a slight stimulus, a copious discharge from the bowels, of a thin and undigested

¹ Galen, in his Commentary, remarks that the fatal issue of this case might have been anticipated after the return of the fever on the third day, with a complication of bad symptoms, such as great thirst, dry tongue, black urine, delirium, coldness of the extremities, and so forth. The modern reader will be struck with the description of the respiration, namely, that the patient seemed like a person who forgot for a time the *besoin de respirer*, and then, as it were, suddenly recollected himself. Such is the meaning of the expression as explained by Galen in his Commentary, and in his work On Difficulty of Breathing. By "rare" is always meant "few in number." The reader will remark that this is a striking case of a fever having regular exacerbations on the even days, and slight remissions on the uneven.

character, with pain; urine acrid, and passed with pain; extremities slightly heated; sleep slight, and comatose; speechless; urine thin, and transparent. On the ninth, in the same state. On the tenth, no drink taken; comatose, sleep slight; alvine discharges the same; urine abundant, and thickish; when allowed to stand, the sediment farinaceous and white; extremities again cold. On the eleventh, he died. At the commencement, and throughout, the respiration was slow and large; there was a constant throbbing in the hypochondrium; his age was about twenty.¹

CASE III.—Herophon was seized with an acute fever; alvine discharges at first were scanty, and attended with tenesmus; but afterwards they were passed of a thin, bilious character, and frequent; there was no sleep; urine black, and thin. On the fifth, in the morning, deafness; all the symptoms exacerbated; spleen swollen; distension of the hypochondrium; alvine discharges scanty, and black; he became delirious. On the sixth, delirious; at night, sweating, coldness; the delirium continued. On the seventh, he became cold, thirsty, was disordered in mind; at night recovered his senses; slept. On the eighth, was feverish; the spleen diminished in size; quite collected; had pain at first about the groin, on the same side as the spleen; had pains in both legs; night comfortable; urine better coloured, had a scanty sediment. On the ninth, sweated; the crisis took place; fever remitted. On the fifth day afterwards, fever relapsed; spleen immediately became swollen; acute fever; deafness again. On the third day after the relapse, the spleen diminished; deafness less; legs painful;

¹ This, it will be remarked, is a case of fever induced from obvious causes, namely, excessive fatigue and dissipation. We must take into account, however, the febrile constitution of the season. According to Galen, the fatal result could have been confidently foreseen from the seventh day. The distension in the hypochondriac region here described would appear to have been meteorism. The throbbing in this region was no doubt owing to the same cause. The rash was most probably miliar. It is described as resembling *rari* (*ῥοιθοί*), by which was probably meant *acne*. See PAULUS ÆGINETA, Vol. I, p. 454. Upon reference to the Prognostics, it will be remarked that the characters of the urine are all bad, that is to say, it was either suppressed, or the sediment was either wanting or black and farinaceous. See Prognost. 12. By "black," as applied to the urine, is to be understood "a dark-red colour," like that of wine.

sweated during the night ; crisis took place on the seventeenth day ; had no disorder of the senses during the relapse.¹

CASE IV.—In Thasus, the wife of Philinus, having been delivered of a daughter, the lochial discharge being natural, and other matters going on mildly, on the fourteenth day after delivery was seized with fever, attended with rigor ; was pained at first in the cardiac region of the stomach and right hypochondrium ; pain in the genital organs ; lochial discharge ceased. Upon the application of a pessary all these symptoms were alleviated ; pains of the head, neck, and loins remained ; no sleep ; extremities cold ; thirst ; bowels in a hot state ; stools scanty ; urine thin, and colourless at first. On the sixth, towards night, senses much disordered, but again were restored. On the seventh, thirsty ; the evacuations bilious, and high coloured. On the eighth, had a rigor ; acute fever ; much spasm, with pain ; talked much, incoherently ; upon the application of a suppository, rose to stool, and passed copious dejections, with a bilious flux ; no sleep. On the ninth, spasms. On the tenth, slightly recollected. On the eleventh, slept ; had perfect recollection, but again immediately wandered ; passed a large quantity of urine with spasms, (the attendants seldom putting her in mind,) it was thick, white, like urine which has been shaken after it has stood for a considerable time until it has subsided, but it had no sediment ; in colour and consistence, the urine resembled that of cattle, as far as I observed. About the fourteenth day, startings over the whole body ; talked much ; slightly collected, but presently became

¹ There is nothing in this case very remarkable, or which stands in need of elucidation ; but yet the reader may feel interested in Galen's reflections upon it. The recovery he holds to have been unexpected, as a different result might have been anticipated from the characters of the alvine discharge, and of the urine at the commencement. The favorable change he attributes to the swelling of the spleen, whereby the peccant humours were attracted to it ; and he further remarks, that as the swelling of the spleen diminished, the humours are described as having passed down to the extremities, after having first affected the groin of the side on which the spleen is situated. He further calls attention to the improved characters of the urine when the swelling of the spleen and pains of the limbs supervened. Still, however, he adds, there was a remnant of the cacochymy in the system which gave rise to the relapse on the fourteenth day, so that the complete crisis did not take place until the seventeenth day.

again delirious. About the seventeenth day became speechless, on the twentieth died.¹

CASE V.—The wife of Epicrates, who was lodged at the house of Archigetes, being near the term of delivery, was seized with a violent rigor, and, as was said, she did not become heated;² next day the same. On the third, she was delivered of a daughter, and everything went on properly. On the day following her delivery, she was seized with acute fever, pain in the cardiac region of the stomach, and in the genital parts. Having had a suppository, was in so far relieved; pain in the head, neck, and loins; no sleep; alvine discharges scanty, bilious, thin, and unmixed; urine thin, and blackish. Towards the night of the sixth day from the time she was seized with the fever, became delirious. On the seventh, all the symptoms exacerbated; insomnolency, delirium, thirst; stools bilious, and high coloured. On the eighth, had a rigor; slept more. On the ninth, the same. On the tenth, her limbs painfully affected; pain again of the cardiac region of the stomach; heaviness of the head; no delirium; slept more; bowels constipated. On the eleventh, passed urine of a better colour, and having an abundant sediment, felt lighter. On the fourteenth, had a rigor; acute fever. On the fifteenth, had a copious vomiting of bilious and yellow matters; sweated; fever gone; at night acute fever; urine thick, sediment white.³ On the seventeenth,

¹ This is evidently a well-marked case of puerperal fever, or of fever complicated with the puerperal state. There is nothing particularly interesting in Galen's Commentary on it. He states that the application made in order to remove the suppression of the lochial discharge may either have been a pessary or a suppository. It seems most likely to have been the former. On the composition of the ancient pessaries, see PAULUS ÆGINETA, Book VII, 24. He remarks that the symptoms first stated are unfavorable, but not necessarily fatal, until we come to the coldness of the extremities, which is an extremely mortal symptom in the beginning of a disease when combined with a very violent fever. The modern reader will be struck with the expression that "the attendants seldom put her in mind" to make water; it is very descriptive, however, of the state of stupor the patient was in when she was so insensible that she did not attend to the calls of nature.

² Galen remarks that it was reckoned very extraordinary for a rigor not to be followed by febrile heat. See Comment. et de Rigore; de Diff. Febr., ii; and Foës's long annotations on this passage.

³ It will be remarked that the characters of the urine throughout are favorable. Though darkish at first, this was reckoned not unfavorable, as being connected with

an exacerbation ; night uncomfortable ; no sleep ; delirium. On the eighteenth, thirsty ; tongue parched ; no sleep ; much delirium ; legs painfully affected. About the twentieth, in the morning, had a slight rigor ; was comatose ; slept tranquilly ; had slight vomiting of bilious and black matters ; towards night deafness. About the twenty-first, weight generally in the left side, with pain ; slight cough ; urine thick, muddy, and reddish ; when allowed to stand, had no sediment ; in other respects felt lighter ; fever not gone ; fauces painful from the commencement, and red ; uvula retracted ; defluxion remained acrid, pungent, and saltish throughout. About the twenty-seventh, free of fever ; sediment in the urine ; pain in the side. About the thirty-first, was attacked with fever, bilious diarrhœa ; slight bilious vomiting on the fortieth. Had a complete crisis, and was freed from the fever on the eightieth day.¹

CASE VI.—Cleonactides, who was lodged above the Temple of Hercules, was seized with a fever in an irregular form ; was pained in the head and left side from the commencement, and had other pains resembling those produced by fatigue ; paroxysms of the fevers inconstant and irregular ; occasional sweats ; the paroxysms generally attacked on the critical days. About the twenty-fourth was cold in the extremities of the hands, vomitings bilious, yellow, and frequent, soon turning to a verdigris-green colour ; general relief. About the thirtieth, began to have hemorrhage from both nostrils, and this continued in an irregular manner until near the crisis ; did not loathe food, and had no thirst throughout, nor was troubled with insomnolency ; urine thin, and not devoid of colour. When about the thirtieth day, passed reddish urine, having a copious red sediment ; was relieved ; but afterwards the characters of the urine varied, sometimes having sediment, and sometimes not. On the sixtieth, the sediment in the urine copious, white, and smooth ; all the symptoms ameliorated ; intermission of the fever ; urine thin, and well coloured. On the seventieth, fever gone for ten days. On the eightieth had a rigor, was seized

the lochial discharge. (See Galen, Comment. 2, Epid. iii.) The sediments afterwards are all of good omen ; but, as Galen remarks, its first characters indicated a prolonged fever.

¹ On the Critical Days, see PAULUS ÆGINETA, Book II, 7.

with acute fever, sweated much; a red, smooth sediment in the urine; had a perfect crisis.¹

CASE VII.—Meton was seized with fever; there was a painful weight in the loins. Next day, after drinking water pretty copiously, had proper evacuations from the bowels. On the third, heaviness of the head, stools thin, bilious, and reddish. On the fourth, all the symptoms exacerbated; had twice a scanty trickling of blood from the right nostril; passed an uncomfortable night; alvine discharges like those on the third day; urine darkish, had a darkish cloud floating in it, of a scattered form, which did not subside. On the fifth, a copious hemorrhage of pure blood from the left nostril; he sweated, and had a crisis. After the fever restless, and had some delirium; urine thin, and darkish; had an affusion of warm water on the head; slept, and recovered his senses. In this case there was no relapse, but there were frequent hemorrhages after the crisis.²

CASE VIII.—Erasinus, who lived near the Canal of Bootes, was seized with fever after supper; passed the night in an agitated state. During the first day quiet, but in pain at night. On the second, symptoms all exacerbated; at night delirious. On the third, was in a painful condition; great incoherence. On the fourth, in a most uncomfortable state; had no sound sleep at night, but dreaming and talking; then all the appearances worse, of a formidable and alarming character; fear, impatience. On the morning of the fifth, was composed, and quite coherent, but long before noon was

¹ On comparing the symptoms here enumerated with the Prognostics, it will be remarked that none of them are of fatal omen. But the white sediment, and afterwards the reddish colour of the urine, while they indicated recovery, at the same time prognosticated a protracted attack of fever. See Prognost., 12. The reader will further remark that there is an absence of all the decidedly fatal symptoms, such as delirium, coldness of the extremities at the commencement, and so forth.

² The rapid recovery in this case would seem to be partly attributable to the decided plan of treatment, namely, the copious affusion of hot water on the head. Hippocrates probably had it in view when he wrote the forty-second Aphorism of the Seventh Book: "In fever not connected with bile, if a large quantity of hot water be poured over the head, it proves a resolution of the fever." Galen points it out as a remarkable circumstance, that in this case the crisis took place without concoction of the urine, in consequence of the hemorrhage from the nose, and the sweating.

furiously mad, so that he could not constrain himself; extremities cold, and somewhat livid; urine without sediment; died about sunset. The fever in this case was accompanied by sweats throughout; the hypochondria were in a state of meteorism, with distension and pain; the urine was black, had round substances floating in it, which did not subside; the alvine evacuations were not stopped; thirst throughout not great; much spasms with sweats about the time of death.¹

CASE IX.—Criton, in Thasus, while still on foot, and going about, was seized with a violent pain in the great toe; he took to bed the same day, had rigors and nausea, recovered his heat slightly, at night was delirious. On the second, swelling of the whole foot, and about the ankle erythema, with distension, and small bullæ (phlyctænæ); acute fever; he became furiously deranged; alvine discharges bilious, unmixed, and rather frequent. He died on the second day from the commencement.²

CASE X.—The Clazomenian who was lodged by the Well of Phrynichides was seized with fever. He had pain in the head, neck, and loins from the beginning, and immediately afterwards deafness; no sleep, acute fever, hypochondria elevated with a swelling, but not much distension; tongue dry. On the fourth, towards night, he became delirious. On the fifth, in an uneasy state. On the sixth, all the symptoms exacer-

¹ In this case, as Galen remarks, the continued sweats, unfavorable condition of the hypochondriac region, and the black urine, precluded all hopes of recovery. He thinks our author related the case as an instance of sudden death in fever, this patient having died on the fourth day after the attack (the first not being counted). See his Commentary. He also makes reflections upon this case in his work On Difficulty of Breathing, where he points out the danger of meteorism of the hypochondriac region as being necessarily accompanied with dyspnœa, and connected with inflammation (2).

² This case, as Galen remarks, is interesting from the suddenness of the fatal result. We should not hesitate nowadays to set it down as a case of malignant erysipelas; the pain, swelling, and bullæ of the foot and ankle must have been of this nature. By the way, these bullæ, when not followed by suppuration, are represented in the *Coacæ Prænotiones*, as a fatal symptom. Galen thinks it strange that this patient was not bled, but accounts for it by supposing that Hippocrates had been called in too late. He remarks on this case in the Second Book of his work On Difficulty of Breathing.

bated. About the eleventh a slight remission ; from the commencement to the fourteenth day the alvine discharges thin, copious, and of the colour of water, but were well supported ; the bowels then became constipated. Urine throughout thin, and well coloured, and had many substances scattered through it, but no sediment. About the sixteenth, urine somewhat thicker, which had a slight sediment ; somewhat better, and more collected. On the seventeenth, urine again thin ; swellings about both his ears, with pain ; no sleep, some incoherence ; legs painfully affected. On the twentieth, free of fever, had a crisis, no sweat, perfectly collected. About the twenty-seventh, violent pain of the right hip ; it speedily went off. The swellings about the ears subsided, and did not suppurate, but were painful. About the thirty-first, a diarrhœa, attended with a copious discharge of watery matters, and symptoms of dysentery ; passed thick urine ; swellings about the ears gone. About the fortieth day, had pain in the right eye, sight dull. It went away.¹

CASE XI.—The wife of Dromeades having been delivered of a female child, and all other matters going on properly, on the second day after was seized with rigor and acute fever. Began to have pain about the hypochondrium on the first day ; had nausea and incoherence, and for some hours afterwards had no sleep ; respiration rare, large, and suddenly interrupted. On the day following that on which she had the rigor, alvine discharges proper ; urine thick, white, muddy, like urine which has been shaken after standing for some time, until the sedi-

¹ Galen looks upon this patient as an example *or* paradigm of general principles in Prognostics. Thus, with regard to the characters of the urine, it is stated that on the eleventh day the urine was thin, of a good colour, and having many substances floating about in it, but without sediment. Thus matters remained until the sixteenth, when the urine became somewhat thicker, and had a slight sediment. Now Galen remarks (as the reader will find on turning to the Book of Prognostics) that these characters of the urine are indicative of recovery after a protracted disease. Galen further points out that no one of the fatal symptoms are mentioned, and that swellings of the parotid glands and the dysenteric affections of the bowels indicated that the crisis would be distant. He also calls attention to the case as confirmatory of the doctrines of Critical Days. In the Second Book of his work On Difficulty of Breathing, he makes some remarks, of no great importance however, on the meteorism of the hypochondriac region, as noticed in this case.

ment had fallen to the bottom ; it had no sediment ; she did not sleep during the night. On the third day, about noon, had a rigor, acute fever ; urine the same ; pain of the hypochondria, nausea, an uncomfortable night, no sleep ; a coldish sweat all over, but heat quickly restored. On the fourth, slight alleviation of the symptoms about the hypochondria ; heaviness of the head, with pain ; somewhat comatose ; slight epistaxis, tongue dry, thirst, urine thin and oily ; slept a little, upon awaking was somewhat comatose ; slight coldness, slept during the night, was delirious. On the morning of the sixth had a rigor, but soon recovered her heat, sweated all over ; extremities cold, was delirious, respiration rare and large. Shortly afterwards spasms from the head began, and she immediately expired.¹

CASE XII.—A man, in a heated state, took supper, and drank more than enough ; he vomited the whole during the night ; acute fever, pain of the right hypochondrium, a softish inflammation from the inner part ; passed an uncomfortable night ; urine at the commencement thick, red, but when allowed to stand, had no sediment, tongue dry, and not very thirsty. On the fourth, acute fever, pains all over. On the fifth, urine smooth, oily, and copious ; acute fever. On the sixth, in the

¹ In this case, as Galen remarks, the characters of the urine from the first were such as to indicate a fatal and speedy result. On the second day the urine was turbid, and without any sediment ; on the third day the same, and consequently confirming the anticipation of the disease proving mortal ; on the fourth, oily urine, with epistaxis, so that it was not to be wondered at that the patient died on the sixth. Indeed, when we further take into account the state of the breathing, the coldness of the extremities, the meteorism of the hypochondriac region, and the *sublultus tendinum*, it is difficult to imagine a more hopeless case of fever. Having mentioned "oily urine," it may be well to state its characters, as fully given by one of the later authorities on urology, namely, Theophilus. He says, when the urine in fevers assumes the colour of oil, it indicates that the fat of the body is melting down ; when the appearance of the urine still more resembles oil, it shows a still greater melting ; and when the urine in consistence and colour exactly resembles oil of a dark colour, it prognosticates a fatal collapse. (*De Urinis*, 17 ; ed. Ideler.) On this subject, see further some very interesting observations by Foës, in his annotations on this passage (p. 988). With regard to the respiration in this case, see also the remarks of Galen in the Third Book of his work *On Difficulty of Breathing* (tom. vii, p. 932 ; ed. Kühn). As Galen here remarks, Hippocrates explains the meaning of this passage in one of his Aphorisms, where he writes thus : "In fevers, when the respiration stops, it is a bad symptom, for it prognosticates convulsion."

evening, very incoherent, no sleep during the night. On the seventh, all the symptoms exacerbated; urine of the same characters; much talking, and he could not contain himself; the bowels being stimulated, passed a watery discharge with lumbrici: night equally painful. In the morning had a rigor; acute fever, hot sweat, appeared to be free of fever; did not sleep long; after the sleep a chill, ptyalism; in the evening, great incoherence; after a little, vomited a small quantity of dark bilious matters. On the ninth, coldness, much delirium, did not sleep. On the tenth, pains in the limbs, all the symptoms exacerbated; he was delirious. On the eleventh, he died.¹

CASE XIII.—A woman, who lodged on the Quay, being three months gone with child, was seized with fever, and immediately began to have pains in the loins. On the third day, pain of the head and neck, extending to the clavicle, and right hand; she immediately lost the power of speech; was paralysed in the right hand, with spasms, after the manner of paraplegia; was quite incoherent; passed an uncomfortable night; did not sleep; disorder of the bowels, attended with bilious, unmixed, and scanty stools. On the fourth, recovered the use of her tongue; spasms of the same parts, and general pains remained; swelling in the hypochondrium, accompanied with pain; did not sleep, was quite incoherent; bowels disordered, urine thin, and not of a good colour. On the fifth, acute fever; pain of the hypochondrium, quite incoherent; alvine evacuations bilious; towards night had a sweat, and was freed from the fever. On the sixth, recovered her reason; was every way relieved; the pain remained about the left clavicle; was thirsty, urine thin, had no sleep. On the seventh, trembling, slight coma, some incoherence, pains about the

¹ According to Galen, this case is an instructive example of the danger of neglecting the diet at the commencement of complaints which appear unimportant. This man, having taken supper at the beginning of a fever which appeared slight, suffered therefrom as the result showed; that is to say, vomiting ensued, followed by serious symptoms, among which Galen particularises, as indicating a fatal result, urine at first thick and without sediment, and afterwards oily. So much importance did the ancient physicians attach to observations on the urine in fevers! Galen further calls attention to the fact, that the patient died on a critical day, that is to say, on the eleventh.

clavicle and left arm remained ; in all other respects was alleviated ; quite coherent. For three days remained free from fever. On the eleventh, had a relapse, with rigor and fever. About the fourteenth day, vomited pretty abundantly bilious and yellow matters, had a sweat, the fever went off, by coming to a crisis.¹

CASE XIV.—Melidia, who lodged near the Temple of Juno, began to feel a violent pain of the head, neck, and chest. She was straightway seized with acute fever ; a slight appearance of the menses ; continued pains of all these parts. On the sixth, was affected with coma, nausea, and rigor ; redness about the cheeks ; slight delirium. On the seventh, had a sweat ; the fever intermitted, the pains remained. A relapse ; little sleep ; urine throughout of a good colour, but thin ; the alvine evacuations were thin, bilious, acrid, very scanty, black, and fetid ; a white, smooth sediment in the urine ; had a sweat, and experienced a perfect crisis on the eleventh day.²

¹ Galen, in the Commentary, makes a remark regarding this report, which appears more important to him than it will do to most modern readers, namely, that he wonders Hippocrates did not state the age of this patient. He adds, that it is very rare for a pregnant woman to have such a serious fever without parting with her child. He thinks the patient, in the present instance, owed her recovery to the strength of her constitution, as “urine white, and not of a good colour,” in combination with the other bad symptoms, indicated an unfavorable result. By the way, upon reference to the Basle edition of Galen, and to Foës’s annotations on this case, it will be seen that there is a difference of reading in the words descriptive of the urine, that is to say, some read ἀχρόων, some εἰχρόων. Certainly it appears to me that Foës is right in preferring the latter. The decided crisis, it will be remarked, took place on a critical day, that is to say, the fourteenth, by a sweat.

² Here again Galen calls attention principally to the characters of the urine, which is first described as being “of a good colour, but thin.” Now, by a good colour of the urine, Galen observes, was meant of a slightly yellow colour. In this case, as usual, the crisis was marked by a sediment in the urine.

BOOK III—OF THE EPIDEMICS.

THE ARGUMENT.

THOUGH in the Argument prefixed to the First Book of the Epidemics I have given a pretty full summary of the contents both of that book and the third, I have still a few observations to make on some important points, which were not sufficiently considered on that occasion; and this I do the more readily, as it will afford me an opportunity of noticing a subject on which M. Littré has bestowed very extensive research. I allude to the origin of the Glandular Plague. As I make it a rule, in giving these my annotations, not to enter into any lengthy details, I shall now state, in a very succinct manner, the result of my inquiries. The reader is referred, for a fuller discussion of the subject, to the more ample disquisitions of M. Littré.¹

The opinion has been pretty generally maintained by modern authorities, that the first description which we have of the glandular plague of the East is that given by the historian Procopius, in the sixth century; and the inference drawn therefrom is that the disease was unknown until his time. This opinion is still held, to a certain extent, by Hecker, Rosenbaum, Pariset, Nauman, and others of the most distinguished scholars of the day, but it appears to be untenable after the discovery of the 'Fragment' of Ruffus, published by Mai, Rome, 1831. As the passage is very important, I shall give a translation of it in this place. It is as follows: "The buboes called pestilential are most fatal and acute, especially those which are seen occurring about Libya, Egypt, and Syria, and which are mentioned by Dionysius Curtus. Dioscorides and Posidonius make much mention of them in the plague which occurred in their time in Libya; they say it was accompanied by acute

¹ Œuvres d'Hippocrate, tom. iii, Arg., pp. xxxvi-xlii; tom. v, pp. 57-70.

fever, pain, and prostration of the whole body, delirium, and the appearance of large and hard buboes, which did not suppurate, not only in the accustomed parts, but also in the groins and armpits." The only thing which detracts from the value of this paragraph is the difficulty of determining exactly who the authorities are which are referred to in it. Of Dionysius Curtus nothing is known; indeed it is more than probable, that there is some mistake in this name. There are several medical authors of the name of Dioscorides and Posidonius, and it is difficult to determine to which of them reference is here made. Still, however, there seems to be no reason for questioning the authenticity of the passage. Ruffus, I may add, is generally admitted to have flourished in the reign of Trajan.¹

To this important document let me join an interesting extract from Galen's work 'On Fevers.' Galen, *treating professedly of Pestilential Fevers*, which he maintains are all connected with a tendency to putridity, expresses himself as follows: "Moreover, as Hippocrates says, all fevers from buboes are bad, with the exception of ephemerals; although the bubo is also of the class of phlegmons. And I agree in so far with what is said of putrefaction, for this is the cause of the fever in inflammations, and not as Erasistratus supposed.² But yet there are certain fevers from buboes of the class of ephemerals, as certain others proclaim them to be; diseases difficult to cure, which derive their origin from an inflammation, an ulcer, an abscess, or some other such affection in a viscus. But the ephemeral fevers from buboes differ from those connected with putrefactions, either in a certain viscus, or in the hollow and very large vessels, that in those from buboes, which always impart their heat to the surrounding parts, the heat is communicated to the heart, and the putrefactive fume does not reach it, but remains circumscribed in the seat of the bubo, and the heat reaching the heart solely by a change in the connecting parts, in like manner as in those exposed to excessive heat and fatigue, the diffusion of the heat takes place from the parts first warmed to the source of vitality; but in a putrefaction about the viscera and large

¹ There is some doubt, however, even on this head; indeed Riolanus does not scruple to affirm, with a considerable degree of plausibility, that Ruffus must have lived after Galen, since he is nowhere mentioned by the latter. (*Anthropographia*, i, 5.)

² In illustration, consult Plutarch (*Placit. Philosoph.*, v, 29).

vessels, a fume, as it were, from the putrefying humours reaches the cavities of the heart, &c.”¹ From these two passages alone, without taking into account several others of less importance, which might be gathered from other medical authorities,² it must be quite obvious that the glandular plague was known, at all events, in the second century of the Christian era. Moreover it is equally clear, that Galen did not look upon it as a new disease, but considered that it was noticed in the works of Hippocrates. To my mind, then, there can be no doubt that the pestilence which prevailed during the Peloponnesian war partook of the nature of the glandular plague. What has tended to create doubts on this subject, in the minds of many learned men, is the omission of any distinct mention of buboes in the graphic description of it given by Thucydides. But it should always be taken into account that Thucydides was not a professional man, and therefore there is a strong presumption that his acquaintance with the disease, even although, as he states, he himself had experienced an attack of it, must have been altogether of a general nature. Indeed Galen, both in the treatise from which I have quoted above and in many other parts of his works, does not hesitate to declare, that the historian describes the disease as a common, that is to say, a non-professional man, whereas Hippocrates gives its characters as a physician. It is also to be borne in mind, that the description of it given by Thucydides applies to it only at its outbreak in the city of Athens, and it is a well-known characteristic of pestilential epidemics that they change very much during their progress. This character of them was well illustrated in the Plague of Aleppo, so admirably described by Dr. Russel; for although the glandular form of the disease prevailed in a large number of cases, a considerable proportion of them were unaffected with buboes. Indeed it appears to me to be too much the practice for the profession, as well as the public, to imagine to themselves a certain type or ideal of every disease, and when they do not recognise the exact characters which they fancy it should present, they immediately set down such cases as constituting an entirely different disease. This is an

¹ De Differ. Feb., i, 7; tom. vii, p. 296, ed. Kühn.

² Commentary on PAULUS ÆGINETA, Book II, 16, 36; IX, 25, Syd. Soc. edition.

error that is constantly committed, and one which I believe to be at the bottom of the discordant opinions which prevail among professional men, on the subject of the glandular plague. It would be well for the physician to bear in mind how many varieties of symptoms the fever designated as Typhus puts on,—some with the rash reckoned peculiar to this fever, and some without it,—some with petechie, and miliary eruptions, and others without them; and many other complications of symptoms, which are sometimes present and sometimes not.

With regard to the hypothesis lately advanced by M. Theod. Krause,¹ and in so far countenanced by M. Littré, that the plague of Athens was an epidemical variola, I must say that I can see no probability in this supposition; for that a disease so strongly marked as smallpox should have prevailed in ancient times, and yet not be distinctly noticed by the Greek and Roman writers on medicine, I cannot conceive, more especially when we call to recollection the very accurate descriptions which they have left us of other cutaneous diseases, by no means attended with symptoms of so obvious a nature. Indeed it appears to me most wonderful, that such an opinion should have been entertained by any person at all acquainted with the Arabic writers on medicine, who describe most distinctly both the plague and the smallpox. Not to lose ourselves amidst a host of authorities, I would refer the reader, in particular, to Avicenna, iv, 1, 4, where the two diseases are treated of most distinctly, so that I cannot entertain a doubt that the Arabian physicians considered them to be essentially different.

In a considerable number of the cases reported in this book, there are affixed to them in the original certain characters, the interpretation of which the reader will find given in the translation. It will be necessary, then, to give the reader some account of the origin of these characters, regarding which our sole authority is Galeu, who, in his Commentaries on this book, enters on the question in his usual elegant and attractive style. He admits that he derived his information principally from Zeuxis, one of his predecessors in the office of commenting upon the works of Hippocrates. (See § 2, of the Preliminary Discourse.) It appears that Ptolemy Philadelphus was so

¹ *Disquisitio Historico-Medica de Natura Morbi Atheniensium.* Stuttgart, 1831.

zealous in his search for books to adorn his library, in Alexandria, that he gave instructions to the masters of ships going on distant voyages to collect all the books they could procure, and bring them back with them; that he ordered copies to be taken of books brought to him in this way, and kept the originals, but returned the copies, along with large sums of money, in certain cases, to those who had lent them to him; and that the works so obtained were preserved in a separate department of the library, with the inscription, "The Books of the Ships." Among these was found a copy of the Third Book of the Epidemics, with the inscription, "One of the Books of the Ships, according to the *redacteur* Memnon of Sida." Others say, that the term "*redacteur*" was wanting, and that the book bore simply the inscription of "Memnon;" and that the servants of the king inscribed the names of all the seamen who had brought these books, when they were installed on the shelves of the library. This, it would seem, was not done immediately after their arrival in Alexandria, but that at first they were collected together in certain houses. Memnon, the librarian, then, is generally supposed to have surreptitiously introduced the characters into one of the copies, in order that he might raise himself into importance by interpreting them. But whether or not this *ruse* was actually perpetrated by Memnon, the general belief of the commentators was, that Hippocrates himself had nothing to do with them. In fact, Zeno would appear to have been the only commentator who held them to be genuine, and ascribed the introduction of them to our author. The opinion thus advanced by Zeno led him into a violent controversy with the two Apollonii, namely, the Empiric and Biblas, who strenuously maintained that the characters were an interpolation executed by Memnon. This came to be the settled opinion of the commentators, and among others of Galen, who, although he gives a key to the interpretation of the characters, maintains, on all occasions, that they are of no authority, and had in fact been forged by Memnon.

The following is the key which Galen gives to the interpretation of the characters: *α*, signifies ἀποφθορὰν, *abortion*, or ἀπώλειαν, *loss*; *γ*, signifies γοροειδὲς ὄυρον, *urine resembling semen*; *δ*, punctuated below, thus, δ,, signifies ἰδρώτα, *sweat*, and διάρροιαν, *diarrhœa*, and διαφύρῃσιν, *perspiration*, or in fact

any other *evacuation* which it is wished to express; ε, signifies ἐποχὴν, *retention*, or ἔδραν, *seat*; ζ, signifies ζήτημα, *the object of research*; θ, signifies θάνατον, *death*; ι, signifies ἰδρωτα, *sweat*; κ, signifies κρίσις, *crisis*, or κοιλιακὴν διάθεσιν; μ, signifies μανίαν, *madness*, or μήτραν, *the womb*; ν, signifies νεότητα, *youth*, or νέκρωσιν, *mortification*; ξ, signifies ξαυθὴν χολὴν, *yellow bile*, or ξένον τι καὶ σπάνιον, *something strange and rare*, or ξυσμὸν, *irritation*, or ξηρότητα, *dryness*; ο, signifies ὀδύνας, *pains*, or ὄυρον, *urine* (but some think that it is only when it has a υ above it that it signifies urine); π, signifies πλῆθος, *abundance*, or πτύελον, *sputum*, or πυρὸν (πυρρὸν?), *yellow*, or πυρετὸν, *fever*, or πνεύμονος πάθος, *affection of the lungs*; π, with a character ι in its middle (Π or Π), signifies πιθανὸν, *probable*; ρ, signifies ῥύσιν, *flux*, or ρίγος, *chill*; φ, signifies φρεσίν, *phrensy*; σ, signifies σπασμὸν, *convulsion*, or στομαχοῦ ἢ στόματος κάκωσιν, *illness of the stomach or mouth*; τ, signifies τόκον, *accouchement*; υ, signifies ὑγίαν, *health*, or ὑποχόνδριον, *hypochondrium*; χ, signifies χολὴν, *bile*, or χολῶδες, *bilious*; ψ, signifies ψύξιν, *congealing*; ω, signifies ὠμότητα, *crudity*. See Galeni Opera, t. v, p. 412, ed. Basil.; and Littré's Hippocrates, t. iii, p. 33.

According to this key, the characters at the end of the first case are thus explained by Galen: they are Π Π Ο Υ Μ Υ. Here, then, Π signifies πιθανὸν, *it is probable*; Π, πλῆθος, *that an abundance*, ου, οὔρων, *of urine*; Μ, on the 40th day; Υ, ὑγίαν, *brought health*. It is more fully expressed thus by Galen: πιθανὸν εἶναι διὰ τὸ πλῆθος τῶν ἐκκριέντων οὔρων ἀντὸ λυθῆναι τὸ νόσημα καὶ ὑγιῆ γενέσθαι τὸν ἄνθρωπον ἐν τῇ τεσσαρακοστῇ τῶν ἡμερῶν, that is to say, “*it is probable that, owing to the copious discharge of urine, the disease was resolved, and the patient became well on the fortieth day.*”

BOOK III—OF THE EPIDEMICS.

SECT. I.

CASE I.—Python, who lived by the Temple of the Earth : on the first day, trembling commencing from his hands ; acute fever, delirium. On the second, all the symptoms were exacerbated. On the third, the same. On the fourth, alvine discharges scanty, unmixed, and bilious. On the fifth, all the symptoms were exacerbated, the tremors remained ; little sleep, the bowels constipated. On the sixth, sputa mixed, reddish. On the seventh, mouth drawn aside. On the eighth, all the symptoms were exacerbated ; the tremblings were again constant ; urine, from the beginning to the eighth day, thin, and devoid of colour ; substances floating in it cloudy. On the tenth he sweated ; sputa somewhat digested, had a crisis ; urine thinish about the crisis ; but after the crisis, on the fortieth day, an abscess about the anus, which passed off by a strangury.

Explanation of the characters. It is probable that the great discharge of urine brought about the resolution of the disease, and the cure of the patient on the fortieth day.¹

¹ On this case Galen has left very lengthly and elaborate commentaries, containing much important and amusing matter, but not a little verbose trifling, to say the least. Our limits, as well as our tastes, dispose us to be very sparing in our extracts from them. Passing over his remarks on the solecism in syntax, with which the Report commences, and his observations on the absence of all mention of the exciting causes, as is the usual practice of our author, I shall proceed to state what Galen says on the apparent neglect of venesection in a case where it would certainly appear to have been clearly indicated. In this case, as Galen remarks, one or other of these suppositions may be made: either that bleeding was not practised, or that the author did not think of mentioning the practice here, as supposing that it would be taken for granted that it was applied. Now, he adds, the former supposition is very improbable, considering how partial our author shows himself to this practice in his works which are unquestionably genuine, such as *On the Regimen in Acute Diseases*, the *Aphorisms*, the work *On the Articulations*, and even in this very book, where in one place he mentions that he abstracted blood copiously on the eighth day. If, then, he bled so late in febrile diseases, Galen contends that he was not likely to neglect the operation in an earlier stage, when so much more demanded. He argues further, that in many of the other reports of cases he neglects to mention that the usual routine of practice was followed ; and therefore he inclines to the opinion that it is omitted to be mentioned here, because the author supposed there

CASE II.—Hermocrates, who lived by the New Wall,¹ was seized with fever. He began to have pain in the head and loins; an empty distension of the hypochondrium; the tongue at first was parched; deafness at the commencement; there was no sleep; not very thirsty; urine thick and red, when allowed to stand it did not subside; alvine discharge very dry, and not scanty. On the fifth, urine thin, had substances floating in it which did not fall to the bottom;² at night he was delirious. On the sixth, had jaundice;³ all the symptoms were exacerbated; had no recollection. On the seventh, in an uncomfortable state; urine thin, as formerly; on the following days the same. About the eleventh day, all the symptoms

could be no question on this point, more especially as it was his universal rule to bleed in all great complaints, when not prevented by the age or powers of the patient. He afterwards insists strongly on venesection having been indicated in this case, in order to procure revulsion from the brain. As usual with the commentator, he calls attention to the characters of the urine, and explains the meaning of the term "cloudy," as applied to the *encorema*, or substances floating in the urine, by which he contends is to be understood a colour intermediate between white and black. What follows in this very lengthy Commentary is very interesting in a general point of view as regards the views of some of the older commentators, but is not directly applicable to the present case. His observations on the characters affixed to this and many of the subsequent cases have been noticed in the Argument. The reader will further remark of this case that it is an instance of fever passing into a deposit (or abscess), and the latter into strangury, of which our author had made mention in the First Book of the Epidemics. I may further mention that the reader will find much interesting matter in Galen's work On Trembling, in illustration of the nature of the attack under which the patient laboured.

¹ Galen, in his Commentary, communicates a singular notion which one of the earlier commentators maintained respecting the name of the place where this patient was laid, that is to say, that this new wall, having been recently washed with quicklime, had been the cause of this patient's illness. Galen, however, rejects this paltry conceit. He says on his own authority, that there being three distinct classes of fever, namely, the ephemeral, the hectic, and those connected with putrid humours, the present case belongs to the last of these.

² Galen compares the characters of the urine with their indications as given in the Prognostics. None of them are favorable, although not decidedly fatal.

³ This complication cannot fail to attract attention, from its resemblance to an epidemic which prevailed in Scotland in the year 1813. In this epidemic, as in the present case, the fever was very subject to relapses and to jaundice at an early stage. Hippocrates, in one of his Aphorisms, pronounces jaundice in fevers before the seventh day to be a fatal symptom. (iv, 62, 64.) Galen justly thinks it somewhat singular that no further mention of the jaundice is made in the course of the report; but he inclines from this to draw the conclusion that it remained in the same state throughout. As there was no crisis by the stomach, the bowels, the urine, or sweat,

appeared to be lightened. Coma set in; urine thicker, reddish, thin substances below, had no sediment; by degrees he became collected. On the fourteenth, fever gone; had no sweat; slept, quite collected; urine of the same characters. About the seventeenth, had a relapse, became hot. On the following days, acute fever, urine thin, was delirious. Again, on the twentieth, had a crisis; free of fever; had no sweat; no appetite through the whole time; was perfectly collected; could not speak, tongue dry, without thirst; deep sleep. About the twenty-fourth day he became heated; bowels loose, with a thin, watery discharge; on the following days acute fever, tongue parched. On the twenty-seventh he died. In this patient deafness continued throughout;¹ the urine either thick and red, without sediment, or thin, devoid of colour, and having substances floating in it: he could taste nothing.

Explanation of the characters. It is probable that it was the suppression of the discharges from the bowels which occasioned death on the twenty-seventh day.

CASE III.—The man who was lodged in the Garden of Dealces:² had heaviness of the head and pain in the right temple for a considerable time, from some accidental cause, was seized with fever, and took to bed. On the second, there was a trickling of pure blood from the left nostril, but the alvine discharges were proper, urine thin, mixed, having small substances floating in it, like coarse barleymeal, or semen. On the third, acute fever; stools black, thin, frothy, a livid sedi-

he concludes that the jaundice could not have been carried off. From all that has been said, he adds, it is clear that the organ primarily affected was the liver. Galen, then, decidedly opposes the view taken in the Explanation of the Characters respecting the cause of this man's death, which he contends was not connected with any suppression of the alvine discharges, but with the affection of the liver. On the Scotch Epidemic, see Ed. and Lond. Med. Journal, March 1844.

¹ Most of the ancient authorities regarded deafness as an unfavorable symptom in fevers. See PAULUS ÆGINETA, Book II, 4. The modern are divided in opinion on this point. Pringle and Huxham regard it as a favorable symptom, but Home looks upon it as unfavorable.

² Here again Galen mentions the absurd notion of Sabinus the commentator, that this man's disease was occasioned by the locality in which he was laid. Galen, on the other hand, thinks it likely that the patient was conveyed to the garden as being a favorable situation for a person ill of fever. He further alludes to this case in the Second Book of his work *On Critical Days*.

ment in the dejections ; slight coma ; uneasiness at the times he had to get up ; sediment in the urine livid, and somewhat viscid. On the fourth, slight vomiting of bilious, yellow matters, and, after a short interval, of the colour of verdigris ; a few drops of pure blood ran from the left nostril ; stools the same ; urine the same ; sweated about the head and clavicles ; spleen enlarged, pain of the thigh on the same side ; loose swelling of the right hypochondrium ; at night had no sleep, slight delirium. On the sixth, stools black, fatty, viscid, fetid ; slept, more collected. On the seventh, tongue dry, thirsty, did not sleep ; was somewhat delirious ; urine thin, not of a good colour. On the eighth, stools black, scanty, and compact ; slept, became collected ; not very thirsty. On the ninth had a rigor, acute fever, sweated, a chill, was delirious, strabismus of the right eye, tongue dry, thirsty, without sleep.¹ On the tenth, much the same. On the eleventh, became quite collected ; free from fever, slept, urine thin about the crisis. The two following days without fever ; it returned on the fourteenth, then immediately insomnolency and complete delirium. On the fifteenth, urine muddy, like that which has been shaken after the sediment has fallen to the bottom ; acute fever, quite delirious, did not sleep ; knees and legs painful ; after a suppository, had alvine dejections of a black colour. On the sixteenth, urine thin, had a cloudy encephaloid, was delirious. On the seventeenth, in the morning, extremities cold, was covered up with the bedclothes, acute fever, general sweat, felt relieved, more collected ; not free of fever, thirsty, vomited yellow bile, in small quantities ; formed feces passed from the bowels, but soon afterwards black, scanty, and thin ; urine thin, and not well coloured. On the eighteenth, not collected, comatose. On the nineteenth, in the same state. On the twentieth, slept ; quite collected, sweated, free from fever, not thirsty, but the urine thin. On the twenty-first, slight delirium ; somewhat thirsty, pain of the hypochondrium, and throbbing about the navel throughout. On the twenty-fourth, sediment in the urine, quite collected. Twenty-seventh, pain of the right hip-joint ; urine thin and bad, a sediment ; all the other symptoms milder. About the twenty-ninth, pain of the right eye ; urine

¹ Galen remarks, that as there is no mention of a single favorable symptom up to this date, the patient would certainly have died if he had not been of a vigorous constitution.

thin. Fortieth, dejections pituitous, white, rather frequent; sweated abundantly all over; had a complete crisis.¹

Explanation of the characters. It is probable that, by means of the stools, the urine, and the sweat, this patient was cured in forty days.

SECT. II.

CASE IV.—In Thasus, Philistes had headache of long continuance, and sometimes was confined to bed, with a tendency to deep sleep; having been seized with continual fevers from drinking, the pain was exacerbated; during the night he, at first, became hot. On the first day, he vomited some bilious matters, at first yellow, but afterwards of a verdigris-green colour, and in greater quantity; formed fæces passed from the bowels; passed the night uncomfortably. On the second, deafness, acute fever; retraction of the right hypochondrium; urine thin, transparent, had some small substances like semen floating in it; delirium ferox about mid-day. On the third, in an uncomfortable state. On the fourth, convulsions; all the symptoms exacerbated. On the fifth, early in the morning, died.

Explanation of the characters. It is probable that the death of the patient on the fifth day is to be attributed to a phrenitis, with unfavorable evacuations.²

CASE V.—Charion, who was lodged at the house of Demænetus, contracted a fever from drinking. Immediately he had a pain-

¹ Thus, as Galen remarks, after two ineffectual attempts, Nature accomplished a cure on the fortieth day.

² There is not much to remark in this case. A modern reader will suspect that there had been cerebral disease before the attack of the fever, and that matters had been brought to a crisis by the drinking of wine. Indeed Galen, in his Commentary, remarks that the precursory symptoms indicate a congestion of humours in the brain, which of course would be much aggravated by the wine, the brain then being, as he says, in a bad state; and the patient having inflicted an additional injury to the organ, by means of the drink, brought on the acute attack, which proved fatal in five days. The deafness, delirium, spasms, and bilious vomitings all indicate a cerebral affection. The state of the hypochondria, as described in the report, Galen would seem to attribute to a spasmodic affection of the diaphragm, from sympathy with the brain. Retraction of the hypochondrium is pronounced to be a bad symptom in the First Book of the *Prophetics*. Galen justly contends that there is no reason in this case to suspect any inflammation in that region.

ful heaviness of the head ; did not sleep ; bowels disordered, with thin and somewhat bilious discharges. On the third day, acute fever ; trembling of the head, but especially of the lower lip ; after a little time a rigor, convulsions ; he was quite delirious ; passed the night uncomfortably. On the fourth, quiet, slept little, talked incoherently. On the fifth, in pain ; all the symptoms exacerbated ; delirium ; passed the night uncomfortably ; did not sleep. On the sixth, in the same state. On the seventh had a rigor, acute fever, sweated all over his body ; had a crisis. Throughout the alvine discharges were bilious, scanty, and unmixed ; urine thin, well coloured, having cloudy substances floating in it. About the eighth day, passed urine of a better colour, having a white scanty sediment ; was collected, free from fever for a season. On the ninth it relapsed. About the fourteenth, acute fever. On the sixteenth, vomited pretty frequently yellow, bilious matters. On the seventeenth had a rigor, acute fever, sweated, free of fever ; had a crisis ; urine, after the relapse and the crisis, well coloured, having a sediment ; neither was he delirious in the relapse. On the eighteenth, became a little heated ; some thirst, urine thin, with cloudy substances floating in it ; slight wandering in his mind. About the nineteenth, free of fever, had a pain in his neck ; a sediment in the urine. Had a complete crisis on the twentieth.

Explanation of the characters. It is probable that the patient was cured in twenty days, by the abundance of bilious stools and urine.¹

CASE VI.—The daughter of Euryanax, a maid, was taken ill of fever. She was free of thirst throughout, but had no relish for food. Alvine discharges small, urine thin, scanty, not well coloured. In the beginning of the fever, had a pain about the nates. On the sixth day, was free of fever, did not sweat, had a crisis ; the complaint about the nates came to a small suppuration, and burst at the crisis. After the crisis, on the seventh day, had a rigor, became slightly heated, sweated.

¹ Galen's remarks on this case are unusually brief ; he attributes the fever to a bilious plethora, and states that the result was such as might have been anticipated from a knowledge of the critical days, and of the characters of the urine. Indeed the latter appear to me well deserving of attention.

On the eighth day after the rigor, had an inconsiderable rigor ; the extremities cold ever after. About the tenth day, after a sweat which came on, she became delirious, and again immediately afterwards was collected ; these symptoms were said to have been brought on by eating grapes. After an intermission of the twelfth day, she again talked much incoherently ; her bowels disordered with bilious, scanty, unmixed, thin, acrid discharges ; she required to get frequently up. She died on the seventh day after the return of the delirium. At the commencement of the disease she had pain in the throat, and it was red throughout ; uvula retracted ; defluxions abundant, thin, acrid ; coughed, but had no concocted sputa ; during the whole time loathed all kinds of food, nor had the least desire of anything ; had no thirst, nor drank anything worth mentioning ; was silent, and never spoke a word ; despondency ; had no hopes of herself. She had a congenital tendency to phthisis.¹

CASE VII.—The woman affected with quinsy, who lodged in the house of Aristion : her complaint began in the tongue ;

¹ This is in many respects an interesting case, and more especially from its being stated that the disease was complicated with hereditary consumption. Galen, in his Commentary, remarks that some authorities denied that any disease is congenital, but this opinion he decidedly rejects. The phthisical affection, however, as he justly remarks, would not have occasioned so sudden an issue if it had not been complicated with a complete prostration of the natural powers. He insists strongly on the striking description here given of the total loss of the natural appetite, both in regard to food and drink. Of course, no worse state of the system can be imagined than that in which it is totally insensible to its own wants, nay, that it loathes the very articles which it stands most in need of. Galen properly remarks in another place (Comment. I, in Epid. i), that it is an extremely unfavorable symptom when in an ardent fever there is no thirst. The small abscess about the nates would seem to have been an incidental complication. It would appear to be now settled by the best pathological authorities that there is no natural alliance between *phthisis* and *fistula in ano*, as was at one time suspected. See Andral (Cliniq. Médicale, tom. iv, p. 308), and Louis (On Phthisis, p. 89, Sydenham Society's edition). The affection of the fauces and throat, which is described as having attacked the patient at "the commencement of the disease," would appear to have been a common complication of that epidemic. It is noticed in the First Book of the Epidemics. Foës remarks, however, that some had referred it to that redness of the fauces to which persons labouring under consumption are liable. Compare Louis, l. c. p. ii, § 12. Galen makes mention of a difference of reading in the MSS. he used in reference to the Critical Days.

speech inarticulate; tongue red and parched. On the first day, felt chilly, and afterwards became heated. On the third day, a rigor, acute fever; a reddish and hard swelling on both sides of the neck and chest, extremities cold and livid; respiration elevated; the drink returned by the nose; she could not swallow; alvine and urinary discharges suppressed. On the fourth, all the symptoms were exacerbated. On the sixth she died of the quinsy.

Explanation of the characters. It is probable that the cause of death on the sixth day was the suppression of the discharges.¹

CASE VIII.—The young man who was lodged by the Liars' Market was seized with fever from fatigue, labour, and running

¹ On this brief case Galen has left a lengthy and elaborate Commentary, abounding in most interesting matters on a variety of subjects; as, for example, the different readings and opinions of the more ancient commentators on the characters at the end of this and the other reports; on the formation of the Hippocratic Collection, and the extraordinary zeal of the Ptolemies in procuring books for their great Library at Alexandria, and so forth. There is not much in it, however, which bears directly on the present case, and therefore we shall give but a very brief abstract of it. It appears from Galen that there was a considerable diversity of readings in the latter part of it, more especially in regard to the number of days the patient lived; some of the old authorities having placed the death on the fifth, some on the seventh, and others on the eighth. Galen inclines to hold by the text as we now have it, and maintains, apparently with good reason, that under such a combination of fatal symptoms it was not likely that the patient's strength should have stood out longer than the fourth day. Another curious subject connected with this case which Galen slightly touches upon, but without throwing any light upon it, is the omission of the treatment. He justly remarks, that if Hippocrates treated the patient himself, or superintended the treatment as managed by another, it is singular that there is no mention of a clyster having been administered, nor of a cataplasm having been applied, nor of venesection having been practised. I shall not attempt to solve the question here propounded by Galen. See the Argument. His Commentary also contains an interesting discussion on the meaning of the expression "respiration elevated." To give the sum of what has been advanced on this subject in a few words, it may signify laborious breathing so as to move the labia of the nose; or it may mean simply orthopnœa, or it may signify laborious respiration, attended with elevation of the chest. By the way, this is evidently the "sublimis anhelitus" of Horace, in his famous ode entitled "Nireus." I have often wondered that such a learned physician as Julius Cæsar Scaliger, in his celebrated critique on Horace in his *Poetics*, should have remarked on this expression: "Ex toto Galeno non intelligo quid sit sublimis anhelitus." Galen, in fact, treats fully of the "sublimis anhelitus" in various parts of his works. See in particular *On Difficulty of Breathing*.

out of season. On the first day, the bowels disordered, with bilious, thin, and copious dejections; urine thin and blackish; had no sleep; was thirsty. On the second all the symptoms were exacerbated; dejections more copious and unseasonable; he had no sleep; disorder of the intellect; slight sweat. On the third day, restless, thirst, nausea, much tossing about, bewilderment, delirium; extremities livid and cold; softish distension of the hypochondrium on both sides. On the fourth, did not sleep; still worse. On the seventh he died. He was about twenty years of age.

Explanation of the characters. It is probable that the cause of his death on the seventh day was the unseasonable practices mentioned above. An acute affection.¹

CASE IX.—The woman who lodged at the house of Tisamenas had a troublesome attack of iliac passion: much vomiting; could not keep her drink; pains about the hypochondria, and pains also in the lower part of the belly; constant tormina; not thirsty; became hot; extremities cold throughout, with nausea and insomnolency; urine scanty and thin; dejections undigested, thin, scanty. Nothing could do her any good. She died.²

CASE X.—A woman of those who lodged with Pantimides,

¹ Galen has given us a lengthy Commentary on this case, but a great part of it relates to the characters and to other matters not of any very great importance in this place. As he remarks, it is a striking example of an acute fever induced by immoderate fatigue. It appears from his Commentary, moreover, that some of the older authorities had added "drinking" to the excesses which induced this affection; that is to say, they proposed to read *πότων* instead of *πόρων*. The symptoms, upon reference to the Prognostics, are all such as indicated a fatal result, namely, the blackish and thin urine, "the fumbling with the bedclothes," the coldness and lividity of the extremities, the meteorism, and so forth.

² In Galen's Commentary on this case there is not much of any great interest to the professional reader of the present day. He animadverts again on the omission of all mention of the treatment, although, as he states, venesection and the other usual means had no doubt been tried; indeed the report implies as much. Hippocrates, he repeats, never thinks of mentioning the usual routine of practice, as he takes it for granted that the reader will understand that it was not neglected. It is only on special occasions, then, that he thinks of making any particular reference to the treatment. Galen remarks, that ileus being an inflammation of the upper intestines, is a particularly dangerous affection.

from a miscarriage, was taken ill of fever. On the first day, tongue dry, thirst, nausea, insomnolency, belly disordered, with thin, copious, undigested dejections. On the second day, had a rigor, acute fever; alvine discharges copious; had no sleep. On the third, pains greater. On the fourth, delirious. On the seventh she died. Belly throughout loose, with copious, thin, undigested evacuations; urine scanty, thin. An ardent fever.¹

CASE XI.—Another woman, after a miscarriage about the fifth month, the wife of Ocetes, was seized with fever. At first had sometimes coma and sometimes insomnolency; pain of the loins; heaviness of the head. On the second, the bowels were disordered, with scanty, thin, and at first unmixed dejections. On the third, more copious, and worse; at night did not sleep. On the fourth was delirious; frights, despondency; strabismus of the right eye; a faint cold sweat about the head; extremities cold. On the fifth day, all the symptoms were exacerbated; talked much incoherently, and again immediately became collected; had no thirst; laboured under insomnolency; alvine dejections copious, and unseasonable throughout; urine scanty, thin, darkish; extremities cold, somewhat livid. On the sixth day, in the same state. On the seventh she died. Phrenitis.²

¹ As remarked by Galen in his Commentary, this was no doubt a case of ardent fever *or* *causus*, complicated with an incidental miscarriage. There is no reason for looking upon it as being a case of puerperal fever. Galen thinks that the last word (*causus*) is an addition made by the copyists, having been transferred from the Glossarium to the text in the course of transcription. Galen, as usual, directs attention to the characters of the urine, which in this case are particularly unfavorable, being defective both in quantity and quality.

² Galen's remarks on the circumstances of this case are sufficiently to the purpose, but there is nothing very striking in them. He states that the abortion may have been occasioned either by external causes—such as the application of pessaries for this purpose, and the like—or internal, such as hemorrhage from the neck of the uterus, and so forth. As in the former case, he pronounces the last word (*phrenitis*) to be an addition to the text, as Hippocrates never enters upon the diagnosis of diseases, as is done in the work *On Diseases*. I suppose he means that our author's real works are all founded on Prognosis; whereas the other, being derived from the Cnidian school, is founded on Diagnosis. See our observations on this subject in the Preliminary Discourse, and the Argument to the Prognostics.

CASE XII.—A woman who lodged near the Liars' Market, having then brought forth a son in a first and difficult labour, was seized with fever. Immediately on the commencement had thirst, nausea, and cardialgia; tongue dry; bowels disordered, with thin and scanty dejections; had no sleep. On the second, had slight rigor, acute fever; a faint cold sweat about the head. On the third, painfully affected; evacuations from the bowels undigested, thin, and copious. On the fourth, had a rigor; all the symptoms exacerbated; insomnolency. On the fifth, in a painful state. On the sixth, in the same state; discharges from the bowels liquid and copious. On the seventh, had a rigor, fever acute; much thirst; much tossing about; towards evening a cold sweat over all; extremities cold; could no longer be kept warm; and again at night had a rigor; extremities could not be warmed; she did not sleep; was slightly delirious, and again speedily collected. On the eighth, about mid-day, she became warm, was thirsty, comatose, had nausea; vomited small quantities of yellowish bile; restless at night, did not sleep; passed frequently large quantities of urine without consciousness. On the ninth, all the symptoms gave way; comatose, towards evening slight rigors; small vomitings of bile. On the tenth, rigor; exacerbation of the fever, did not sleep at all; in the morning passed much urine having a sediment; extremities recovered their heat. On the eleventh, vomited bile of a verdigris-green colour; not long after had a rigor, and again the extremities cold; towards evening a rigor, a cold sweat, much vomiting; passed a painful night. On the twelfth, had copious black and fetid vomitings; much hiccup, painful thirst. On the thirteenth, vomitings black, fetid, and copious; rigor about mid-day, loss of speech. On the fourteenth, some blood ran from her nose, she died. In this case the bowels were loose throughout; with rigors: her age about seventeen. An ardent fever.¹

¹ Galen remarks, that with such a combination of fatal symptoms, namely, coldness of the extremities, fetid vomiting, &c., it is wonderful that this patient stood out until the fourteenth day. He thinks, however, that this is to be explained from her age and constitution. He justly remarks that the occurrence of the epistaxis could not be supposed sufficient to carry off such a combination of unfavorable symptoms. He once more protests against the last word of the report (causus) being admitted as genuine. He confesses himself unable to determine whether "The Liars' Market" was in Athens or elsewhere.

SECTION III.—CONSTITUTION 2.¹

The year was southerly, rainy; no winds throughout.² Draughts having prevailed during the previous seasons of the year, the south winds towards the rising of Arcturus were attended with much rain. Autumn gloomy and cloudy, with copious rains. Winter southerly, damp, and soft. But long after the solstice, and near the equinox, much wintery weather out of season; and when now close to the equinox, northerly, and wintery weather for no long time. The spring again southerly, calm, much rain throughout until the dog-days. Summer fine and hot; great suffocating heats. The Etesian winds blew small and irregular; again, about the season of Arcturus, much rains with north winds. The year being southerly, damp, and soft towards winter, all were healthy, except those affected with phthisis, of whom we shall write afterwards.

3. Early in spring, along with the prevailing cold, there were many cases of erysipelas, some from a manifest cause, and some not.³ They were of a malignant nature, and proved fatal to many; many had sore-throat and loss of speech. There were many cases of ardent fever, phrensy, aphthous affections of the mouth,⁴ tumours on the genital organs; of ophthalmia,

¹ This is entitled the pestilential constitution by Galen. By constitution, he explains, is meant not only the preternatural state of the atmosphere, but also of everything else which influences the state of the general health.

² Galen remarks, that in the First Book of the Epidemics three constitutions of the year are described, and also that others are described in the Second Book; but that these are not carefully drawn out for publication like those of the First and Third. He further remarks on this head, that the constitution of the season might prepare us for the putrid diseases, which are described below, as heat is the active, and humidity the material, cause of all putrefaction.

³ Galen remarks that erysipelas is occasioned by a bilious defluxion, but that it is not always of a malignant and putrid nature; on the contrary, when the defluxion is mild, and the bile which produces it is natural, it is not attended with any considerable injury to the body, if properly managed; but that the humour which produced the erysipelas about to be described was not such, but of a malignant, corrosive, and septic nature, being engendered by the humid and calm state of the weather in such persons as were of a choleric constitution.

⁴ According to Galen, aphthæ in general are superficial ulcerations in the mouth, produced by the acrimony of the nurse's milk, and which are easily removed by an astringent application. But in the present instance the aphthæ were of a malignant nature.

anthrax,¹ disorder of the bowels, anorexia, with thirst and without it; of disordered urine, large in quantity, and bad in quality; of persons affected with coma for a long time, and then falling into a state of insomnolency. There were many cases of failure of crisis, and many of unfavorable crisis; many of dropsy and of phthisis. Such were the diseases then epidemic.² There were patients affected with every one of the species which have been mentioned, and many died. The symptoms in each of these cases were as follows:

4. In many cases erysipelas, from some obvious cause, such as an accident, and sometimes from even a very small wound, broke out all over the body, especially, in persons about sixty years of age, about the head, if such an accident was neglected in the slightest degree; and this happened in some who were under treatment: great inflammation took place, and the erysipelas quickly spread all over.³ In the most of them the abscesses ended in suppurations, and there were great fallings off (sloughing) of the flesh, tendons, and bones; and the defluxion which seated in the part was not like pus, but a sort of putrefaction, and the running was large and of various characters. Those cases in which any of these things happened about the head were accompanied with falling off of the hairs

¹ The carbuncle (anthrax), Galen says, is always dangerous, and the product of bad humours. See PAULUS ÆGINETA, Vol. II, pp. 78, 79. Galen, in his excellent work *On the Difference of Fevers*, writes thus: "In constitutions of the year, similar to those which Hippocrates describes as taking place in Cranon (see Ep. ii), I have known cases of anthrax prevailing epidemically in no few numbers, the formation and other symptoms of which were exactly as described by him." (Tom. vii, p. 293; ed. Kühn.)

² Galen explains under this head that the term *epidemic* is not applied to any one disease, but that when many cases of any disease occur at the same time in a place, the disease is called an epidemic; and that when it is remarkably fatal it is called a plague.

³ The history of the epidemical erysipelas here described cannot fail to prove interesting to the modern reader. I need scarcely remark that epidemics of a similar nature are occasionally met with in Great Britain at the present day. I myself have encountered two such epidemics in the locality where I am now writing, the one in 1823, and the other in 1846. As described by Hippocrates, the disease sometimes supervened upon a slight injury, and generally terminated in gangrene. On epidemical erysipelas, see De Haen (*Ratio Medendi*), Bartholinus (*Hist. Anatom. Rat. Hist.*, 56), Wells (*Transactions of a Society for the Improvement of Medical and Chirurgical Knowledge*), Cooper's *Surgical Dictionary*; and *Cyclopædia of Practical Medicine*, under *Erysipelas*.

of the head and chin, the bones were laid bare and separated, and there were excessive runnings; and these symptoms happened in fevers and without fevers. But these things were more formidable in appearance than dangerous; for when the concoction in these cases turned to a suppuration, most of them recovered; but when the inflammation and erysipelas disappeared, and when no abscess was formed, a great number of these died.¹ In like manner, the same things happened to whatever part of the body the disease wandered, for in many cases both forearm and arm dropped off; and in those cases in which it fell upon the sides, the parts there, either before or behind, got into a bad state; and in some cases the whole femur and bones of the leg and whole foot were laid bare. But of all such cases, the most formidable were those which took place about the pubes and genital organs.² Such was the nature of

¹ Galen amply confirms this statement, that when erysipelas fixes on a particular part of the body it is more formidable in appearance than in reality, and that the disease is attended with most danger when it leaves an external member, and is determined inwardly.

² The classical reader will here call to his recollection a striking passage in the celebrated description of the Plague of Athens, as given by Thucydides: "For the mischief, being at first seated in the head, spread over the whole body, and if one survived the most formidable symptoms, an attack on the extremities manifested itself; for it was determined to the genital organs and to the hands and feet, and many escaped with losing them, and some with the loss of their eyes." (ii, 49.) The passage is thus rendered by Lucretius:

"tamen in nervos huic morbus et artus
Ibat et in partes genitales corporis ipsas;
Et graviter partim metuentes limina lethi
Vivebant ferro privati parte virili:
Et manibus sine nonnulli pedibusque manebant
In vita tamen et perdebant lumina partim." (vi, 1203.)

Lucretius, it will be remarked, understands the historian to mean that the mortified parts were amputated; and this opinion, although rejected by most of our non-professional editors of Thucydides, is confirmed by what Galen says in his Commentary on this passage, namely, that in erysipelas of the genital organs "we (meaning the physicians of his own time) are often obliged to excise the putrid parts, and apply the cantery to them." I would here further point out a singular mistake into which Dr. Bloomfield falls in his note on this passage of Thucydides; he says that the words of the original (*ἄκρας χεῖρας καὶ πόδας*) "can only signify the ends of or lower joints of the fingers and toes." No one who is acquainted with the language of our author will require to be told that this is an entire misconception. In the works of Hippocrates *χεῖρες* is often put for the arms, and *χεῖρες ἄκραι* are always applied to the hands.

these cases when attended with sores, and proceeding from an external cause; but the same things occurred in fevers, before fevers, and after fevers. But those cases in which an abscess was formed, and turned to a suppuration, or a seasonable diarrhœa or discharge of good urine took place, were relieved thereby; but those cases in which none of these symptoms occurred, but they disappeared without a crisis, proved fatal. The greater number of these erysipelatous cases took place in the spring, but were prolonged through the summer and during autumn.

5. In certain cases there was much disorder, and tumours about the fauces, and inflammations of the tongue, and abscesses about the teeth. And many were attacked with impairment or loss of speech;¹ at first, those in the commencement of phthisis, but also persons in ardent fever and in phrenitis.

6. The cases of ardent fever and phrenitis occurred early in spring after the cold set in, and great numbers were taken ill at that time, and these cases were attended with acute and fatal symptoms. The constitution of the ardent fevers which then occurred was as follows: at the commencement they were affected with coma, nausea, and rigors; fever not acute, not much thirst nor delirium, slight epistaxis,² the paroxysms for the most part on even days; and, about the time of the paroxysms, forgetfulness, loss of strength and of speech, the extremities, that is to say, the hands and feet, at all times, but more especially about the time of the paroxysms, were colder than natural; they slowly and imperfectly became warmed, and again recovered their recollection and speech.³ They were constantly affected either with coma, in which they got no sleep, or with

¹ Upon reference to the Glossary of Erotian, the Commentary of Galen, and the Annotations of Foës and Littré, the reader will see that there is great difficulty in determining the text in this place. After examining all that has been written on the subject, one cannot come to any satisfactory conclusion as to the true reading. I have adopted the meaning which seems to suit best with the passage. The professional reader will scarcely require to be reminded that in cases of phthisis there is often a notable impairment of the voice.

² Galen makes the important remark on this word, that, in febrile diseases, epistaxis is always a bad symptom.

³ This obliviousness is a feature of the plague, as described by Thucydides: "And some, when they first left their beds, were seized with an utter forgetfulness of all things, and knew not themselves nor their relatives." (l. c.)

insomnolency, attended with pains;¹ most had disorders of the bowels, attended with undigested, thin, and copious evacuations; urine copious, thin, having nothing critical nor favorable about it; neither was there any other critical appearance in persons affected thus; for neither was there any proper hemorrhage, nor any other of the accustomed evacuations, to prove a crisis. They died, as it happened, in an irregular manner, mostly about the crises, but in some instances after having lost their speech for a long time, and having had copious sweats. These were the symptoms which marked the fatal cases of ardent fever; similar symptoms occurred in the phrenitic cases; but these were particularly free from thirst, and none of these had wild delirium² as in other cases, but they died oppressed by a bad tendency to sleep, and stupor.

7. But there were also other fevers, as will be described. Many had their mouths affected with aphthous ulcerations. There were also many defluxions about the genital parts, and ulcerations, boils (phymata), externally and internally, about the groins.³ Watery ophthalmies of a chronic character, with pains; fungous excrescences of the eyelids, externally and internally, called *fici*, which destroyed the sight of many persons.⁴ There were fungous growths, in many other instances, on ulcers, especially on those seated on the genital organs. There were many attacks of carbuncle (anthrax) through the summer, and

¹ Our author alludes to the affection called *coma vigil* by the later authorities. In this affection, as Galen remarks, the patient lies with his eyes shut, but can get no sound sleep. This, of course, is so much more the case provided pain be present, as it necessarily will prevent the occurrence of sleep. See Galen's tract *On Coma*.

² The low muttering delirium of typhoid fevers is here evidently alluded to. Galen, in his *Commentary*, guards the reader against supposing that the fever passed into lethargus.

³ This description apparently can refer to nothing but pestilential buboes.

⁴ It is impossible not to recognise this as a description of *purulent ophthalmia*. Celsus thus describes the *ficus*: "Est etiam ulcus quod a *fici* similitudine *σύνκωσις* Græcis nominatur, ubi caro exerescit; et id quidem generale est. Sub eo vero duæ species sunt. Alterum ulcus durum et rotundum est: alterum humidum et inæquale. Ex duro exiguum quoddam et glutinosum exit: ex humido plus, et mali odoris." See the *Lexicons* of Hesychius and Phavorinus, and also PAULUS ÆGINETA, Book III, 3. It will be remarked that Hippocrates also makes mention of fungous excrescences about the pudenda. Were they syphilitic? In other words, did they derive their origin from elephantiasis? See the *Annotations on PAULUS ÆGINETA*, Book IV, 1, Sydenham Society's edition.

other affections, which are called “the putrefaction” (*seps*); also large ecthymata,¹ and large tetteres (*herpetes*) in many instances.

8. And many and serious complaints attacked many persons in the region of the belly. In the first place, tenesmus, accompanied with pain, attacked many, but more especially children, and all who had not attained to puberty; and the most of these died. There were many cases of hientery and of dysentery; but these were not attended with much pain.² The evacuations were bilious, and fatty, and thin, and watery; in many instances the disease terminated in this way, with and without fever; there were painful tormina and volvuli of a malignant kind; copious evacuations of the contents of the guts, and yet much remained behind; and the passages did not carry off the pains, but yielded with difficulty to the means administered; for in most cases purgings were hurtful to those affected in this manner; many died speedily, but in many others they held out longer. In a word, all died, both those who had acute attacks and those who had chronic, most especially from affections of the belly, for it was the belly which carried them all off.

9. All persons had an aversion to food in all the aforementioned complaints to a degree such as I never met with before,³ and persons in these complaints most especially, and those recovering from them, and in all other diseases of a mortal nature. Some were troubled with thirst, and some not; and both in febrile complaints and in others no one drank unseasonably or disobeyed injunctions.

10. The urine in many cases was not in proportion to the drink administered, but greatly in excess; and the badness of the urine voided was great, for it had not the proper thickness, nor concoction, nor purged properly; for in many cases purgings by the bladder indicate favorably, but in the greatest number

¹ The meaning of this term is not precisely determined. Galen's account of it may apply both to exanthemata and pustulæ. The description of the eruption in the Plague of Athens is likewise vague and indeterminate. (Thucyd. ii, 49.)

² These intestinal complaints are all mentioned in the description of the Plague at Athens. (l. c.) Upon reference to the Commentary of Galen, the reader will remark that there is a question here respecting the reading.

³ Galen, in his Commentary, makes the remark that he observed the same symptom in the plague which raged in his time.

they indicated a melting of the body, disorder of the bowels, pains, and a want of crisis.¹

11. Persons labouring under phrenitis and causus were particularly disposed to coma ; but also in all other great diseases which occurred along with fever. In the main, most cases were attended either by heavy coma, or by short and light sleep.

12. And many other forms of fevers were then epidemic, of tertian, of quartan, of nocturnal,² of continual, of chronic, of erratic, of fevers attended with nausea, and of irregular fevers. All these were attended with much disorder, for the bowels in most cases were disordered, accompanied with rigors, sweats not of a critical character, and with the state of the urine as described. In most instances the disease was protracted, for neither did the deposits which took place prove critical as in other cases ; for in all complaints and in all cases there was difficulty of crisis, want of crisis, and protraction of the disease, but most especially in these. A few had the crisis about the eightieth day, but in most instances it (the disease?) left them irregularly. A few of them died of dropsy without being confined to bed. And in many other diseases people were troubled with swelling, but more especially in phthysical cases.

13. The greatest and most dangerous disease, and the one that proved fatal to the greatest number, was the consumption.³ With many persons it commenced during the winter, and of these some were confined to bed, and others bore up on foot ;

¹ It will readily be understood that a colliquative diabetes would prove a very unfavorable complication of these complaints.

² By nocturnal fevers, according to Galen, was meant quotidiens, which had their paroxysms during the night. Fœs inclines to think that diurnal should also be inserted in this place. These nocturnal fevers are thus described by D. Monro : "The sick were restless and uneasy *at night* ; but commonly felt themselves cooler and lighter in the daytime ; and although they had no cold fit, as the fever came on *at nights*, and many of them no breathing sweat, as they became cooler and freer from the fever in the morning ; yet the fits were so remarkable, that many of the patients used to say that they had a regular fit of an ague *every night*, and some few that they had the fit every second *night*." (Army Diseases, &c., p. 158.)

³ The account of the origin and progress of consumption here given is, upon the whole, wonderfully correct. Common experience seems to have decided that spring and autumn are the most fatal seasons to phthysical patients. Avicenna makes the remark, which is very important, and deserves to be kept in mind, that by phthisis, in this place, Hippocrates most probably meant hectic fever, connected with disease of the internal viscera, which had been in an inflamed state during the acute attack of the fever. (iii, 1, 3, 67.)

the most of those died early in spring who were confined to bed; of the others, the cough left not a single person, but it became milder through the summer; during the autumn, all these were confined to bed, and many of them died, but in the greater number of cases the disease was long protracted. Most of these were suddenly attacked with these diseases, having frequent rigors, often continual and acute fevers; unseasonable, copious, and cold sweats throughout; great coldness, from which they had great difficulty in being restored to heat; the bowels variously constipated, and again immediately in a loose state, but towards the termination in all cases with violent looseness of the bowels; a determination downwards of all matters collected about the lungs; urine excessive, and not good; troublesome melting. The coughs throughout were frequent, and sputa copious, digested, and liquid, but not brought up with much pain; and even when they had some slight pain, in all cases the purging of the matters about the lungs went on mildly. The fauces were not very irritable, nor were they troubled with any saltish humours; but there were viscid, white, liquid, frothy, and copious defluxions from the head. But by far the greatest mischief attending these and the other complaints, was the aversion to food, as has been described. For neither had they any relish for drink along with their food, but continued without thirst. There was heaviness of the body, disposition to coma, in most cases swelling, which ended in dropsy; they had rigors, and were delirious towards death.

14. The form of body peculiarly subject to phthisical complaints was the smooth, the whitish, that resembling the lentil; the reddish, the blue-eyed, the leucophlegmatic,¹ and that with

¹ I shall not enter into a discussion of the different readings of this interesting passage. I may mention that our great pathological authority on phthisis, Dr. Louis, agrees with Hippocrates in deciding that the lymphatic temperament constitutes a more or less marked predisposition to the development of phthisis. (p. 483.) Galen describes the phlegmatic temperament as being attended with a soft and slightly tumid skin. He attributes the disease in their case to a cacochymy, that is to say, to cachexia. I need scarcely remark that this opinion is strongly advocated by one of the highest authorities of the day, I mean Sir James Clark. See his treatise on Tubercular Phthisis. Galen gives a discussion on the colour of the eyes, about which there is some difficulty, as the ancient terms which relate to colours are not very well defined. The term here used (*χαροπὸς*) may signify either blue or gray. Galen considers this colour of the eyes as a symptom of a cold and humid temperament.

the scapulæ having the appearance of wings : and women in like manner,¹ with regard to the melancholic and subsanguineous, phrenitic and dysenteric affections principally attacked them. Tenesmus troubled young persons of a phlegmatic temperament. Chronic diarrhœa, acrid and viscid discharges from the bowels attacked those who were troubled with bitter bile.

15. To all those which have been described, the season of spring was most inimical, and proved fatal to the greatest numbers : the summer was the most favorable to them, and the fewest died then ; in autumn, and under the Pleiades, again there died great numbers. It appears to me, according to the reason of things, that the coming on of summer should have done good in these cases ; for winter coming on cures the diseases of summer, and summer coming on removes the diseases of winter. And yet the summer in question was not of itself well constituted, for it became suddenly hot, southerly, and calm ; but, notwithstanding, it proved beneficial by producing a change on the other constitution.

16. I look upon it as being a great part of the art to be able to judge properly of that which has been written. For he that knows and makes a proper use of these things, would appear to me not likely to commit any great mistake in the art. He ought to learn accurately the constitution of every one of the seasons, and of the diseases ; whatever that is common in each constitution and disease is good, and whatever is bad ; whatever disease will be protracted and end in death, and whatever will be protracted and end in recovery ; which disease of an acute nature will end in death, and which in recovery. From these it is easy to know the order of the critical days, and prognosticate from them accordingly. And to a person who is skilled in these things, it is easy to know to whom, when, and how aliment ought to be administered.²

¹ There is an ambiguity in the part of the sentence which relates to women, as Galen states in his Commentary. Galen does not hesitate to declare that women are more subject to phthisis than men, an opinion upon which modern authorities are not at all agreed. See the recent publications of Louis and Clark on Phthisis.

² The last paragraph, and the latter clause of the preceding one, were at first attached to the end of the subsequent cases, and were transferred to their present position by Dioscorides the commentator a short time before Galen. They evidently embody a most distinct and admirable enumeration of the general facts with which the practical physician ought to make himself acquainted.

§ 17. SIXTEEN CASES.¹

CASE I.—In *Thasus*, the *Parian* who lodged above the Temple of *Diana* was seized with an acute fever, at first of a continual and ardent type; thirsty, inclined to be comatose at first, and afterwards troubled with insomnolency; bowels disordered at the beginning, urine thin. On the sixth day, passed oily urine, was delirious. On the seventh, all the symptoms were exacerbated; had no sleep, but the urine of the same characters, and the understanding disordered; alvine dejections bilious and fatty. On the eighth, a slight epistaxis; small vomiting of verdigris-green matters; slept a little. On the ninth, in the same state. On the tenth, all the symptoms gave way. On the eleventh, he sweated, but not over the whole body; he became cold, but immediately recovered his heat again. On the fourteenth, acute fever; discharges bilious, thin, and copious; substances floating in the urine; he became incoherent. On the seventeenth, in a painful state, for he had no sleep, and the fever was more intense. On the twentieth, sweated all over; apyrexia, dejections bilious; aversion to food, comatose. On the twenty-fourth, had a relapse. On the thirty-fourth, apyrexia; bowels not confined; and he again recovered his heat. Fortieth, apyrexia, bowels confined for no long time, aversion to food; had again slight symptoms of fever, and throughout in an irregular form; apyrexia at times, and at others not; for if the fever intermitted, and was alleviated for a little, it immediately relapsed again; he used much and improper food; sleep bad; about the time of the relapse he was delirious; passed thick urine at that time, but troubled, and of bad characters; bowels at first confined, and again loose; slight fevers of a continual type; discharges copious and thin. On the hundred and twentieth day he died. In this patient the bowels were constantly from the first either loose, with bilious, liquid, and copious dejections, or constipated with hot and undigested feces; the urine throughout bad; for the most part coma, or insomnolency with pain; continued aversion to food. Ardent fever.

¹ We learn from the Commentary of Galen that some of the older critics supposed that the sixteen cases about to be related had been selected by Hippocrates in illustration of his doctrines, as laid down in the preceding description of what is generally entitled the Pestilential Season. Galen, however, does not incline to this opinion.

Explanation of the characters. It is probable that the weakness produced by the fever, the phrenitis, and affection of the hypochondrium caused death on the hundred and twentieth day.¹

CASE II.—In Thasus, the woman who was lodged near the Cold Water, on the third day after delivery of a daughter, the lochial discharge not taking place, was seized with acute fever, accompanied with rigors. But a considerable time before delivery she was feverish, confined to bed, and loathed her food. After the rigor which took place, continual and acute fevers, with rigors. On the eighth and following days, was very incoherent, and immediately afterwards became collected; bowels disordered, with copious, thin, watery, and bilious stools; no thirst. On the eleventh was collected, but disposed to coma; urine copious, thin, and black; no sleep. On the twentieth, slight chills, and immediately afterwards was warm; slight incoherence; no sleep; with regard to the bowels, in the same condition; urine watery, and copious. On the twenty-seventh, free from fever; bowels constipated; not long afterwards violent pain of the right hip-joint for a considerable time; fevers afterwards supervened; urine watery. On the fortieth, complaints about the hip-joint better; continued coughs, with copious, watery sputa; bowels constipated; aversion to food; urine the same; fever not leaving her entirely, but having paroxysms in an irregular form, sometimes present, sometimes not. On the sixtieth, the coughs left her without a crisis, for no concoction of the sputa took place, nor any of the usual

¹ This is an example of one of those protracted fevers of an intermittent type, which, as I have been informed by an intelligent physician who practised for several years in the Ionian Islands, are so common in the climate of Greece. There is not much of any particular value in Galen's Commentary on this case. He informs us that one of the older commentators absurdly maintained the opinion that the country of this patient was given because, according to Asclepiades, the inhabitants of Paros were most especially benefited by bleeding. But, as Galen says, this remark is particularly out of place here, since no mention of venesection occurs in the report. Galen, and after him Foës, have given very lengthy and elaborate disquisitions on the nature of oily urine. The result is, that it is an unfavorable, but not necessarily a fatal, character. It is minutely described by the later authorities on urology, namely, Theophilus and Actuarius. See also the Commentary on PAULUS ÆGINETA, Book II, 14, Sydenham Society's edition.

abscesses; jaw on the right side convulsively retracted; comatose, was again incoherent, and immediately became collected; utter aversion to food; the jaw became relaxed; alvine discharges small, and bilious; fever more acute, affected with rigors; on the following days lost her speech, and again became collected, and talked. On the eightieth she died. In this case the urine throughout was black, thin, and watery; coma supervened; there was aversion to food, despondency, and insomnolency; irritability, restlessness; she was of a melancholic turn of mind.

Explanation of the characters. It is probable that the suppression of the lochial discharge caused death on the eightieth day.¹

CASE III.—In Thasus, Pythion, who was lodged above the Temple of Hercules, from labour, fatigue, and neglected diet, was seized with strong rigor and acute fever; tongue dry, thirsty, and bilious; had no sleep; urine darkish, encorema floating on the top of the urine, did not subside. On the second day, about noon, coldness of the extremities, especially about the hands and head; loss of speech and of articulation; breathing short for a considerable time; recovered his heat; thirst; passed the night quietly; slight sweats about the head. On the third, passed the day in a composed state; in the evening, about sunset, slight chills; nausea, agitation; passed the night in a painful state; had no sleep; small stools of compact feces passed from the bowels. On the fourth, in the morning, composed; about noon all the symptoms became exacerbated; coldness, loss of speech, and of articulation; became worse; recovered his heat after a time; passed black urine, having substances floating in it; the night quiet; slept. On the fifth, seemed to be lightened, but a painful weight about the belly; thirsty, passed the night in a painful state. On the sixth, in the morning, in a quiet state; in the evening the pains greater; had a paroxysm; in the evening the bowels pro-

¹ This appears clearly to be a case of fever, complicated with, but not produced by parturition. Galen, however, seems to ascribe the fever and its fatal results to the retention of the lochial discharge. The characters of the urine, he properly remarks, are unfavorable, being copious, thin, and black. He also calls attention to the want of proper concoction in the sputa, to which he attributes the fatal relapse.

perly opened by a small clyster; slept at night. On the seventh, during the day, in a state of nausea, somewhat disturbed; passed urine of the appearance of oil; at night, much agitation, was incoherent, did not sleep. On the eighth, in the morning, slept a little; but immediately coldness, loss of speech, respiration small and weak; but in the evening recovered his heat again; was delirious, but towards day was somewhat lightened; stools small, bilious, and unmixed. On the ninth, affected with coma, and with nausea when roused; not very thirsty; about sunset he became restless and incoherent; passed a bad night. On the tenth, in the morning, had become speechless; great coldness; acute fever; much perspiration; he died. His sufferings were on the even days.

Explanation of the characters. It is probable that the excessive sweats caused death on the tenth day.¹

CASE IV.—The patient affected with phrenitis, having taken to bed on the first day, vomited largely of verdigris-green and thin matters; fever, accompanied with rigors, copious and continued sweats all over; heaviness of the head and neck, with pain; urine thin, substances floating in the urine small, scattered, did not subside; had copious dejections from the bowels; very delirious; no sleep. On the second, in the morning, loss of speech; acute fever; he sweated; fever did not leave him; palpitations over the whole body, at night, convulsions. On the third, all the symptoms exacerbated; he died.

Explanation of the characters. It is probable that the sweats and convulsions caused death.²

¹ Galen's Commentary on this case is written in his usual light and diffuse style, but contains very little which is calculated to throw light on the text, or on the nature of the disease which is here described. If any one find difficulty in comprehending the characters of the respiration, as given in this narrative, he can turn to Galen's work, On Difficulty of Breathing, where they are explained very fully. I may just mention that by shortness of breath (*βραχύπνοος*) was understood, by Hippocrates and Galen, frequency of the act of respiration.

² This case, as Galen remarks, is an instance of the most acute form of phrenitis. He states that he himself had met with cases of phrenitis in which the patients had died on the fourth and fifth day, but that he had never seen a case which proved so suddenly fatal as the present one. He further makes some very interesting reflections on the suddenness of the attack in such cases, which is the more wonderful, as the exciting cause of them must be gradually collecting in the system, and acquiring strength and intensity, and it is singular that it should then be developed all at once,

CASE V.—In Larissa, a man, who was bald, suddenly was seized with pain in the right thigh; none of the things which were administered did him any good. On the first day, fever acute, of the ardent type, not agitated, but the pains persisted. On the second, the pains in the thigh abated, but the fever increased; somewhat tossed about; did not sleep; extremities cold; passed a large quantity of urine, not of a good character. On the third, the pain of the thigh ceased; derangement of the intellect, confusion, and much tossing about. On the fourth, about noon, he died. An acute disease.¹

and cut off the patient in a very short time, as if he had swallowed poison, or had been stung by a venomous animal. He compares the latency of the febrile humour in the system to that of the mad dog, which will remain for a long time in the body of a person who has been bitten, and then all at once will manifest its effects, by inducing the rage. For the ancient views on the subject of Hydrophobia, see PAULUS ÆGINETA, Book V, 4, Sydenham Society's edition.

¹ Galen, in his Commentary on this case, enters into a train of reflections how a physician ought to proceed when called in to a patient so circumstanced. He ought, in the first place, as the Commentator properly remarks, to make careful inquiry, in order to find out whether the pain in the limb be occasioned by any external cause, as persons often meet with local injuries by sudden twisting and movements of their limbs, or even by laying a limb uncomfortably in bed, without being aware of it. When no such cause of the complaint can be discovered, Galen says the physician should try to ascertain whether or not it be connected with the regimen or temperament of the patient. If it shall turn out that the body is in a plethoric state, general bleeding must be had recourse to, before any local applications are made to the part. It is then to be fomented, and liquid and heating medicines applied to it. Whether or not this was the mode of treatment which Hippocrates adopted in this case, Galen cannot take upon himself to affirm, as no mention is made in the report of venesection, nor of the particular remedies which were used. I am of opinion that this is one of the most interesting cases in the whole Collection, for I believe it to be a faithful report of a disease which on three several occasions I have met with during an active professional practice of thirty years, and which I have not seen described elsewhere. In all my cases, indeed, the patients were from twelve to sixteen years old, but in other respects the symptoms were the same as here described by Hippocrates. In every one of the cases the patient was seized with pain and swelling of the thigh, attended with high fever, great jactitation, and partial delirium. They all proved fatal in the course of three or four days. Whether the disease be connected with diffuse inflammation of the areolar substance, or with inflammation of the veins, or whether it be a general fever complicated with a local affection of the limb, or what may be the exact nature of the affection, I have not been able to determine. From what is stated above, it will be clearly seen how justly Hippocrates deserves the compliment paid to him by Galen, of having been, of all medical authorities, the most careful in observing the phenomena of disease. (*Opera Galeni*, tom. vii, p. 829, ed. Kühn.)

CASE VI.—In Abdera, Pericles was seized with a fever of the acute, continual type, with pain; much thirst, nausea, could not retain his drink; somewhat swelled about the spleen, with heaviness of the head. On the first day, had hemorrhage from the left nostril, but still the fever became more violent; passed much muddy, white urine, which when allowed to stand did not subside. On the second day, all the symptoms were exacerbated, yet the urine was thick, and more inclined to have a sediment; the nausea less; he slept. On the third, fever was milder; abundance of urine, which was concocted, and had a copious sediment; passed a quiet night. On the fourth, had a copious and warm sweat all over about noon; was free of fever, had a crisis, no relapse. An acute affection.¹

CASE VII.—In Abdera, the young woman who was lodged in the Sacred Walk was seized with an ardent fever. She was thirsty, and could not sleep; had menstruation for the first time. On the sixth, much nausea, flushing, was chilly, and tossed about. On the seventh, in the same state; urine thin, but of a good colour; no disturbance about the bowels. On the eighth, deafness, acute fever, insomnolency, nausea, rigors, became collected; urine the same. On the ninth, in the same state, and also on the following days; thus the deafness persisted. On the fourteenth, disorder of the intellect; the fever abated. On the seventeenth, a copious hemorrhage from the nose; the deafness slightly better; and on the following days, nausea, deafness, and incoherence. On the twentieth, pain of the feet; deafness and delirium left her; a small hemorrhage from the nose; sweat, apyrexia. On the twenty-fourth, the fever returned, deafness again; pain of the feet remained; incoherence. On the twenty-seventh, had a copious sweat, apyrexia; the deafness left her; the pain of her feet partly remained; in other respects had a complete crisis.

Explanation of the characters. It is probable that the

¹ Galen remarks, that this is one of those cases which appear formidable to the inexperienced, but which those who are practised in the art judge of as being likely to come to a speedy crisis. He adverts to the slight swelling of the spleen and the characters of the urine, which soon showed a proper sediment, as being particularly favorable symptoms. The more that we study Hippocratic medicine, we shall be the more convinced that too little attention has been paid of late years to the physical characters of the urine in all febrile complaints.

restoration of health on the twentieth day was the result of the evacuation of urine.¹

CASE VIII.—In Abdera, Anaxion, who was lodged near the Thracian Gates, was seized with an acute fever; continued pain of the right side; dry cough, without expectoration during the first days, thirst, insomnolency; urine well coloured, copious, and thin. On the sixth, delirious; no relief from the warm applications. On the seventh, in a painful state, for the fever increased, while the pains did not abate, and the cough was troublesome, and attended with dyspnoea. On the eighth, I opened a vein at the elbow, and much blood, of a proper character, flowed; the pains were abated, but the dry coughs continued. On the eleventh, the fever diminished; slight sweats about the head; coughs, with more liquid sputa; he was relieved. On the twentieth, sweat, apyrexia; but after the crisis he was thirsty, and the expectorations were not good. On the twenty-seventh the fever relapsed; he coughed, and brought up much concocted sputa: sediment in the urine copious and white; he became free of thirst, and the respiration was good. On the thirty-fourth, sweated all over, apyrexia, general crisis.

Explanation of the characters. It is probable that the evacuation of the sputa brought about the recovery on the thirty-fourth day.²

¹ Galen's Commentary on this case is unusually brief. He holds it to be a case connected with general plethora, as indicated by the good colour of the urine. He once more makes the remark that a favorable issue of the case might have been anticipated, from the characters of the urine.

² Galen remarks in his Commentary, that of all the cases related in the First and Third Books of the Epidemics, this is the only one in which Hippocrates says that the patient was bled, not, he adds, that this was the only case in which venesection was adopted, but because, although the general rule was not to bleed after the fourth day, the patient, in the present instance, was bled on the eighth. Many others, he says, were no doubt bled on the second, third, and fourth days, but of these bleedings, and the other means used, Hippocrates in general takes no notice, except that he sometimes states, in order to render the malignity of the disease more apparent, that it was nowise benefited by the remedies applied. In other cases he adds, he would appear, from the words he uses (such as "as far as I am aware"), not to have attended the patient at the commencement. Galen further directs attention to the characters of the expectoration, the concoction of which he looks upon as having proved the means of carrying off this fever. Galen has reviewed the symptoms of this case very fully, and in a most interesting manner, in the Second Book of his

CASE IX.—In Abdera, Heropythus, while still on foot, had pain in the head, and not long afterwards he took to bed; he lived near the High Street. Was seized with acute fever of the ardent type; vomitings at first of much bilious matter; thirst; great restlessness; urine thin, black, substances sometimes floating high in it, and sometimes not; passed the night in a painful state; paroxysms of the fever diversified, and for the most part irregular. About the fourteenth day, deafness; the fever increased; urine the same. On the twentieth and following days, much delirium. On the thirtieth, copious hemorrhage from the nose, and became more collected; deafness continued, but less; the fever diminished; on the following days, frequent hemorrhages, at short intervals. About the sixtieth, the hemorrhages ceased, but violent pain of the hip-joint, and increase of fever. Not long afterwards, pains of all the inferior parts; it then became a rule, that either the fever and deafness increased, or, if these abated and were lightened, the pains of the inferior parts were increased. About the eightieth day, all the complaints gave way, without leaving any behind; for the urine was of a good colour, and had a copious sediment, while the delirium became less. About the hundredth day, disorder of the bowels, with copious and bilious evacuations, and these continued for a considerable time, and again assumed the dysenteric form with pain; but relief of all the other complaints. On the whole, the fevers went off, and the deafness ceased. On the hundred and twentieth day, had a complete crisis. Ardent fever.

Explanation of the characters. It is probable that the bilious discharge brought about the recovery on the hundred and twentieth day.¹

work, On Difficulty of Breathing, see ed. Kühn, tom. vii, p. 854, &c. That it was a case of fever complicated with pleurisy seems clear, as Galen remarks. Galen further treats of the characters of the sputa in this case, in the First Book of his work, On Crises. Upon reference to the edition of Littré, it will be seen that unfortunately there is considerable variation in the readings of this passage.

¹ On this case Galen makes the remark that this patient must have had a strong constitution, otherwise it could not have withstood such an affection. He adds that, moreover, his pulse must have possessed strength, but that, as formerly said by him, this department of prognostics is altogether omitted by Hippocrates, in his reports of febrile cases. He further remarks that the respiration and appetite were not to complain of, and the only bad symptom was the thinness and blackness of the

CASE X.—In Abdera, Nicodemus was seized with fever from venery and drinking. At the commencement he was troubled with nausea and cardialgia; thirsty, tongue was parched; urine thin and dark. On the second day, the fever exacerbated; he was troubled with rigors and nausea; had no sleep; vomited yellow bile; urine the same; passed a quiet night, and slept. On the third, a general remission; amelioration; but about sunset felt again somewhat uncomfortable; passed an uneasy night. On the fourth, rigor, much fever, general pains; urine thin, with substances floating in it; again a quiet night. On the fifth, all the symptoms remained, but there was an amelioration. On the sixth, some general pains; substances floating in the urine; very incoherent. On the seventh, better. On the eighth, all the other symptoms abated. On the tenth, and following days, there were pains, but all less; in this case throughout, the paroxysms and pains were greater on the even days. On the twentieth, the urine white and thick, but when allowed to stand had no sediment; much sweat; seemed to be free from fever; but again in the evening he became hot, with the same pains, rigor, thirst, slightly incoherent. On the twenty-fourth, urine copious, white, with an abundant sediment; a copious and warm sweat all over; apyrexia; the fever came to its crisis.

Explanation of the characters. It is probable that the cure was owing to the bilious evacuations and the sweats.¹

CASE XI.—In Thasus, a woman, of a melancholic turn of mind, from some accidental cause of sorrow, while still going about, became affected with loss of sleep, aversion to food, and had thirst and nausea. She lived near the Pylades, upon the Plain. On the first, at the commencement of night, frights, much talking, despondency, slight fever; in the morning, frequent spasms, and when they ceased, she was incoherent and

urine, which therefore required a long time for nature to overcome, by occasioning hemorrhage, pain of the hip-joint, and determination downwards. He adds, that great diseases require decided crises, and that even with those now mentioned, the disease was not entirely removed in this case, until concoction in the urine took place.

¹ Galen passes over this case without any remark worth mentioning. I cannot but think that the abundant sediment in the urine, which preceded the favorable crisis, is a fact in the case well deserving to be noticed. Galen, however, in the present instance, omits all notice of it, and ascribes the recovery to the profuse sweat.

talked obscurely; pains frequent, great, and continued. On the second, in the same state; had no sleep; fever more acute. On the third, the spasms left her; but coma, and disposition to sleep, and again awaked, started up, and could not contain herself; much incoherence; acute fever; on that night a copious sweat all over; apyrexia, slept, quite collected; had a crisis. About the third day, the urine black, thin, substances floating in it generally round, did not fall to the bottom; about the crisis a copious menstruation.¹

CASE XII.—In Larissa,² a young unmarried woman was seized with a fever of the acute and ardent type; insomnolency, thirst; tongue sooty and dry; urine of a good colour, but thin. On the second, in an uneasy state, did not sleep. On the third, alvine discharges copious, watery, and greenish, and on the following days passed such with relief. On the fourth, passed a small quantity of thin urine, having substances floating towards its surface, which did not subside; was delirious towards night. On the sixth, a great hemorrhage from the nose; a chill, with a copious and hot sweat all over; apyrexia, had a crisis. In the fever, and when it had passed the crisis, the menses took place for the first time, for she was a young woman. Throughout she was oppressed with nausea, and rigors; redness of the face; pain of the eyes; heaviness of the head; she had no relapse, but the fever came to a crisis. The pains were on the even days.³

CASE XIII.—Apollonius, in Abdera, bore up (under the

¹ The only thing of importance in Galen's Commentary on this case is the remark that this woman's melancholy was most probably connected with suppression of the menses, and that to this cause the dark colour of the urine in the present instance is most probably to be ascribed. To the critical evacuations by the sweat and menstruation he attributes the recovery.

² There were several ancient cities of this name, but there can be no doubt that the one here referred to is the celebrated city of Thessaly. See Strabo, Geograph. ix.

³ Galen considers it a remarkable feature in this case that although the crisis occurred on the sixth day, there was no relapse. The recovery he ascribes to the copious menstruation which then took place for the first time. He also calls attention to the characters of the urine, which, he says, are those which usually accompany delirium, although this is omitted in the Prognostics.

fever?) for some time, without betaking himself to bed. His viscera were enlarged, and for a considerable time there was a constant pain about the liver, and then he became affected with jaundice; he was flatulent, and of a whitish complexion. Having eaten beef, and drunk unseasonably, he became a little heated at first, and betook himself to bed, and having used large quantities of milk, that of goats and sheep, and both boiled and raw, with a bad diet otherwise, great mischief was occasioned by all these things; for the fever was exacerbated, and of the food taken scarcely any portion worth mentioning was passed from the bowels; the urine was thin and scanty; no sleep; troublesome meteorism; much thirst; disposition to coma; painful swelling of the right hypochondrium; extremities altogether coldish; slight incoherence, forgetfulness of everything he said; he was beside himself. About the fourteenth day after he betook himself to bed, had a rigor, became heated, and was seized with furious delirium; loud cries, much talking, again composed, and then coma came on; afterwards the bowels disordered, with copious, bilious, unmixed, and undigested stools; urine black, scanty, and thin; much restlessness; alvine evacuations of varied characters, either black, scanty, and verdigris-green, or fatty, undigested, and acrid; and at times the dejections resembled milk. About the twenty-fourth, enjoyed a calm; other matters in the same state; became somewhat collected; remembered nothing that had happened since he was confined to bed; immediately afterwards became delirious; every symptom rapidly getting worse. About the thirtieth, acute fever; stools copious and thin; was delirious; extremities cold; loss of speech. On the thirty-fourth he died. In this case, as far as I saw, the bowels were disordered; urine thin and black; disposition to coma; insomnolency; extremities cold; delirious throughout. Phrenitis.¹

¹ Galen, in his Commentary, merely remarks that Hippocrates, at the conclusion of the report, briefly enumerates the more prominent symptoms from which a fatal result might have been confidently prognosticated. By enlarged viscera, in this case, we are informed by Galen in another place, that our author meant inflammation and swelling (Comment. in Rat. Vict. in Acut. c. iii). There can be no doubt that by viscera Hippocrates meant the liver and spleen (see the work just referred to). Galen briefly remarks on this case towards the end of the Second Book of his work, On Difficulty of Breathing.

CASE XIV.—In Cyzicus,¹ a woman who had brought forth twin daughters, after a difficult labour, and in whom the lochial discharge was insufficient, at first was seized with an acute fever, attended with chills; heaviness of the head and neck, with pain; insomnolency from the commencement; she was silent, sullen, and disobedient; urine thin, and devoid of colour; thirst, nausea for the most part; bowels irregularly disordered, and again constipated. On the sixth, towards night, talked much incoherently; had no sleep. About the eleventh day was seized with wild delirium, and again became collected; urine black, thin, and again deficient, and of an oily appearance; copious, thin, and disordered evacuations from the bowels. On the fourteenth, frequent convulsions; extremities cold; not in anywise collected; suppression of urine. On the sixteenth, loss of speech. On the seventeenth, she died. Phrenitis.

Explanation of the characters. It is probable that death was caused, on the seventeenth day, by the affection of the brain consequent upon her accouchement.²

CASE XV.—In Thasus, the wife of Dealces, who was lodged upon the Plain, from sorrow was seized with an acute fever, attended with chills. From first to last she wrapped herself up in her bedclothes; still silent, she fumbled, picked, bored, and gathered hairs (from them); tears, and again laughter; no sleep; bowels irritable, but passed nothing; when directed, drank a little; urine thin and scanty; to the touch of the hand the fever was slight; coldness of the extremities. On the ninth, talked much incoherently, and again became composed and silent. On the fourteenth, breathing rare, large, at intervals; and again hurried respiration. On the sixteenth, looseness of the bowels from a stimulant clyster; afterwards she passed her drink, nor could retain anything, for she was completely insensible; skin parched and tense. On the twentieth, much talk, and again became composed; loss of speech; respiration hurried. On the twenty-

¹ Cyzicus was a flourishing city on the Propontis. See Strabo, Geogr. xii; and Pliny, H. N. v. 32.

² Galen, in his Commentary, accounts for this fatal disease upon the supposition that the uterus was inflamed, and affected the brain by sympathy, hence maniacal delirium and convulsions were the consequence. Galen, both in his Commentary, and in his work On Crises, refers to this case, in confirmation of his doctrine of critical days.

first she died. Her respiration throughout was rare and large; she was totally insensible; always wrapped up in her bed-clothes; either much talk, or complete silence throughout. Phrenitis.¹

CASE XVI.—In Melibœa,² a young man having become heated by drinking and much venery, was confined to bed; he was affected with rigors and nausea; insomnolency and absence of thirst. On the first day much fœces passed from the bowels along with a copious flux; and on the following days he passed many watery stools of a green colour; urine thin, scanty, and deficient in colour; respiration rare, large, at long intervals; softish distension of the hypochondrium, of an oblong form, on both sides; continued palpitation in the epigastric region throughout; passed urine of an oily appearance. On the tenth, he had calm delirium, for he was naturally of an orderly and quiet disposition; skin parched and tense; dejections either copious and thin, or bilious and fatty. On the fourteenth, all the symptoms were exacerbated; he became delirious, and talked much incoherently. On the twentieth, wild delirium, jactitation, passed no urine; small drinks were retained. On the twenty-fourth he died. Phrenitis.³

¹ I will venture to affirm, without much fear of contradiction, that in all the works on medicine, both ancient and modern, there is not to be found so vivid a delineation of the symptoms of fever, complicated with effusion on the brain. Those who have added new features to the picture, have thereby detracted from the general effect. Galen, in his Commentary, insists more especially on the character of the respiration, but there does not appear to me to be any particular obscurity about it. He also touches on this case towards the end of the Second Book, On Difficulty of Breathing. After reading all his prolix disquisition on the subject, one does not feel much better instructed on the subject. Galen at times, nay, very frequently, seems to forget a favorite saying of his own, namely, that he who would wish to lay in a copious store of knowledge during life, should trouble himself little about words, and attend principally to things.

² There were two Thessalian cities of this name, the one in Estiæotis, and the other in Magnesia. This would appear to be the latter. See Pliny, *Il. N.* iv, 9; and Livy, xlv, 13.

³ Galen's Commentary contains few observations of much interest, and which are not sufficiently obvious. Excesses in drinking and debauchery, he remarks, hurt the nerves and the origin of them, that is to say, the brain. Thus he accounts for the delirium with which this case of fever was attended. All the other prominent symptoms, such as the palpitation in the epigastric region, the swelling of the hypochondrium, and the like, were noticed previously. Galen also reviews the symptoms of this case in his work *On Difficulty of Breathing*, *Il.* *Microsoft*®

ON INJURIES OF THE HEAD.

ON INJURIES OF THE HEAD.

THE ARGUMENT.

THIS treatise opens with a description of the bones of the head, which, although in most respects pretty accurate, is remarkable for containing an account of particular configurations of the cranium, and of certain varieties in the arrangement of the sutures, which it has puzzled modern authorities in anatomy to explain, otherwise than upon the supposition that the writer must have been but imperfectly acquainted with the subject. But as the work otherwise bears evidence that our author must have examined the bones of the head very carefully, and moreover, as in all his works he displays a wonderfully minute acquaintance with osteology, (to say nothing of the historical tradition, mentioned by Pausanias, that he was possessed of a skeleton, which at his death he bequeathed to the Temple of Apollo, at Delphi,) it seems incredible that he should have committed most glaring blunders in describing the prominent features of a part to which it is clear that he had paid very great attention. Moreover, the reputation of Hippocrates for accuracy stood so high, that an eminent authority does not hesitate to declare of him, that he was a man who knew not how to deceive or be deceived.¹ An easy way of getting rid of the difficulty would no doubt be, to adopt the conjecture advanced by Scaliger,² and in part approved of by Riolanus,³ that the treatise had suffered much in early times, from the interpolations of ignorant transcribers; or to hold, with M. Malgaigne,

¹ "Hippocrates qui tam fallere quam falli nescit." (Macrobius in Somn. Scipionis, i, 6.)

² Hippocratis *Coi de Cap. Vuln.*, &c., a Francisco Vertuniano. *Ejusdem textus Græcus* a J. Scalig. Castigatus, &c.

³ *Comment. de Ossibus.*

that the whole work is to be condemned as spurious. But it would be a dangerous practice in ancient criticism, to reject as spurious a work which has such unexceptionable evidence in its favour, although it may contain matter which appears to us derogatory to the reputation of its author, and it will be admitted, by any competent judge who examines the arguments by Scaliger, that the proofs which he brings forward of great interpolations in this treatise, are generally of a very fanciful nature.

On a point so obscure, and which has puzzled so many eminent scholars, it is to be feared that I shall not be able to throw much additional light, but as, consistently with my general plan, I cannot well avoid stating some opinion on the question, I shall endeavour to elucidate it in so far, by giving, in the first place, a brief sketch of the information supplied by all the other ancient authorities who have touched upon this subject. I shall begin, then, with Aristotle, the contemporary of our author, who, in his work 'On the History of Animals,' gives the following very inaccurate description of the sutures of the human skull: "The female cranium has one circular suture, but men generally three, which unite in one point. But a male skull has been seen not having a suture."¹ Celsus describes the sutures in the following terms: "Ex ceteris, quo suturæ pauciores sunt, eo capitis valetudo commodior est. Neque enim certus eorum numerus est, sicut ne locus quidem. Ferè tamen duæ, super aures, tempora a superiori parte discernunt; tertia, ad aures, occipitium a summo capite deducit; quarta, ab eodem vertice per medium caput ad frontem procedit; eaque modo sub imo capillo desinit, modo frontem ipsam secans inter supercilia finitur." (viii, 1.) "Nam neque utique certa sedes, ut supra posui, suturarum est." (viii, 4.) Pliny gives the following description of the head, which it is impossible not to recognise as having been borrowed from our author: "Vertices bini hominum tantum aliquibus. Capitis ossa plana, tenuia,

¹ Hist. Animal., i, 7. In reference to this description, it is stated by Vesalius, who in the course of his life had examined a great number of crania, that it is very rare indeed to meet with a skull in which the sutures are wanting. He accounts for the statement made by Herodotus (Hist. ix) and Aristotle (l. c.), respecting skulls without sutures, upon the supposition that the observations of these authors must have been made upon those of old persons, in whom the sutures are often very indistinct. (Chirurg. Magn., i, 17.)

sine medullis, serratis pectinatim structa compagibus.”¹ Of Ruffus Ephesius I may just mention, that his descriptions of the human body are in general remarkable for their correctness, which is not to be wondered at, as he would appear to have followed, in general, Erasistratus and the other authorities belonging to the great Alexandrian period in anatomy; and that he has described very accurately all the sutures of the human cranium, but says not a word of the different configurations of the head, as here given by our author.² We now come to Galen, who gives a very lengthy description of the various forms of the head, in nearly the same terms as our author, and after alluding to the uses of the sutures, the principal of which he holds to be to permit transpiration from the brain, he proceeds thus to describe the distribution of the sutures: “That there is one which runs straight along the middle of the head, (the sagittal?) and two transverse, (the coronal and lambdoid?) has been stated previously, and need not require many words in this place. For, the head being like an oblong sphere, one was justly made to extend straight through its middle from behind forwards, and two transverse sutures meet it, and the form of the three sutures is like the letter H. For the whole head being more elongated in this case than usual, and, as it were, compressed towards the ears, it was equitable that the number of the sutures should be unequal as to length and breadth, otherwise Nature would undeservedly have been named just, by Hippocrates, in thus giving equal gifts to the unequal. But it is not the case; for being most just, she formed the strongest suture which extends along the length of the head single, being thus proportionate to the width of the parts on both sides of it; namely, on the right and on the left; but she formed the transverse double in number, the one behind, as formerly said, called the lambdoid, and the other before, called the coronal, so that the bone of the head between these two sutures might be equal to those in the middle, on each side (the parietal bones?). The sutures of the head, in that configuration which is acuminate,³ furnish a very great example

¹ H. N., xi, 48; ed. Hardouin.

² De Partib. Animal., p. 34; ed. Londin.

³ Φοξός. The exact meaning of this term is well defined by Eustathius in his Commentary on Homer (ad Iliad., ii, 219), ὁ ἐις ὄξὺ λήγουσαν ἔχων τὴν κεφαλὴν. It is excellently expressed by Damm as follows: “One whose head diminishes towards the top like a sugar-loaf.” (Lexicon Homericum in voce φοξός.)

of the justness of Nature. For there are three principal figures of the head: the one entirely opposed to the natural configuration already described, when the head loses both its protuberances, that behind and the other before, and is equal on all hands, and like a true sphere; and two others, the one form having no protuberance in front, and the other none in the occiput. The sutures of the spherical head are like the letter χ , two only in number, and intersecting one another; the one extending transverse from the one ear to the other, and the other extending straight through the middle of the vertex to the middle of the forehead. For, as when one part of the head is excessive, being longer than the other, it was just that the longer form should have more sutures, so, when both are alike, Nature bestowed an equal number on both. But in the head which wants the protuberance at the occiput, the straight and the coronal sutures remain, but the lambdoid is wanting (it being near to the protuberance that is wanting), so that the figure of the two resembles the letter T; as also when the protuberance of the head in front is wanting, the coronal at the same time is wanting, but there remains the one running lengthways and joining the lambdoid, and this form of construction is made to resemble the letter T. A fourth species of acuminated (sugar-loaf) head might be imagined, but which does not occur, with the head more prominent at the two ears than in front and behind." He goes on to state the reasons why there is no such construction of the head as this, and concludes as follows: "Wherefore Hippocrates described four configurations, and the sutures of each, in the manner we have now said that they exist, being justly distributed to each configuration by Nature as to position and number."¹ The description of the bones and sutures of the head, given in the Latin work 'De Ossibus,' generally attributed to Galen, is to the same effect. The same number of distinct configurations of the head, and the same characters as regards the sutures, is also given by Avicenna, who professedly copies from Galen. (I, i, 5, 3.)

When examined together, these descriptions certainly must be admitted to have the appearance of being all derived from one original, namely, from our author, in this place; and taken literally, there can be no doubt that their meaning amounts to

this: that the number of the sutures varies with the form of the head; that when there are protuberances both before and behind, the head in its upper part has two transverse sutures, namely, the coronal and the lambdoid, and one longitudinal, namely, the sagittal; that if the anterior protuberance be wanting, the coronal is wanting, and, if the posterior, the lambdoid. Now I need scarcely remark, that modern anatomists do not recognise such varieties in the configuration of the head nor in the numbers of the sutures, and that it is very rare indeed for either the coronal or the lambdoid suture to be found wanting. To all appearance, then, Galen was mistaken, and it only appears remarkable that, with all his knowledge of anatomy, theoretical and practical, and considering the opportunities which he must have possessed of examining human skeletons in Alexandria, he should have failed to observe and describe the bones of the cranium for himself.

Before stating my own conjectures on this question, it may be interesting to examine the solution of it attempted by authorities who lived about the period when the original study of human anatomy was revived in modern times. In the first place, then, I may mention that Ambrose Paré, who, I need scarcely say, was possessed of no mean talent for original observation, in treating of fractures of the head, adopts exactly the description given by Hippocrates; thus he describes "the bunches of the head" in nearly the same terms as our author, and adds, that "such bunches change the figure and site of the sutures," and that "there be some skulls that want the foremost suture, and other some the hind, and sometimes none of the true sutures, but only the false, or spurious, remain."¹ Nay, it cannot but appear remarkable, that Vesalius, the great antagonist of Galen and of the ancient authorities in general, in the present instance does not venture to call in question their opinion, but gives a description of the different forms of the head, and the varieties of the sutures, which scarcely at all differs from that given by Hippocrates.² It is singular, also, that certain other authorities, who were much more disposed to show a leaning to antiquity, such as Columbus, Eustachius, Fallopius, and Riolanus, should, in the present instance, have

¹ Surgery, v. 4.

² Chirurg. Mag., i, 17.

manifested a more independent spirit in challenging the authority of Hippocrates, though, at the same time, they show a disposition to find out some mode of bringing him clear off. Thus, for example, Riolanus is compelled to admit that there is no such variety in the forms and numbers of the sutures as Hippocrates describes; but he attempts to free him from error, by suggesting that the cases in which Hippocrates found them wanting must have been those of old men.¹ He also quotes some very extraordinary instances, in which something approaching the varieties described by our author had been remarked.² Fallopius does not hesitate, in his great anatomical work, to express the surprise he felt that all the authorities should have assented to the descriptions of the protuberances and sutures of the head given by Hippocrates; for that he, after having examined large heaps of crania in the Musca of Ferrara and Florence, had not found that they agreed with the descriptions given by Hippocrates; that he had seen crania without a suture, and yet not wanting in the protuberances; and in like manner, that he had seen the coronal suture obliterated, and yet the skull possessed its anterior prominence, and the lambdoid wanting, although the posterior protuberance was as usual. Altogether, then, in this work he modestly ventures to impugn the authority of Hippocrates.³ In his work entitled 'Expositio in Librum Galeni de Ossibus,' he adopts the same views, and there declares that he had never seen the sutures obliterated except from old age. But, in his work entitled 'Expositio in Lib. Hippocrat. de Vulneribus Capitis,' he gives two suppositions, which he had devised in order to defend the authority of Hippocrates: first, that Hippocrates did not give these varieties of form as real, but as hypothetical; and second, that he merely described them as being the vulgar opinion, without pledging himself to the correctness of the description. These, as far as I am aware, are the only defences which have ever been set up for our author in this matter, and it must be admitted that they are not very satisfactory. I shall now present the reader with the conjectural explanation which has occurred to myself. I have imagined that what Hippocrates meant was

¹ It is well known that in very advanced age the sutures get nearly effaced. See the Cyclopædia of Anatomy, vol. i, p. 745.

² Comment. de Ossibus.

³ Obs. Anatom.

to express himself to the following effect: when the forehead is remarkably prominent, and, at the same time, there is a great depression behind, the cranium, if looked upon from above, will show the coronal suture running across the fore part of the head, and the sagittal through its middle, while the lambdoid will be inconspicuous, from being below the level of the coronal. The two together, then, would form some resemblance to the letter T. When, on the other hand, the forehead is low, that is to say, wants its normal development, and the occiput is unusually prominent, the lambdoid suture joins the sagittal, so as to present some appearance of the same letter reversed. But in a square-built head, where the frontal and occipital regions have protuberances equally developed, the coronal and lambdoid sutures run nearly parallel to one another, and are joined in the middle by the sagittal, in which case the three sutures may be imagined to present some resemblance to the Greek letter H. When there is no protuberance either before or behind, and the sagittal suture passes through the middle of the bone down to the nasal process, the coronal suture intersects it, so as to give them something like the shape of the Greek letter χ .¹ I offer this explanation, however, merely as a conjecture, and wish the reader to judge of it accordingly.

I now proceed to give an analysis of the contents of this treatise, and to attempt to form a correct estimate of their value.

Injuries of the cranial bones are divided by our author into five orders, as follows: 1, simple fractures, *or* fissures of various kinds and sizes (§ 4); 2, contusion, without fracture or depression (§ 5); 3, fractures attended with depression (§ 6); 4, the *hedra*, that is to say, the indentation or cut in the outer table of the bone, and not necessarily attended either with fracture or contusion (§ 7); 5, the counter-fissure, *or* *fracture par contre-coup* (§ 8). Of these, the first and second, that is to say, the simple fracture and the severe contusion, require the operation of trepanning; whereas neither the *hedra* (*or* simple cut) nor the depressed fracture require it, and the counter-fissure does not admit it, owing to the obscurity of the symptoms with which it is attended (§ 9).

¹ This letter was very varied in form. See Galen and Fœs.

In the first place, the surgeon is to ascertain the nature and situation of the wound, by a careful investigation of all the circumstances of the case, but so as to avoid the use of the sound, if possible (§§ 9, 10).

Next are described the various kinds of injury which the different sorts of weapons are most likely to inflict, and from the consideration of them the surgeon is to form an estimate of the probable nature of the accident (§ 11).

The characters of the *hedra*, or superficial injury of the cranium, and the difficulty of forming a correct estimate of it, when complicated by the presence of a suture, are strongly insisted upon (§ 12).

The principles upon which the treatment of injuries situated in different parts of the head should be treated, are carefully defined and stated. Great, and as now would be thought, superfluous directions are given, for ascertaining whether or not a fissure exists in the bone. The treatment, as far as applications go, is to be mild and desiccant. When a fracture cannot be made to disappear by scraping, the trepan is to be applied (§§ 13, 14).

The dangers which the bone incurs of becoming affected from the soft parts, are strongly insisted upon, and applications of a drying nature are prescribed (§ 15).

The condition of a piece of bone which is going to exfoliate is correctly and strikingly described (§ 16).

The treatment of depression is laid down, and the danger of applying the trepan in this case is strongly insisted upon (§ 17).

The peculiarities in the case of children are pointed out. Under certain circumstances, when there is contusion combined with the fracture, he admits of perforating the skull with a small trepan (§ 18).

When, after a severe injury, symptoms of irritation and inflammation appear to be coming on, the surgeon is to lose no time in proceeding to the operation. Some correct observations are made on the consequences of injuries of the head on other parts of the body (§ 19).

The treatment of erysipelatous inflammation is distinctly laid down (§ 20).

The operation of trepanning the skull is circumstantially

described, and an interesting description is given of a mode of doing the operation peculiar to our author¹ (§ 21).

This then, as far as I know, is the first exposition ever made of a highly important subject in surgery, upon which professional men are still greatly divided in opinion. I cannot, then, resist the temptation to offer some remarks on the views of practice here recommended, and to institute a comparison between them and certain methods of treatment which have been in vogue of late years.

I can scarcely doubt but it will be generally admitted that the exposition of the subject here given is remarkably lucid, that our author's divisions of it are strongly marked, and his rules of practice, whether correct or not, distinctly laid down. At all events, it will not be affirmed that there is any confusion in his ideas, or that his principles of treatment are not properly defined. After all that has been written on injuries of the head, it would be difficult to point to any better arrangement of them than that of our author, into five orders: 1st, simple fractures without depression; 2d, contusions without fracture or depression; 3d, depression with fracture; 4th, simple incisions without fracture; 5th, fractures *par contre-coup*.

As regards the operation of trepanning the skull, then, our author's rule of practice is sufficiently well defined: we are to operate in the first two of these cases, that is to say, in simple fractures and contusions, but not in the last three, that is to say, in fracture with depression, in simple incisions in the skull, and in the counter-fissure. To begin, then, with the examination of those cases in which the operation is proscribed: it is not to be had recourse to in the counter-fissure, because, from the nature of it, there is generally no rule by which its existence can be positively ascertained, and therefore the case is to be given up as hopeless.

In the simple incision of the bone, that is to say, in the slash or indentation, when the effects of the injury are not transmitted to the brain, it must be obvious that all instrumental interference must be strongly contraindicated.²

¹ The operation consisted in sawing the bone nearly through, and leaving it in this state until it exfoliated, or until the bone could be separated from the dura mater without violence. See below.

² It is no doubt true that a simple cut in the outer table of the bone, when accom-

At first sight it will appear remarkable to a surgeon, who approaches the subject with views exclusively modern, that our author should have interdicted the use of instruments in that class of injuries in which one would be inclined to suppose that they are most clearly indicated, namely, in a fracture of considerable extent, attended with depression of part of the bone from its natural level. Several questions present themselves here to be solved. Is the operation generally required? Has it been successful when it has been had recourse to? When it is to be performed, should it be done immediately, or not until the bad effects of the injury have manifested themselves?

With regard, then, to the necessity of the operation for depressed fractures, the most discordant opinions have prevailed in modern times, and even within a very recent period. Not to go farther back than Pott, it is well known that he established it as the general rule of practice, that in every case of fracture with depression, the skull should be perforated, and the depressed portion of the bone either raised to its level, or entirely removed. But since his time a great change of opinion has taken place on this subject, and of late it has become the general rule of practice (if rule can be predicated, where opinions are so vague and indeterminate) not to interfere, even in cases of depression, unless urgent symptoms have supervened. The late Mr. Abernethy took the lead in questioning the propriety of the rule laid down by Pott; and with the view of demonstrating that the operation may be often dispensed with in fractures complicated with depression, and in order, as he says, "to counteract in some degree the bias which long-accustomed modes of thinking and acting are apt to impress on the minds of practitioners," he relates the

panied with concussion or contusion, may produce fatal effects within, and this, in fact, is stated by our author; but, of itself, as he says, the simple incision or *hedra* cannot be of a dangerous nature, nor require any recourse to instruments. The cases related by M. Littré in the *Argument* were all evidently complicated with contusion, and are thus referable to the second class of these injuries. It is most worthy of remark, that in the very interesting account of "slicing cuts," given in Mr. Guthrie's excellent work, *On Injuries of the Head*, the result, without any operation, by the most simple system of treatment, was in general very favorable. (pp. 95, 96.) On these cuts and superficial injuries of the skull, see further Hennen (pp. 283, 284), Thomson (pp. 51, 52), and Chelius (vol. i, p. 388).

histories of five cases of fracture with depression, which, in the space of twelve months, occurred under his own eyes in St. Bartholomew's Hospital, and which all terminated favorably, although no operation was performed. These cases, supported by the authority of so great a name as Mr. Abernethy, made a deep impression on the profession, especially in this country, so that it became the established rule of practice in British surgery never to interfere in cases of fracture, unless with the view of removing urgent symptoms. See Cooper's Surgical Dictionary, edit. 1825, and the previous edition. The old Hippocratic rule in regard to the trepan, when it is at all to be applied, namely, that of applying it as a preventive of bad consequences, was altogether eschewed, and it was held to be perfectly unwarrantable to perforate the skull, except with the intention of removing substances which were creating irritation and pressure of the brain. This practice, I say, was sanctioned by all the best army and hospital surgeons, from about the beginning of the present century, down to a very recent period. What, then, it will be asked, have been the results? Has experience confirmed the safety of this rule of practice, or has it not? To enable us to solve these queries, we have most elaborate and trustworthy statistics, published a few years ago by Dr. Laurie of Glasgow, which deserve to be seriously studied by every surgeon who may be called upon to discharge the duties of his profession in such cases. I cannot find room for long extracts from these valuable papers, but may be allowed to state a few of the more important results which are to be deduced from Dr. Laurie's interesting investigation. Coming then at once to the point, it deserves to be remarked that Dr. Laurie's ample experience has led him to reject decidedly the rule of practice, which, as I have stated, was established by Mr. Abernethy, about forty years ago, namely, that, in cases of depression, the symptoms of compression should be our guide to the employment of the trephine. He adds, "however well this rule may sound, when delivered *ex cathedra*, it will be found of very little practical utility, for this reason, that if we limit interference to cases exhibiting urgent symptoms of compression, we had much better not interfere at all, inasmuch as such cases prove almost invariably fatal. Such, at least, has been the experience of the Glasgow hospitals; for out of

fifty-six cases operated upon, including, in point of time, a period little short of fifty years, there does not appear in our records a single unequivocal instance of profound insensibility, in which the mere operation of trepanning removed the coma and paralysis, or in any way conduced to the recovery of the patient. We wish to be clearly understood as speaking of the trephine used in reference to the state of the bone in cases of profound insensibility, not employed to remove extravasated blood. Nor does the cause of our want of success appear at all obscure. We believe that in practice the cases of urgent compression dependent on depressed bone alone are very few indeed; we are well aware that many such are on record, we do not presume to impugn their accuracy, we merely affirm that the records of the Glasgow Infirmary do not add to the number." He thus states his views with regard to the principles by which the application of the trephine should be regulated. "From what we have said, it will appear that we coincide with those who, in using the trephine, in cases of compound fracture of the skull, look more to the state of the bone than to the general symptoms, and *who employ it more as a preventive of inflammation and its consequences, than as a cure for urgent symptoms, the immediate result of the accident.*" He goes on to state that "the details we have given are by no means in favour of the trephine. Of fifty-six cases operated upon, eleven recovered, and forty-five died. We feel assured that this affords too favorable a view of the actual results."¹

From the extracts now given, it will be readily seen that this very able authority has rejected entirely the rule of practice established by Mr. Abernethy, and that, in so far, he has reverted to the principle upon which the use of the instruments in simple fractures of the skull was regulated by Hippocrates, namely, as a preventive of the bad consequences of fracture on the brain, rather than with the view of relieving them when established. It will further be seen that, in whatever way applied, the use of perforating instruments in the case of depressed fractures is attended with so unsatisfactory results, that it may be doubted if any other operation in

¹ London and Edinburgh Medical Journal, 1844.

surgery, recognised as legitimate, be equally fatal.¹ Less than one fifth of the patients operated upon recovered. In fact, he very candidly admits "that it would not have been greatly to the disadvantage of the patients admitted into the Glasgow Infirmary, if the trephine had never found its way within its walls." He further, in conclusion, adverts to the well-known fact that Desault, in the end, completely abandoned the operation, and that Mr. Lawrence states, "as far as the experience of this Hospital (St. Bartholomew's) goes, he can cite very few instances in which the life of the patient had been saved by the operation of trephining."²

Altogether, then, it will be allowed to be very questionable whether, in general, the Hippocratic treatment, in cases of fracture with depression, would not be fully as successful as the modern practice of perforating the skull. . Moreover, it is by no means well ascertained, as generally assumed by superficial observers of facts in medical practice, that depressed fractures are more dangerous than other injuries of the skull attended with less formidable appearances. Indeed, recent experience has shown, in confirmation of the opinion advanced by our author, that extensive fractures, with great depression, are frequently not followed by any very dangerous train of consequences. (See Thomson's 'Observations made in the Military Hospitals of Belgium,' pp. 59, 60; Hennen's 'Military Surgery,' p. 287; Cooper's 'Lectures,' xiii; Mr. Guthrie's 'Lectures on Injuries of the Head,' p. 56.) All these, in substance, coincide with Mr. Guthrie, who mentions with approbation that "it has been stated from the earliest antiquity that the greater the fracture, the less the concussion of the brain." I may mention further, that I myself, in the course of my own experience, have known many instances in which fractures with considerable depression were not followed, either immediately or afterwards, by any bad consequences;

¹ Although, as we have stated, Dr. Laurie's rule of practice now be to use the trephine on the preventive principle, it is probable that most of his cases occurred at a period when the practice of Mr. Abernethy was universally followed. His statistics therefore are no test of the results of the operation, when performed on the preventive principle.

² See Lawrence's Clinical Lecture in the Medical Gazette, vol. xxi, p. 345; and Guthrie's work, On Injuries of the Head, p. 113.

while, on the other hand, I have known cases in which simple contusion of the bone, without fracture or extravasation, and without even very urgent symptoms of concussion at first, have proved fatal in the course of a day or two. Now, in such circumstances, Hippocrates would have operated by either perforating the skull at once, down to the meninx, and removing a piece of it, or by sawing it nearly through, and leaving the piece of bone to exfoliate. It will be asked here, what object can he have had in view by this procedure? This he has nowhere distinctly defined; but, judging from the whole tenor of this treatise, and that of his commentator, Galen, I can have no doubt in my mind that what he wished to accomplish was to loosen the bones of the head, and give greater room to the brain, which he conceived to be in a state of congestion and swelling, brought on by the vibration, or *trémoussement*, communicated directly to the brain by the contusion. It is, in fact, an opinion which Hippocrates repeatedly inculcates, not only with regard to the brain, but also respecting injuries of the chest and joints, that severe contusions are, in general, more dangerous than fractures, the effects of the vibration in the former case being more violent than in the latter.¹ Believing, then, that, in contusions, the internal structure of the brain is extensively injured, and that irritation, with hypertrophy, are the consequences, he advocated instrumental interference, in order as I have stated, to give more room to the brain, and relieve it from its state of compression.² This, no doubt, was the rationale of his practice also in simple fractures, not attended with depression, that is to say, his object in perforating the skull was to remove tension, and furnish an outlet to the collection within, whether of a liquid or a gaseous nature.

There can be no doubt that our author also had it in view, by perforating the skull, to afford an issue to extravasated blood and other matters collected within the cranium. This clearly appears from what is stated in section 18, and the same rule of practice is distinctly described by Celsus in the following terms: "Raro, sed aliquando tamen evenit, ut os

¹ See De Articulis, § 50; and Mochlicus, § 36.

² On hypertrophy and swelling of the brain after injuries, see the very interesting observations made by Mr. Guthrie, in his work on Injuries of the Head, p. 125.

quidem totum integrum maneat, intus vero ex ictu vena aliqua in cerebri membrana rupta aliquid sanguinis mittat; isque ibi concretus magnos dolores moveat, et oculos quibusdam obeæcet Sed ferè contra id dolor est, et, eo loco cute incisa, pallidum os reperitur: ideoque id os quoque excidendum est." (viii, 4.) It is quite certain, then, that one of the objects for which our author recommended trepanning, was to give issue to extravasated blood on the surface of the skull. This naturally leads me to compare the results of modern experience in the treatment of cases of contusion, with or without extravasation of blood.

All the earlier of our modern authorities on surgery, such as Theodoric, Pet. c. Largelata, Ambrose Paré, Wiseman, and Fallopius, distinctly held that contusions of the skull, even when not complicated with a fracture, are often of so formidable a nature as to require the use of perforating instruments. The same views are strenuously advocated by Pott, who has described the effects of contusion in very elegant and impressive language. See page 42; ed. Lond. 1780. The upshot is, that one of the consequences of a severe contusion of the bone frequently is separation of the pericranium, "which is almost always followed by a separation between the cranium and the dura mater; a circumstance extremely well worth attending to in fissures and undepressed fractures of the skull, because it is from this circumstance principally that the bad symptoms and the hazard in such cases arise." (p. 50.)¹ After insisting, in very strong terms, on the danger attending severe contusions of the skull, he proceeds to lay down the rules of treatment, which, in a word, are comprehended in the two following intentions:—first, to prevent bad consequences by having recourse, at first, to depletion; and, second, to procure the discharge of matter collected under the cranium, which can be answered only by the perforation of it. He agrees with Arhigenes that the operation is generally too long deferred, and that the sooner it is performed the better. Still, however, it is to be borne in mind that even Pott does not make it a general rule to operate at

¹ It is proper to mention in this place that Quesnay, with great good sense, discusses the question, whether or not the separation of the pericranium in this case be a sure indication of matter being collected within the cranium. He decides in the negative. (p. 17, Syd. Soc. edition of Selected Mem. of the Acad. of Surgery.)

first, *before* the bad symptoms have come on, that is to say, during the first three days, and that he rather appears to have followed Celsus, who alludes to the method of Hippocrates, and describes his rule of practice in the following terms:—"In omni vero fissio fractoque osse, protinus antiquiores medici ad ferramenta veniebant, quibus id exciderent. Sed multo melius est ante emplastra experiri, etc. . . . Si vero sub prima curatione febris intenditur, . . . magni dolores sunt, cibique super hæc fastidium increcit; tum demum ad manum scalprumque veniendum est." (viii, 4.) Pott then, it appears, follows the rule of Celsus, and does not operate until unpleasant effects have developed themselves;¹ but, at the same time, he candidly admits that, although the course now described be all that our art is capable of doing in these melancholy cases, he wishes he could say that it was frequently successful. He then goes on to relate several cases: first, of simple contusion without a wound; second, of contusion with a wound; and, third, of contusion with extravasation. In all these classes of cases he operated with very equivocal results; but then it is to be borne in mind, that, as I have said, he operated, like Celsus, after the bad effects had come on, and not, like Hippocrates, at first, in order to prevent them. Even with all these discouraging results, he continued to adhere to this rule of treatment, which, under the sanction of his name, became the established practice of the profession. The late Mr. Abernethy, who took the lead in innovating upon Pott's rules for the application of the trephine, did not venture to make any material change in this case when he supposed that there was any considerable extravasation of blood; and he delivered it as a test whereby we might judge whether or not a great vessel had been ruptured within the skull, to examine whether or not the bone bled, having generally found, as, indeed, had been clearly laid down by Celsus, that in these cases the bone does not bleed. The rule of practice, then, to operate in order to remove the coagula of blood and matters which form between the skull and the dura mater, was sanctioned by Sir Charles Bell and Sir Astley Cooper; but they, like Mr. Abernethy, generally condemn

¹ I ought to mention, however, in this place, that in simple undepressed fractures, Pott allows of the operation as a preventive; that, at least, is one of his objects in having recourse to the operation. (p. 130.)

interference when the fluids are situated below the membrane. On this subject Mr. Guthrie remarks:—"The operation of incising the dura mater, to admit of the discharge of blood or matter from beneath, and even of puncturing the brain, is much more commonly performed in France than in Great Britain, where it is very rarely had recourse to, *and which may be an error;*" etc. (p. 125.)

After thirty years' further experience, this practice has been tested by the recent statistics of Dr. Laurie, and the results, as stated by him, are very discouraging. In the Hospital of Glasgow, it was found in practice that there was no certain symptom whereby it could be determined at what part of the head the blood had been effused, nor, when discovered, could it, in general, be removed by trephining the skull. The results, in short, were the following: "We have thus thirty-nine cases in which extravasation existed as the principal lesion, or as an important complication, in only one of which extravasation existed as the principal lesion, or as an important complication; in only one of which could an operation have saved the patient; and of the seventeen cases operated upon, *not one* recovered after, or was benefited by, the removal of the coagula."

Such, then, are the results of modern experience, as far as they are at present ascertained, in the use of the trephine for the treatment of contusion, and undepressed fracture, complicated with the effusion either of blood or of matter, from the days of Pott down to the present time. The reader, however, should bear in remembrance that the practice, of which the results have been shown to be so unsatisfactory, is not that of Hippocrates, but of Celsus; for, in the present instance, even Dr. Laurie repudiates the idea of operating "for the purpose of relieving the evil consequences *which may follow* concussion of the brain," and holds distinctly in this case that one is not warranted in even entertaining the idea of operating, unless—"first, when the puffy tumour indicates the spot which probably has sustained the greatest amount of injury; second, such an inflamed and suppurating condition of the injured soft parts as renders it more than probable that the corresponding portion of the dura mater is in a similarly diseased condition; third, inflammatory fever, preceded or followed by rigors, and

symptoms of compression." From what has been stated, then, it must appear evident that the recent statistics furnish no test whatever of the results of the practice laid down by Hippocrates, which was founded upon an entirely different principle, namely, the preventive.

But, however anxious I may feel to prosecute further this comparison of the results of ancient and of modern experience on this highly interesting subject, my necessary limits compel me to bring this discussion to a close. Before doing so, however, I shall briefly state the inferences which I think may be drawn from a careful study of all the principal authorities who have written on injuries of the head from Hippocrates down to the present time :

1. All the serious injuries of the skull may be arranged conveniently under the classes of contusions, simple fractures, and fractures with depressions.

2. Hippocrates recommended the operation of perforating the cranium, in cases of simple fractures and contusions, whenever he apprehended that these would be followed by serious consequences, such as inflammation, extravasation of blood, and the effusion of matter.

3. Hippocrates operated in these cases during the first three days, before any serious symptoms had come on, but Celsus rejected this rule, and postponed the operation until after these effects had been developed.

4. The objects which Hippocrates had in view by perforating the skull, either entirely through or nearly so, would appear to have been to slacken the tightness of the skull, and procure the evacuation of extravasated blood lying within it.

5. The object for which Celsus opened the skull would appear to have been solely to remove bodies which were creating irritation in the brain.

6. All the ancient authorities looked upon contusions and simple fractures as being very formidable injuries, which generally produce congestion in the brain, with inflammation and effusion.

7. In modern times, at least within the last hundred years, the trephine has never been applied in cases of contusion and simple fracture, upon the principle of the operation acting as a preventive of subsequent mischief, but only with the object

of relieving effusion when it was supposed to have taken place within the cranium, that is to say, upon the plan recommended by Celsus.

8. The most contradictory accounts are given by modern authorities, especially by the French surgeons of the eighteenth century, as to the different results in cases of this description, when let alone, and when treated upon the Celsian principle; and the recent statistics of the operation are extremely unfavorable.

9. Hippocrates regarded fractures accompanied with depression and a considerable separation of the bones as being generally less dangerous than severe contusions and simple fractures, as in the former case the brain is usually less hurt by the vibration of the shock which inflicted the injury, and there is an outlet to any noxious matters which may get congested in the brain.

10. Hippocrates, as a general rule, did not operate in cases of depression, not even in cases of comminuted fracture, but in the latter case left the pieces of bone to separate gradually by suppuration.

11. Celsus, on the other hand, approved of removing spiculæ at once, of raising the depressed corner of a fractured bone, by sawing off the superincumbent part, and even of perforating the adjoining bone, and, in certain instances, of removing the whole of the depressed portion.

12. Pott laid it down as a general rule of practice, to operate with the trephine in all cases of fracture accompanied with any considerable degree of depression, and this formed the established practice in this country, until the late Mr. Abernethy, about forty years ago, introduced the rule of not interfering in such cases until urgent symptoms had come on.

13. Of late years a further innovation has taken place in this rule of practice in cases of depressed fracture, the operation being had recourse to by Dr. Laurie and others, on the principle of preventing the bad effects likely to result from the injury.

14. On whatever principle applied, the statistics of large hospitals exhibit the results of the operation in a most unfavorable light, insomuch that many of the most able and

experienced surgeons of the day hesitate whether, as a general rule, the operation ought not to be abandoned altogether.

*Finally, a careful study of the whole literature of the subject, from Hippocrates down to the present time, leads to the conclusion that what constitutes the great difficulty in the treatment of injuries of the head is, that the operation, to be successful, would require to be performed early, and rather with a view of preventing serious consequences, than of removing them after they have come on; and that these can seldom be estimated so correctly as could be wished, since they frequently bear no proportion to the apparent magnitude of the mischief which the cranium has sustained.*¹

As the reader may find some difficulty in apprehending correctly the nature of the instruments and other apparatus used by the ancients in surgical operations, I have subjoined drawings of them, taken principally from the works of Vidus Vidius and Andreas à Cruce, who both lived at a time when these instruments must have been sufficiently common in the cabinets of learned physicians, so that there is every presumption that the figures which they give are sufficiently correct. The manner in which they were used will readily be comprehended from their shapes, assisted by the following lucid description of the ancient process of trepanning the skull, given by Mr. Pott: "If the piece of bone intended to be removed was larger than could be comprehended within the modiolus (*trephine*?) then in use, and which was a very defective instrument in many respects, the operation was thus performed by means of *terebræ*. The piece intended to be taken away was surrounded with perforations made at small distances from each other, and then either the scalper *excisorius* or the scalper *lenticulatus* was introduced, and, by means of repeated strokes with a heavy mallet, was driven through all the interspaces between each perforation. By these means the portion of bone so surrounded was removed, and the *dura mater* was laid bare."² That the modiolus of Celsus was a

¹ Ambrose Paré expresses very strongly the difficulty of forming a correct prognosis in injuries of the head: "Ex quo intelligere licet, multos ab exiguis vulneribus mortem oppetere, alios ex ingentibus et penitus magnis desperatisque conalescere." (Opera, ix, 9.)

² Injuries of the Head, p. 148.

small circular saw with a pivot, exactly like the modern trephine, seems quite obvious from his own description of it; and that the instrument called by our author *terebra serrata* (πρίων χαρακτός) was identical with it, cannot admit of any doubt. See Foës, Œc. Hipp. in voce πρίων.

Before concluding, I must also say a few words on one important point connected with the constitutional treatment, which the modern reader may at first sight be surprised to find no mention made of in this treatise—I mean the use of venesection in the treatment of injuries of the head. Now certainly it does not appear that Hippocrates regarded bleeding as necessarily forming a portion of the system of treatment in injuries of the bones of the head any more than in those of other bones. But, although these were his views, it can be as little doubted, by any one who is acquainted with his general views of practice, that he bled whenever the abstraction of blood was indicated, either to produce evacuation or revulsion. We know, for example, that in pains of the back part of the head he opened the temporal vessels,¹ and that in all inflammations and febrile diseases he abstracted blood freely, nay, perhaps, *ad deliquium animi*.² And that Hippocrates enforced the depletory system of treatment in injuries of the head, when pain and inflammatory fever supervened, is quite obvious, from its having been the system pursued in such cases by all the subsequent authorities, who looked up to him as their great guide in practice. See PAULUS ÆGINETA, Book VI, 90, Syd. Soc. Edit. I may mention further, as a proof that I am not straining a point in the present instance, in order, as might be supposed, to bring my author clear off in a case where he would appear to have been in fault, that Ambrose Paré, who is a great advocate for depletion in the treatment of fractures of the skull, is at great pains to show that he has Hippocrates on his side in support of this practice.³ But while it is maintained that our author did not omit venesection when properly indicated, I do not mean to say that he or any of the ancient authorities carried the abstraction of the blood to the extent practised by Pott, or the members of the Royal Academy of Surgery in France, nor

¹ Aphor. v, 68.

² See the Argument to the treatise, On Regimen in Acute Diseases.

³ Opera, ix, 10. Digitized by Microsoft®

as was done by the army and hospital surgeons of this country during the late war.¹ Whether or not this was a defect in ancient practice I shall not take it upon me to offer an opinion. Suffice it to say, that there is undoubted evidence that in injuries of the head the ancient surgeon, as is *naively* recommended by Avicenna, “bled his patient when he stood in need of being bled;”² that is to say, according to special indications, and not in obedience to any general rule.³

There is another point of practice in injuries of the head to which it is proper that I should draw attention—I mean cold applications. Now it is beyond a doubt that the application of cold in diseases of the brain is pointedly condemned by Hippocrates, and that he used hot applications instead;⁴ and, moreover, that most of the ancient authorities adhered to his rule on this point. At the same time it would appear, that in extreme cases certain of them did not scruple to apply ice to the shaved head.⁵ I shall only remark further, that in this case, as in diseases of the eyes, perhaps the safest rule is, to be guided very much by the feelings and habits of the patient.

¹ Sir Astley Cooper mentions an instance in which 208 ounces of blood were abstracted from a patient!! In Quesnay’s Memoir there is nothing more common than to find it reported that he had bled a patient three or four times in the course of a day. In one case 160 ounces were taken in nine days; “but,” it is gravely added, “two years elapsed before she was quite well again.”

² IV, 5, 3, 1.

³ The principles upon which depletion by bleeding and purging should be regulated are fully stated and discussed by Galen, in the Fourth Book of his great work on Therapeutics. The rule is briefly given by Hippocrates in his Second Aphorism: “respect being paid to place, season, age, and the diseases in which it is proper or not.”

⁴ See Aphor. v, 18, 22; and § 12 of this treatise. The professional authorities of the present day are not agreed as to the expediency of using poultices or cold lotions in injuries of the scalp. Guthrie and Hennen recommend the latter; but South, in the edition of Chelius, prefers the former.

⁵ This is related of Philagrius in a very interesting scholium on the Aphorism just quoted. See Scholia in Hippocrat. et Galen., tom. ii, p. 457; ed. Dietz.

[The Plates referred to will be found at the end of the work.]

ON INJURIES OF THE HEAD.

1. MEN'S heads are by no means all like to one another, nor are the sutures of the head of all men constructed in the same form. Thus, whoever has a prominence in the anterior part of the head (by prominence is meant the round protuberant part of the bone which projects beyond the rest of it), in him the sutures of the head take the form of the Greek letter *tau*, T; for the head has the shorter line running transverse before the prominence, while the other line runs through the middle of the head, all the way to the neck.¹ But whoever has the prominence in the back part of the head, in him the sutures are constructed in quite the opposite form to the former; for in this case the shorter line runs in front of the prominence, while the longer runs through the middle all along to the forehead.² But whoever has a prominence of the head both before and behind, in him the sutures resemble the Greek letter *éta*, Ξ ; for the long lines of the letter run transverse before each prominence, while the short one runs through the middle, and terminates in the long lines.³ But whoever has no prominence on either part, he has the sutures of the head resembling the Greek letter χ ; for the one line comes transverse to the temple, while the other passes along the middle of the head.⁴ The bone at the middle of the

¹ Perhaps the meaning here is, that when the forehead is much elevated, and the occiput much depressed, if one looks down upon the skull from above, the sagittal and coronal sutures will present the appearance of the letter T.

² The meaning, I suppose, may be, that when the forehead is very low, and when the occiput is protuberant, if one looks down upon the skull from above, the sagittal and lambdoidal sutures will present the appearance of the letter T reversed.

³ The meaning would appear to be, that in a square-built head, that is to say, when it is prominent both before and behind, the coronal and sagittal sutures run nearly parallel to one another, and the sagittal connects them together in the middle. In this case they would present the appearance of the letter H reversed.

⁴ Perhaps this alludes to the form of the head in which the sagittal suture passes through the middle of the os frontis down to the nose, in which case we may imagine that the coronal suture intersects the lambdoidal in such a manner as to have some resemblance to the letter χ . It is to be borne in mind, that the character of this letter was very variable in ancient writing. Ruffus Ephesius describes the sagittal suture as sometimes passing down the middle of the frontal bone.

head is double, the hardest and most compact part being the upper portion, where it is connected with the skin, and the lowest, where it is connected with the meninx (*dura mater*); and from the uppermost and lowermost parts the bone gradually becomes softer and less compact, till you come to the *diploe*.¹ The *diploe* is the most porous, the softest, and most cavernous part. But the whole bone of the head, with the exception of a small portion of the uppermost and lowermost portions of it, is like a sponge; and the bone has in it many juicy substances, like caruncles; and if one will rub them with the fingers, some blood will issue from them.² There are also in the bone certain very slender and hollow vessels full of blood. So it is with regard to hardness, softness, and porosity.

2. In respect to thickness and thinness; the thinnest and weakest part of the whole head is the part about the bregma; and the bone there has the smallest and thinnest covering of flesh upon it, and the largest proportion of brain is situated in that region of the head. And hence it happens that from similar or even smaller wounds and instruments, when a person is wounded to the same or a less degree, the bone of the head there is more contused, fractured, and depressed; and that injuries there are more deadly and more difficult to cure; and it is more difficult to save one's life in injuries there than in any other part of the head; that from having sustained a similar or even a less wound a man will die, and that, too, in a shorter space of time than from a wound in any other part of the head. For the brain about the bregma feels more quickly and strongly any mischief that may occur to the flesh or the bone; for the brain about the bregma is in largest quantity, and is covered by the thinnest bone and the least flesh. Of the other portions, the weakest is that about the temples; for it is the conjunction of the lower jaw with the cranium, and there is motion there up and down as at a joint; and the organ of hearing is near it;

¹ This passage was considered by Scaliger as a gloss, but as interpreted by M. Littré, whom I have followed, the meaning is quite suitable. See his note, h. l.

² It is difficult to say what can be meant by caruncles in this place, but still I agree with M. Littré that Scaliger was not warranted in proposing to eject the passage from the text as an interpolation. Unless the *glandula Pacchioni* are meant (and the description must be admitted not to be quite applicable to them), I cannot pretend to explain or account for the description.

and further, a hollow and important vein runs along the temple. But the whole bone of the head behind the vertex and the ear is stronger than the whole anterior part, and the bone itself has a larger and deeper covering of flesh upon it. And hence it follows, that when exposed to the same or even greater injuries from instruments of the same or greater size, the bone is less liable to be fractured and depressed than elsewhere; and that in a fatal accident the patient will live longer when the wound is in the posterior part of the head than when elsewhere; and that pus takes longer time to form and penetrate through the bone to the brain, owing to the thickness of the bone; and moreover, as there is less brain in that part of the head, more persons who are wounded in the back part of the head escape than of those who are wounded in the anterior part.¹ And in fatal cases, a man will survive longer in winter than in summer, whatever be the part of the head in which the wound is situated.

3. As to the *hædræ* (dints or marks?) of sharp and light weapons, when they take place in the bone without fissure, contusion, or depression inwards (and these take place equally in the anterior and posterior part of the head), death, when it

¹ I need scarcely remark, that if by this is strictly meant that wounds in the posterior part of the head are less dangerous than those in the anterior, the statement is at variance with the experience of certain modern authorities. See, in particular, Pott and Liston, p. 46. At the same time, it is, no doubt, anatomically correct, that the occipital bone can bear more violence, without being seriously fractured, than the frontal or parietal bones, and it is worthy of remark, that the views and experience of Mr. Guthrie are very consonant with those of Hippocrates. He says: "The result of my experience on this point is, that brain is more rarely lost from the forehead of the head with impunity, than from the middle part; and that a fracture of the skull, with even a lodgement of a foreign body, and a portion of the bone in the brain, may be sometimes borne without any great inconvenience in the back part. . . . I have never seen a person live with a foreign body lodged in the anterior lobe of the brain, although I have seen several recover with the loss of a portion of the brain at this part. My experience, then, leads me to believe, that an injury of apparently equal extent is more dangerous on the forehead than on the side or middle of the head, and much less so on the back part than on the side. A fracture of the vertex is of infinitely less importance than one of the base of the cranium, which, although not necessarily fatal, is always attended with the utmost danger." (On Injuries of the Head, p. 3.) I feel difficulty in reconciling these discordant results of modern experience. Perhaps the fact of the matter is, that injuries in the upper part of the occipital region are the least dangerous of any, whereas those in the lower part of it, are particularly fatal.

does occur, does not properly result from them. A suture appearing in a wound, when the bone is laid bare, on whatever part of the head the wound may have been inflicted, is the weakest point of the head to resist a blow or a weapon, when the weapon happens to be impinged into the suture itself; but more especially when this occurs in the bregma at the weakest part of the head, and the sutures happen to be situated near the wound, and the weapon has hit the sutures themselves.¹

4. The bone in the head is liable to be wounded in the following modes, and there are many varieties in each of these modes of fracture: When a wounded bone breaks, in the bone comprehending the fissure, contusion necessarily takes place where the bone is broken; for an instrument that breaks the bone occasions a contusion thereof more or less, both at the

¹ Vidus Vidius thus explains the *hedra* or *sedes*: "Inciditur os ita ut teli vestigium remaneat, quod genus fracturæ appellatur a Hippocrate ἔδρα, id est sedes, quum (ut ipse inquit) appareat in osse qua telum insederit; fit autem ab acuto telo, quod et ipse in sequentibus, et Galenus, in Commentario, in librum memoriæ prodidit, quum sub telo acuto incidi os dixit. Requirit autem sedes ut incisum os nullo modo ad cerebri membranam inclinatur." (Chirurg. Græc., p. 71.) Andreas à Cruce defines it thus: "Potissimum vero sedes vocatur ubi osse in suo statu remanente qua parte telum insederit apparet." (De Vulneribus, i, 2.) By *hedra* would appear to have been understood a dint, or impression, left in a bone by a blow which has not produced fracture or depression. It was also applied to a cut or slash affecting only the outer plate of the skull. Hippocrates, it will be remarked, pronounces this sort of injury not to be dangerous of itself, but M. Littré relates a case taken from the 'Journal de Médecine,' in which a sabre-cut, which only penetrated through the external plate of the cranium, and did not touch the internal, proved fatal. (Op. Hippocrat., iii, p. 170.) Our author, in the latter part of this paragraph, mentions cursorily injury of the skull at a suture, and more circumstantially in the twelfth paragraph. This accident is very correctly described by the later writers, under the name of *diastasis*. See Heliodorus (ap. Chirurg. Veteres, p. 100), and Archigenes (ibid., p. 117). Pott declares that he did not remember having ever seen a single instance of recovery when there was separation of the bones at a suture. Morgagni, in like manner, represents the case as being of a particularly serious character. (De Caus. et Sed. Morb.) I once saw a strongly marked case in which there was a considerable separation of the bones at the upper part of the temporal suture, along with an extensive wound, unguardedly inflicted by the scalpel of a juvenile surgeon, in order to explore the nature of the accident. As might have been expected, under these circumstances, the case had a fatal issue. Mr. Guthrie writes thus of *diastasis*: "It is well known, that when a violent shock has been received on the head, particularly by a fall on the vertex, the sutures are often separated to a considerable extent; these cases usually terminate fatally." (p. 135.)

fracture and in the parts of the bone surrounding the fracture.¹ This is the first mode. But there are all possible varieties of fissures; for some of them are fine, and so very fine that they cannot be discovered, either immediately after the injury, or during the period in which it would be of use to the patient if this could be ascertained. And some of these fissures are thicker and wider, certain of them being very wide. And some of them extend to a greater, and some to a smaller, distance. And some are more straight, nay, completely straight; and some are more curved, and that in a remarkable degree. And some are deep, so as to extend downwards and through the whole bone; and some are less so, and do not penetrate through the whole bone.

5. But a bone may be contused, and yet remain in its natural condition without any fracture in it; this is the second mode. And there are many varieties of contusion; for they occur to a greater and less degree, and to a greater depth, so as sometimes to extend through the whole bone; or to a less depth, so as not to extend through the whole bone; and to a greater and smaller length and breadth. But it is not possible to recognise any of these varieties by the sight, so as to determine their form and extent; neither, indeed, is it visible to the eyes when any mischief of this kind takes place, and immediately after the injury, whether or not the bone has been actually bruised, as is likewise the case with certain fractures at a distance from the seat of injury.²

6. And the bone being fractured, is sometimes depressed

¹ The meaning here is somewhat obscure, but as Arantius states in his commentary on this tract, our author probably means that a fissure is necessarily complicated with a contusion, or, in other words, that there can be no fissure without contusion.

² Arantius and Porralius, in their conjoined commentary on this treatise, mention that in contusion sometimes only the outer plate of the skull is contused, but the inner is depressed upon the dura mater. This is a case of which we have examples in modern surgery; but it does not appear clearly to be alluded to in this place by our author. Mr. Guthrie, indeed, understands the *ἀπήχημα* of the Greek authors, and *resonitus* of the Latin, to apply to this variety of fracture; but he appears to me to be mistaken, for these terms unquestionably refer to the *contre-coup*, of which we will treat presently. Quesnay, indeed, uses the term *contre-coup* in this double sense, but, as I think, very injudiciously, as it tends to introduce confusion of ideas; for assuredly the case of a fracture on a different part of the head from that which received the blow, and a fracture on the inner plate of the skull from an injury on the outer, are quite different cases. See Quesnay, &c., p. 20, Syd. Soc. edit.

inwards from its natural level along with the fractures, otherwise there would be no depression; for the depressed portion, being fractured and broken off, is pushed inwards, while the rest of the bone remains in its natural position; and in this manner a fracture is combined with the depression.¹ This is the third mode. There are many varieties of depression, for it may comprehend a greater and a smaller extent of bone, and may either be to a greater depth, or less so, and more superficial.²

7. When a *hedra*, or dint of a weapon, takes place in a bone, there may be a fracture combined with it; and provided there be a fracture, contusion must necessarily be joined, to a greater or less extent, in the seat of the dint and fracture, and in the bone which comprehends them.³ This is the fourth mode. And there may be a *hedra*, or indentation of the bone, along with contusion of the surrounding bone, but without any fracture either in the *hedra* or in the contusion inflicted by the weapon. But the indentation of a weapon takes place in a bone, and is called *hedra*, when the bone remaining in its natural state, the weapon which struck against the bone leaves its impression on the part which it struck. In each of these modes there are many varieties, with regard to the contusion and fracture, if both these be combined with the *hedra*, or if contusion alone, as it has been already stated that there are many varieties of contusion and fracture. And the *hedra*, or dint, of itself may be longer and shorter, crooked, straight, and circular; and there are many varieties of this mode, according to the shape of the weapon; and they may be more or less deep, and narrower or broader, and extremely broad. When

¹ The expressions in this place are somewhat confused, but the meaning evidently is, that without fracture there can be no depression.

² This third mode of fracture is thus defined by Celsus: "At ubi medium desedit, eandem cerebri membranam os urget: interdum etiam ex fractura quibusdam velut aculeis pungentibus." (viii, 4.) Hippocrates, it will be remarked, makes no mention of spiculæ in his description of depression. Galen describes two varieties of depression; in the one the depressed portion retains its situation, and in the other it rises again to its former level. (De Caus. Morb.) Hippocrates does not appear to have been acquainted with the latter. Modern experience has shown that it sometimes occurs in children.

³ It is almost impossible to know what to make of this passage, owing to the corrupt state of the text.

a part is cleft, the cleft or notch which occurs in the bone, to whatever length or breadth, is a *hedra*, if the other bones comprehending the cleft remain in their natural position, and be not driven inwards; for in this case it would be a depression, and no longer a *hedra*.¹

8. A bone may be injured in a different part of the head from that on which the person has received the wound, and the bone has been laid bare. This is the fifth mode. And for this misfortune, when it occurs, there is no remedy; for when this mischief takes place, there is no means of ascertaining by any examination whether or not it has occurred, or on what part of the head.²

¹ The nature of this mode of injury is explained in the annotations on the third paragraph. It does not appear clear why our author has given two separate descriptions of this injury. He describes, it will be remarked, several varieties of it, according as it is complicated or not with contusion and fracture. Galen uses *hedra* in one place. (Meth. Med. vi.) The term *hedra* is rendered *teli sedes* by the Latin translators of the Greek medical authors. (See Asellii Comment. in Hippocrat. de Vuln. Capit.) It is used also by Ambrose Paré, Wiseman, and all our earlier writers on surgery. Wiseman thinks the term most appropriate when applied to wounds inflicted by a pole-axe, halberd, or the like. (v, 9.) Paré applies it to a kind of injury, in which the bone is not broken through, but the print of the weapon is left on the skull. (xx, 7.) Fallopius gives an interesting discussion on it. (In librum Hippocrat. de Vuln. Capit.) The term incision, borrowed from Paulus Ægineta, has been since used in its stead. See Quesnay, on the Use of the Trepan, p. 29, Syd. Soc. edition; and on simple incisions or sabre-cuts, see, in particular, Mr. Guthrie, Injuries of the Head, p. 86.

² This, it will readily be perceived, is the *fractura per resonitum*, that is to say, the *fracture par contre-coup*, or counter-fissure of modern authorities. Except Paulus Ægineta, I am not aware that any of the ancient authorities question the occurrence of this species of the accident, and, with the exception of Vidus Vidius, Guido, Fallopius, and Dinus de Garbo, it is generally recognised by the best modern authorities, from Bertaphalia and Andreas a Cruce, down to Sir Astley Cooper and Mr. Liston. Mr. Guthrie, indeed, remarks, that in recent times there has been no well-authenticated instance of fracture on the one side of the head from a blow on the other. Such cases, however, are not wanting in the works of the earlier modern authorities. Quesnay writes thus: "We find in authors, also, many cases of fracture by *contre-coup*, from one part of the head to the part opposite; and in honour of the ancients we may cite the case related by Amatus, who applied the trepan to the part of the head opposite to the wound, when he found that the symptoms were not relieved by applying it on the side wounded, and that the patient suffered from severe pain on the other side. This second trepan proved very apropos, for it allowed the escape of pus, which had collected under the skull." (On the Use of the Trepan.) All our modern authorities, including Mr. Guthrie, admit the reality of the case in which fracture of the base of the skull is produced by a blow on the

9. Of these modes of fracture, the following require trepanning: the contusion, whether the bone be laid bare or not; and the fissure, whether apparent or not. And if, when an indentation (*hedra*) by a weapon takes place in a bone, it be attended with fracture and contusion, and even if contusion alone, without fracture, be combined with the indentation, it requires trepanning. A bone depressed from its natural position rarely requires trepanning; and those which are most pressed and broken require trepanning the least; neither does an indentation (*hedra*) without fracture and contusion require trepanning; nor does a notch, provided it is large and wide; for a notch and a *hedra* are the same.¹

10. In the first place, one must examine the wounded person, in what part of the head the wound is situated, whether in the stronger or weaker parts; and ascertain respecting the hairs about the wound, whether they have been cut off by the instrument, and have gone into the wound; and if so, one should declare that the bone runs the risk of being denuded of flesh, and of having sustained some injury from the weapon. These things one should say from a distant inspection, and before laying a hand on the man;² but on a close examination one should endeavour to ascertain clearly whether the bone be denuded of flesh or not; and if the denuded bone be visible to

upper part of the head. In imitation of our author, this case was denominated "infortunium" by the earlier authorities, such as Asellius and Porralius, being accounted an irremediable misfortune, because its seat could not be detected; and it is noticed in the following terms by Sir Astley Cooper, who did not trouble himself much about the writings of his predecessors, but formed his opinions from actual observation: "When the basis of the skull is fractured from a high fall, from the whole pressure of the body resting upon that part, on opening the brain and tearing up the dura mater, extravasated blood is commonly observed: *this kind of fracture must inevitably prove fatal, nor can it be discovered till after death.*" (Lectures, xiii.)

¹ Whatever opinion may now be formed of the rule of practice here laid down, all must admit that it is clearly stated and distinctly defined. We have seen above that our author describes five modes of injury in the skull, namely, the incision or indentation, confined to its outer table; the contusion; the direct fracture; the fracture *par contre-coup*; and the depression. He now states decidedly that it is only in the case of contusion and simple fracture, that the trepan can be applied with advantage. I have entered so fully into the *rationale* of this practice in the Argument, that I do not think it necessary to say more on the subject in this place.

² This passage indicates strongly our author's partiality for prognostics, or rather, I should say, for prorrhetics. It would appear to have been a primary consideration with him, in all cases, to secure the physician from blame, and to teach him how to

the eyes, this will be enough; but otherwise an examination must be made with the sound. And if you find the bone denuded of the flesh, and not safe from the wound, you must first ascertain the state of the bone, and the extent of the mischief, and what assistance it stands in need of. One should also inquire of the wounded person how and in what way he sustained the injury; and if it be not apparent whether the bone has sustained an injury or not, it will be still more necessary, provided the bone be denuded, to make inquiry how the wound occurred, and in what manner; for when contusions and fractures exist in the bone, but are not apparent, we must ascertain, in the first place from the patient's answers, whether or not the bone has sustained any such injuries, and then find out the nature of the case by word and deed, with the exception of sounding. For sounding does not discover to us whether the bone has sustained any of these injuries or not; but sounding discovers to us an indentation inflicted by a weapon, and whether a bone be depressed from its natural position, and whether the bone be strongly fractured; all which may also be ascertained visibly with the eyes.¹

11. And a bone sustains fractures, either so fine as to escape the sight, or such as are apparent, and contusions which are not apparent, and depression from its natural position, especially when one person is intentionally wounded by another, or when,

gain the confidence of the patient and his attendants. Few who have practised medicine for a great many years, will question the propriety of these rules of conduct, or doubt the importance of taking all honorable steps to ensure the confidence and good-will of patients and their friends.

¹ There is a remark made by Asellius and Porralius on the latter part of this paragraph, which, although it appears to be scarcely warranted by anything in the text of our author, I quote for its importance, as showing that the earlier authorities were well aware of the danger and impropriety of treating injuries of the head in children by instruments: "Sed præ ceteris illud notandum quod dixerit (*nudato osse*) quasi dicat, eo non denudato quamvis colliso aut fisso, quod raro accidit, non esse tamen sectione denudandam calvariam: nam in pueris, ubi decidunt non raro accidit ut eorum collidatur calvaria, frangaturque, cute integra, quod etsi accidat, et tactu hoc probe percipiatur, sanguisque e venis effusus sub cute fluctuat, abstinendum tamen a sectione est, neminem enim servatum vidi, cui sectio adhibita sit, propterea quod eorum calor facile dissipetur, eoque magis, quum gemitu et clamore caput valde incalescat, et ad fluxiones suscipiendas proclive reddatur," (Comm. in Hip. de Vuln. Cap.) It will be seen at § 18, that our author allowed the application of a small trepan in children when strongly indicated.

whether intentionally or not, a blow or stroke is received from an elevated place, and if the instrument in the hand, whether used in throwing or striking, be of a powerful nature, and if a stronger person wound a weaker. Of those who are wounded in the parts about the bone, or in the bone itself, by a fall, he who falls from a very high place upon a very hard and blunt object is in most danger of sustaining a fracture and contusion of the bone, and of having it depressed from its natural position ; whereas he that falls upon more level ground, and upon a softer object, is likely to suffer less injury in the bone, or it may not be injured at all. Of those instruments which, falling upon the head, wound the parts about the bone, or the bone itself, that which falls from a very high place, and the least on a level with the person struck, and which is at the same time very hard, very blunt, and very heavy, and which is the least light, sharp, and soft, such an instrument would occasion a fracture and contusion of the bone. And there is most danger that the bone may sustain these injuries, under such circumstances, when the wound is direct and perpendicular to the bone, whether struck from the hand or from a throw, or when any object falls upon the person, or when he is wounded by falling, or in whatever way the bone sustains a direct wound from this instrument. Those weapons which graze the bone obliquely are less apt to fracture, contuse, or depress the bone, even when the bone is denuded of flesh ; for in some of those wounds thus inflicted the bone is not laid bare of the flesh. Those instruments more especially produce fractures in the bone, whether apparent or not, and contusions, and inward depression of the bone, which are rounded, globular, smooth on all sides, blunt, heavy, and hard ; and such weapons bruise, compress, and pound the flesh ; and the wounds inflicted by such instruments, whether obliquely or circularly, are round, and are more disposed to suppurate, and to have a discharge, and take longer time to become clean ; for the flesh which has been bruised and pounded must necessarily suppurate and slough away. But weapons of an oblong form, being, for the most part, slender, sharp, and light, penetrate the flesh rather than bruise it, and the bone in like manner ; and such an instrument may occasion a *hedra* and a cut (for a *hedra* and a cut are same thing) ; but weapons of this description do not produce

contusions, nor fractures, nor depressions inwardly. And in addition to the appearances in the bone, which you can detect by the sight, you should make inquiry as to all these particulars (for they are symptoms of a greater or less injury), whether the wounded person was stunned, and whether darkness was diffused over his eyes, and whether he had vertigo, and fell to the ground.¹

12. When the bone happens to be denuded of flesh by the weapon, and when the wound occurs upon the sutures, it is difficult to distinguish the indentation (*hedra*) of a weapon which is clearly recognised in other parts of the bone, whether it exist or not, and especially if the *hedra* be seated in the sutures themselves. For the suture being rougher than the rest of the bone occasions confusion, and it is not clear which is the suture, and which the mark inflicted by the instrument, unless the latter (*hedra*) be large. Fracture also for the most part is combined with the indentation when it occurs in the sutures; and this fracture is more difficult to discern when the bone is broken, on this account, that if there be a fracture, it is situated for the most part in the suture. For the bone is liable to be broken and slackened there, owing to the natural weakness of the bone there, and to its porosity, and from the suture being readily ruptured and slackened: but the other bones which surround the suture remain unbroken, because they are stronger

¹ This passage is rendered as follows by Celsus: "Igitur, ubi ea percussa, protinus requirendum est, num bilem is homo vomuerit; num oculi ejus obeæcati sint; num obmutuerit; num per nares auresque sanguis ei effluerit: num coniderit, num sine sensu quasi dormiens jacuerit. Hæc enim non nisi osse fracto eveniunt; atque, ubi inciderunt, scire licet, necessariam, sed difficilem curationem esse." (viii, 4.) Now, although it is no doubt true, as remarked by Pott (Injuries of the Head, § 4), that these symptoms sometimes take place, without there being any fracture of the skull, and that, on the other hand, as had been previously pointed out by Paré and Le Dran, fractures do sometimes take place without being accompanied by all these symptoms, still there can be no doubt that as a general rule the doctrine of Celsus is correct, and that, at all events, a case is to be treated as serious in which these symptoms occur. With regard to one of the characteristics of a fracture, thus noticed by Celsus, a modern authority of great experience, but little acquaintance with ancient learning, observes, "Blood flowing from the nose and ears is a symptom attending fracture of the skull. It may be consequent on mere concussion, a vibration which ruptures the membranes; but oftener it is a consequence of fissure across the bone." (Institutes of Surgery, by Sir Charles Bell, vol. i, p. 173.)

than the suture.¹ For the fracture which occurs at the suture is also a slackening of the suture, and it is not easy to detect whether the bone be broken and slackened by the indentation of a weapon occurring in the suture, or from a contusion of the bone at the sutures; but it is still more difficult to detect a fracture connected with contusion. For the sutures, having the appearance of fissures, elude the discernment and sight of the physician, as being rougher than the rest of the bone, unless the bone be strongly cut and slackened, (for a cut and a *hedra* are the same thing.)² But it is necessary, if the wound has occurred at the sutures, and the weapon has impinged on the bone or the parts about it, to pay attention and find out what injury the bone has sustained. For a person wounded to the same, or a much smaller, extent, and by weapons of the same size and quality, and even much less, will sustain a much greater injury, provided he has received the blow at the sutures, than if it was elsewhere. And many of these require trepanning, but you must not apply the trepan to the sutures themselves, but on the adjoining bone.³

¹ The separation of the bones at a suture, usually called *diastasis*, is noticed in the annotations on § 3. I have also alluded, in my analysis of the Fifth Book of the Epidemics, to the case in which the author, generally supposed by ancient authorities to be Hippocrates, mistook a suture for a fracture of the skull. See Epidem. v, 14; and Celsus, viii, 4.

² On the terms which occur parenthetically, the philological reader may consult the note of Stephanus, contained in the edition of Erotian by Franzius, under *ἑδράωω*. I may here remark, that it is difficult to account for the frequent repetition of these words in parentheses.

³ It will be remarked that, as a general rule, Hippocrates forbids us to apply the trepan at the sutures, but, notwithstanding this prohibition, it would appear to have been departed from in two cases related in the Sixth Book of the Epidemics. (See § 27 and 28.) The rule, however, to avoid the application of the trepan at the sutures, was generally observed by nearly all the modern authorities down to Pott, and even he admits that the sutures should be avoided when the trephine may with equal utility be set on any other part. Louis, in a paper lately reprinted from the Memoirs of the Royal Academy of Surgery, by the Sydenham Society, gives an interesting examination of the doctrine of the ancient and modern authors on this rule of practice. Most of the authorities quoted by him are averse to the application of the trepan over sutures, except when very urgently required. C. Porrhains, in his marginal notes on Arantius's Commentary on this work of Hippocrates, assigns three reasons for avoiding the sutures in this operation: 1st, because the bone is weak at that place; 2dly, because the membrane there being in close connexion with

13. And with regard to the cure of wounds in the head, and the mode of detecting injuries in the bone which are not apparent, the following is my opinion:—In a wound of the head, you must not apply anything liquid, not even wine, but as little as possible, nor a cataplasm, nor conduct the treatment with tents, nor apply a bandage to an ulcer on the head, unless it be situated on the forehead, in the part which is bare of hairs, or about the eyebrow and eye, for wounds occurring there require cataplasms and bandages more than upon any other part of the head.¹ For the rest of the head surrounds the whole forehead, and the wounds wherever situated become inflamed and swelled, owing to an influx of blood from the surrounding parts.² And neither must you apply cataplasms and bandages to the forehead at all times; but when the inflammation is stopped and the swelling has subsided, you must give up the cataplasms and bandages. A wound in any other part of the head must not be treated with tents, bandages, or cataplasms, unless it also requires incision. You must perform incision on wounds situated on the head and forehead, whenever the bone is denuded of flesh, and appears to have sustained some injury from the blow, but the wound has not sufficient length and breadth for the inspection of the bone, so that it may be seen whether it has received any mischief from the blow, and of what nature the injury is, and to what extent the flesh has been contused, and

the bone, is in danger of being injured; 3dly, because, by the contraction of the callus, the transpiration there will be stopped. The last of these reasons is based on the physiological doctrine of the ancient authorities respecting the uses of the sutures, one of which was, to permit transpiration from the brain. See Galen, de Usu Partium, ix, 1, 2.

¹ Our author, it will be remarked, forbids liquid applications, tents, cataplasms, and bandages, in wounds of the head. He seems to have approved most of things of a drying nature. The other authorities would appear to differ considerably in their views regarding the proper principles upon which wounds on the head are to be treated. Celsus directs us, after laying bare the dura mater by trepanning, to apply strong vinegar to it, and when the membrane is inflamed, he approves of tepid rose-water. (viii, 4.) Paulus Ægineta, after the operation of trepanning, directs a piece of cloth, or small ball of wool dipped in oil, to be applied to the part. I believe they all agreed in rejecting sutures. See Galen, de Med. sec. Genera III.

² Hippocrates would seem to hold the fanciful idea, that the forehead is environed by the rest of the head, and that an afflux of blood takes place from the parts around to it. Scaliger rejects this passage as containing a doctrine wholly unworthy of our author.

whether the bone has sustained any injury, or whether it be uninjured by the blow, and has suffered no mischief; and with regard to the treatment, what the wound, and the flesh, and the injury of the bone stand in need of. Ulcers of this description stand in need of incision; and, if the bone be denuded of the flesh, and if it be hollow, and extend far obliquely, we cut up the cavity wherever the medicine cannot penetrate readily, whatever medicine it may be; and wounds which are more inclined to be circular and hollow, and for the most part others of the like shape, are cut up by making a double incision in the circle lengthways, according to the figure of the man, so as to make the wound of a long form. Incisions may be practised with impunity on other parts of the head, with the exception of the temple and the parts above it, where there is a vein that runs across the temple, in which region an incision is not to be made. For convulsions seize on a person who has been thus treated; and if the incision be on the left temple, the convulsions seize on the right side; and if the incision be on the right side, the convulsions take place on the left side.¹

14. When, then, you lay open a wound in the head on account of the bones having been denuded of the flesh, as wishing to ascertain whether or not the bone has received any injury from the blow, you must make an incision proportionate to the size of the wound, and as much as shall be judged necessary. And in making the incision you must separate the flesh from the bone where it is united to the membrane (*pericranium?*) and to the bone, and then fill the whole wound with a tent, which will expand the wound very wide next day with as little

¹ The danger of incisions, in the temporal region, is adverted to in several parts of the Hippocratic Collection, as in the work On the Articulations, in the Prognostics, and the Coan Prognostics. Even at the present day, when the treatment of hemorrhage is better understood than in the days of the great Fathers of Grecian medicine, a large incision in that quarter is regarded with considerable apprehension. Convulsion, that is to say, tetanus, was supposed to be the frequent, if not the invariable, result of a wound in the temporal muscle. Pott, indeed, contends that lock-jaw is not necessarily produced by a wound there; he admits, however, that the application of the trepan to the temple is not often successful, but the reason of this he contends is, that in these fractures the breach generally extends to the base of the skull (§ 5). Quesnay, however, inclines to support the views of Hippocrates. (On the Use of the Trepan, p. 15, Syd. Soc. edit.) Scultet, in like manner, pronounces decidedly that a wound in the temple is a very dangerous affair. (Arman. Chirurg., Tabl. xxxi.)

pain as possible ; and along with the tents apply a cataplasma, consisting of a mass (*maza*) of fine flour pounded in vinegar, or boiled so as to render it as glutinous as possible.¹ On the next day, when you remove the tent, having examined the bone to see what injury it has sustained, if the wound in the bone be not right seen by you, nor can you discover what mischief the bone itself has sustained, but the instrument seems to have penetrated to the bone so as to have injured it, you must scrape the bone with a raspatory to a depth and length proportionate to the suture of the patient, and again in a transverse direction, for the sake of the fractures which are not seen, and of the contusions which are not discovered, as not being accompanied with depression of the bone from its natural position. For the scraping discovers the mischief, if the injuries in the bone be not otherwise manifest. And if you perceive an indentation (*hedra*) left in the bone by the blow, you must scrape the dint itself and the surrounding bones, lest, as often happens, there should be a fracture and contusion, or a contusion alone, combined with the dint, and escape observation. And when you scrape the bone with the raspatory, and it appears that the wound in the bone requires the operation, you must not postpone it for three days, but do it during this period, more especially if the weather be hot, and you have had the management of the treatment from the commencement. If you suspect that the bone is broken or contused, or has sustained both these injuries, having formed your judgment from the severity of the wound, and from the information of the patient, as that the person who inflicted the wound, provided it was done by another person, was remarkably strong, and that the weapon by which he was wounded was of a dangerous description, and then that the man had been seized with vertigo, dimness of vision, and stupor, and fell to the ground,—under these circumstances, if you cannot discover whether the bone be broken, contused, or both the one and the other, nor can see the truth of the matter, you must dissolve the jet-black ointment,² and fill the wound with it when thus

¹ The *maza* was evidently a poultice prepared with barleymeal and vinegar, or water. See the Annotations on the treatise On Ancient Medicine.

² Celsus translates this passage as follows: "At si ne tum quidem rima manifesta est, induendum supra os atramentum scriptorium est, deinde scalpro id deradendum; nigritiem enim continet." *Digitized by Microsoft®* properly remarks,

dissolved, and apply a linen rag smeared with oil, and then a cataplasm of the maza with a bandage; and on the next day, having cleaned out the wound, scrape the bone with the raspatory. And if the bone is not sound, but fractured and contused, the rest of it which is scraped will be white; but the fracture and contusion, having imbibed the preparation, will appear black, while the rest of the bone is white. And you must again scrape more deeply the fracture where it appears black; and, if you thus remove the fissure, and cause it to disappear, you may conclude that there has been a contusion of the bone to a greater or less extent, which has occasioned the fracture that has disappeared under the raspatory; but it is less dangerous, and a matter of less consequence, when the fissure has been effaced. But if the fracture extend deep, and do not seem likely to disappear when scraped, such an accident requires trepanning. But having performed this operation, you must apply the other treatment to the wound.

15. You must be upon your guard lest the bone sustain any injury from the fleshy parts if not properly treated. When the bone has been sawed and otherwise denuded, whether it be actually sound, or only appears to be so, but has sustained some injury from the blow, there may be danger of its suppurating (although it would not otherwise have done so), if the flesh which surrounds the bone be ill cured, and become inflamed and strangled; for it gets into a febrile state, and becomes much inflamed.¹ For the bone acquires heat and inflammation from the surrounding flesh, along with irritation and throbbing, and the other mischiefs which are in the flesh itself, and from these it gets into a state of suppuration. It is a bad thing for the flesh (*granulations*?) in an ulcer to be moist and mouldy, and

that the ancient ink must not be confounded with the modern, which is composed principally of copperas and galls. It was, no doubt, the milder kind prepared from the soot of pines with gum which was used in this case. On the writing-ink of the ancients, see Dioscorides (M. M., v, 182) and Pliny (H. N., xxxv, 6).

¹ The text in the beginning of this paragraph is in a very unsatisfactory state. It seems pretty clear, however, that in this place our author describes caries of the bone brought on by an unhealthy state of the integuments. The description—allowance being made for the corruption of the text—is sufficiently distinct, and most probably has reference to that condition of the parts which is so graphically described by Pott as forming “a puffy, circumscribed, indolent tumour of the scalp, and a spontaneous separation of the pericranium from the skull under such tumour.”

to require a long time to become clean. But the wound should be made to suppurate as quickly as possible; for, thus the parts surrounding the wound would be the least disposed to inflammation, and would become the soonest clean; for the flesh which has been chopped and bruised by the blow, must necessarily suppurate and slough away. But when cleaned the wound must be dried, for thus the wound will most speedily become whole, when flesh devoid of humours grows up, and thus there will be no fungous flesh in the sore. The same thing applies to the membrane which surrounds the brain: for when, by sawing the bone, and removing it from the meninx, you lay the latter bare, you must make it clean and dry as quickly as possible, lest being in a moist state for a considerable time, it become soaked therewith and swelled; for when these things occur, there is danger of its mortifying.¹

16. A piece of bone that must separate from the rest of the bone, in consequence of a wound in the head, either from the indentation (*hedra*) of a blow in the bone, or from the bone being otherwise denuded for a long time, separates mostly by becoming exsanguous. For the bone becomes dried up and loses its blood by time and a multiplicity of medicines which are used; and the separation will take place most quickly, if one having cleaned the wound as quickly as possible will next dry it, and the piece of bone, whether larger or smaller. For a piece of bone which is quickly dried and converted, as it were, into a shell, is most readily separated from the rest of the bone which retains its blood and vitality; for, the part having become exsanguous and dry, more readily drops off from that which retains its blood and is alive.²

¹ Our author in this place would appear to treat of incipient hernia cerebri, as immediately before he treats of fungous ulcers on the pericranium. Galen, in like manner, praises powerfully desiccant medicines upon the authority of Megees the Sidonian, who, he says, had great experience in these cases. He speaks of the plaster called Isis as being a most efficacious application to the dura mater, when laid bare. Its principal ingredients are of an escharotic and detergent nature, such as squama aris, burnt copper, ammoniac salts, myrrh, aloes, and the like. See PAULUS ÆGINETA, Vol. III, p. 564. Galen concludes his remarks on this subject with stating that, before getting into an inflamed state, the dura mater, as being of a dry nature, endures the most powerful medicines. (Meth. Med., vi, at the end.)

² This description of a piece of bone which is going to exfoliate, is remarkably correct. Compare it with the following narrative: "A girl of ten or twelve years of age was struck on the head by an iron rod falling on her, the blow caused no wound,

17. Such pieces of bone as are depressed from their natural position, either being broken off or chopped off to a considerable extent, are attended with less danger, provided the membrane be safe; and bones which are broken by numerous and broader fractures are still less dangerous and more easily extracted.¹ And you must not trepan any of them, nor run any risks in attempting to extract the pieces of bone, until they rise up of their own accord, upon the subsidence of the swelling. They rise up when the flesh (*granulations*) grows below, and it grows from the diploe of the bone, and from the sound portion, provided the upper table alone be in a state of necrosis. And the flesh will shoot up and grow below the more quickly, and the pieces of bone ascend, if one will get the wound to suppurate and make it clean as quickly as possible. And when both the tables of the bone are driven in upon the membrane, I mean the upper and lower, the wound, if treated in the same way, will very soon get well, and the depressed bones will quickly rise up.²

and the young woman was soon well, with the exception of a fixed pain of no great extent, which remained over one of the parietal bones. The pain continued for several years. M. Mareschal, who was at last consulted, considered it necessary to trepan. He exposed the bone at the painful part, and applied one crown of a trepan; he observed, *that the bone, when sawed, appeared dry, like a skull that had been buried.*" (Quesnay, on the Use of the Trepan.) This agrees excellently with the description given by Hippocrates. It is to be regretted, however, that the text here, as far as regards one word *ἀποστρακός*, is in a very unsatisfactory state. The conjectural emendation of Schneider (*ἀπεσεληκός*) seems to be a plausible emendation, but it is not adopted by Littré.

¹ Our author delivers the same doctrine in the work *On the Articulations*, and states that extensive fractures of the bones are often less dangerous than others which appear not so formidable. I need scarcely remark that modern experience has confirmed the truth of this position. How often has it been seen that one patient died from a slight injury to the skull, while another recovered from an extensive fracture of it? Mr. Guthrie appears in so far to agree in opinion with our author, that extensive fractures are less dangerous than they appear; he says, "Mr. Keate, who has had great opportunities for observation in St. George's Hospital, has invariably remarked that the symptoms dependent on extravasation have been less severe in the first instance, in proportion as the separation of the edges of the fracture have been greater one from the other, or when the sutures have yielded to the shock and have been separated. It has been stated from the earliest antiquity, that the greater the fracture, the less the concussion of the brain." (p. 56.) See the *Argument*.

² It will be remarked as a striking feature in our author's views of practice in injuries of the head, not to interfere with fractures attended with depression. See the *Argument*, where the rationale of this practice is fully discussed.

18. The bones of children are thinner and softer, for this reason, that they contain more blood [than those of adults]; and they are porous and spongy, and neither dense nor hard. And when wounded to a similar or inferior degree by weapons of the same or even of an inferior power, the bone of a young person more readily and quickly suppurates, and that in less time than the bone of an older person; and in accidents, which are to prove fatal, the younger person will die sooner than the elder. But if the bone is laid bare of flesh, one must attend and try to find out, what even is not obvious to the sight, and discover whether the bone be broken and contused, or only contused; and if, when there is an indentation in the bone, whether contusion, or fracture, or both be joined to it; and if the bone has sustained any of these injuries, we must give issue to the blood by perforating the bone with a small trepan, observing the greatest precautions, for the bone of young persons is thinner and more superficial than that of elder persons.¹

19. When a person has sustained a mortal wound on the head, which cannot be cured, nor his life preserved, you may form an opinion of his approaching dissolution, and foretell what is to happen from the following symptoms which such a person experiences.² When a bone is broken, or cleft, or contused, or otherwise injured, and when by mistake it has not been discovered, and neither the raspatory nor trepan has been applied as required, but the case has been neglected as if the bone were sound, fever will generally come on before the fourteenth day if in winter, and in summer the fever usually seizes after seven days. And when this happens, the wound loses its colour, and the inflammation dies in it; and it becomes glutinous, and appears like a pickle, being of a tawny and

¹ Although these directions of our author regarding the treatment of children be most important, I am not aware that any other of the ancient authorities has shown his sense of their value of them by repeating them. It is well known that in children there is but one table, and that it is very thin. Our author, as remarked above, does not entirely omit the operation in the case of children, but uses a small trepan.

² The reader will again remark an instance of our author's fondness for prognosis, and his observance of the rule at all times to prevent the surgeon from committing himself by attempting hopeless cases. Celsus, writing in the same spirit, says. "Ante omnia scire medicum oportere, quæ vulnere insanabilia sint, quæ difficilem curationem habeant; . . . non attingere, nec subire speciem ejus, ut occisi, quem sors ipsius interemit." (v, 26.)

somewhat livid colour; and the bone then begins to sphacelate, and turns black where it was white before, and at last becomes pale and blanched. But when suppuration is fairly established in it, small blisters form on the tongue and he dies delirious. And, for the most part, convulsions seize the other side of the body; for, if the wound be situated on the left side, the convulsions will seize the right side of the body; or if the wound be on the right side of the head, the convulsion attacks the left side of the body.¹ And some become apoplectic. And thus they die before the end of seven days, if in summer; and before fourteen, if in winter. And these symptoms indicate, in the same manner, whether the wound be older or more recent. But if you perceive that fever is coming on, and that any of these symptoms accompany it, you must not put off, but having sawed the bone to the membrane (*meninx*), or scraped it with a raspatory, (and it is then easily sawed or scraped,) you must apply the other treatment as may seem proper, attention being paid to circumstances.²

20. When in any wound of the head, whether the man has been trepanned or not, but the bone has been laid bare, a red and erysipelatous swelling supervenes in the face, and in both eyes, or in either of them, and if the swelling be painful to the touch, and if fever and rigor come on, and if the wound look well, whether as regards the flesh or the bone, and if the parts surrounding the wound be well, except the swelling in the face, and if the swelling be not connected with any error in the regimen, you must purge the bowels in such a case with a medicine which will evacuate bile; and when thus purged the fever goes off, the swelling subsides, and the patient gets

¹ This is an opinion held by all the ancient authorities. Some interesting cases in point are related in the First Book of the Continens of Rhazes. It was explained on the principle that the cerebral nerves decussate. (See Aretæus, on the Causes of Disease, i, 7.) Modern experience, in the main, is in accordance with the ancient on this point. Paralysis has generally been found on the opposite side to that which has received the injury. See Thomson's Observations, &c., p. 52; Larrey's Mem. de Chirurg., iv, p. 180; Hennen's Principles, p. 301.

² This passage is thus translated by Celsus: "Si sub prima curatione febris intenditur, brevesque somni, et iidem per summa tumultuosi sunt, ulcus madet, neque alitur, et in cervicibus glandulæ orimntur, magni dolores sunt, cibique super hoc fastidium increscit, tum demum ad manum scalprumque veniendum est." (viii, 4.)

well. In giving the medicine you must pay attention to the strength of the patient.¹

21. With regard to trepanning, when there is a necessity for it, the following particulars should be known. If you have had the management of the case from the first, you must not at once saw the bone down to the meninx; for it is not proper that the membrane should be laid bare and exposed to injuries for a length of time, as in the end it may become fungous: And there is another danger if you saw the bone down to the meninx and remove it at once, lest in the act of sawing you should wound the meninx. But in trepanning, when only a very little of the bone remains to be sawed through, and the bone can be moved, you must desist from sawing, and leave the bone to fall out of itself.² For to a bone not sawed through, and where a portion is left of the sawing, no mischief can happen; for the portion now left is sufficiently thin. In other respects you must conduct the treatment as may appear suitable to the wound. And in trepanning you must frequently remove the trepan, on account of the heat in the bone, and plunge it in cold water. For the trepan being heated by running round, and heating and drying the bone, burns it and makes a larger piece of bone around the sawing to drop off, than would otherwise do. And if you wish to saw at once down to the membrane, and then remove the bone, you must also, in like manner, frequently take out the trepan and dip it in cold water. But if you have not charge of the treatment from the first, but undertake it from another after a time, you must saw the bone at once down to the meninx with a serrated trepan,³ and in doing so must frequently take out the trepan

¹ The practice advocated in this paragraph is alluded to by Paulus Ægineta, in his chapter on Fractures of the Skull. (vi, 90.)

² The operation here described by our author is the more deserving of attention, as it appears to have been peculiar to him. It is not described by Celsus, Paulus Ægineta, Albucasis, nor any one of the ancient authorities, as far as I can find; neither am I aware of its having been attempted in modern times. The object of it, however, seems to be very rational, namely, to avoid doing serious injury to the dura mater by tearing the bone forcibly from it at once.

³ The instrument here used is named *πίρων χαρακτός*; and, as far as I can see, was the same as the *modiolus* of Celsus, and the *χοινικίς* of the later authorities. It would certainly appear to have been a circular saw, and consequently not unlike our modern trephine. See the figures and the Argument.

and examine with a sound (specillum), and otherwise along the tract of the instrument.¹ For the bone is much sooner sawn through, provided there be matter below it and in it, and it often happens that the bone is more superficial,² especially if the wound is situated in that part of the head where the bone is rather thinner than in other parts. But you must take care where you apply the trepan, and see that you do so only where it appears to be particularly thick, and having fixed the instrument there, that you frequently make examinations and endeavour by moving the bone to bring it up. Having removed it, you must apply the other suitable remedies to the wound. And if, when you have the management of the treatment from the first, you wish to saw through the bone at once, and remove it from the membrane, you must, in like manner, examine the tract of the instrument frequently with the sound, and see that it is fixed on the thickest part of the bone, and endeavour to remove the bone by moving it about. But if you use a perforator (*trepan* ?), you must not penetrate to the membrane, if you operate on a case which you have had the charge of from the first, but must leave a thin scale of bone, as described in the process of sawing.

¹ The following sentence, taken from Sir Charles Bell's description of the operation, looks like a translation of this passage of Hippocrates; but it is well known that our English surgeon was not guilty of reading Greek! "Withdraw your trephine from time to time, brush it, and run the flat probe round the circular cut." The specillum of the ancient surgeons was, in most respects, not unlike our modern probe.

² The meaning here would seem to be, that the bone does not extend so deep as might be supposed. See Foës, *Æcon. Hippoc.*, under *ἐπιπολαϊότερον ὄστέον*.

EXPLANATION OF THE PLATES TO VOL. I.

PLATE I.

- FIG. 1. The Saw used by carpenters. (Taken from *Chirurgia è Græco in Latinum conversa, Vido Vidio interprete Lutetiæ Parisiorum*, p. 115.)
2. A small Saw. (*Ibid.*)
 3. The Modiolus, or ancient Trephine. (*Ibid.*)
 4. The Terebra, or Trepan, called Abaptiston. (*Ibid.* p. 116.)
 5. The Auger used by carpenters. (*Ibid.* p. 116.)
 6. The Terebra, or Trepan, which is turned round by a thong bound tight about its middle. (*Ibid.* p. 117.)
 7. The Auger, or Trepan, which is turned round by a bow. (*Ibid.* p. 118.)
 8. A Terebra, or Trepan, which is turned round by a thong on a cross-beam. (*Ibid.* p. 119.)
 9. A Terebra, or Trepan, which has a ball in its upper end, by which it is turned round. (*Ibid.* p. 120.)
 10. A Terebra, or Trepan, which is turned round by a cross piece of wood, or handle, on its upper end. (*Ibid.* p. 120.)

PLATE II.

- FIG. 1. A Terebra, or Trepan, turned round by a handle in its middle. (*Ibid.* p. 122.) It resembles the centre-bit of modern artisans.
1. A hole into which the iron head is fixed.
 2. Upright part, three inches long.
 3. Cross part, one inch long.
 4. The part which is grasped in turning the instrument.
 5. Cross part, an inch long.
 6. Upright part.
 7. A ball fixed to the top.
- a. b. c. Different forms of the iron head fixed in the

EXPLANATION OF THE PLATES TO VOL. I.

- FIG. 2. Scalper rectus, *or* straight Raspatory. (*Ibid.* p. 123.)
3. Scalper in medio recurvatus, *or* bent Raspatory. (*Ibid.*
p. 123.)
4, 5, 6. Ancient Modioli, as represented by Pott (*Injuries
of the Head*, p. 153).

PLATE III.

- FIGS. 1 and 2. A Scalper, *or* Raspatory, with which the
moderns scrape the bone. (*Chirurgia à Græco, &c.*,
p. 125.)
3. Scalper cavus, *or* scooped Raspatory. (*Ibid.* p. 126.)
4. A Lenticular. (*Ibid.* p. 127.)
5. A Malleolus, *or* Mallet. (*Ibid.* p. 126.)
6. A Lever, by which modern surgeons protect the dura
mater, and raise a depressed bone. (*Ibid.* p. 128.)
7. The ancient Meningophylax. (*Ibid.* p. 128.)
8. Forfex excisoria, *or* Cutting Scissors. (*Ibid.* p. 129.)
9. A Forceps, used for extracting bones. (*Ibid.* p. 130.)

PLATE I.

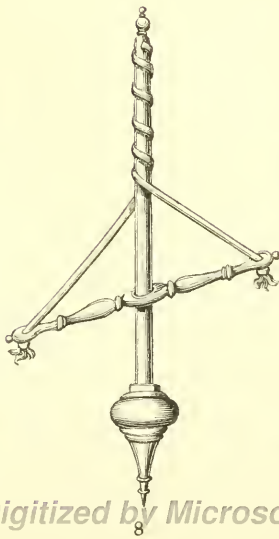
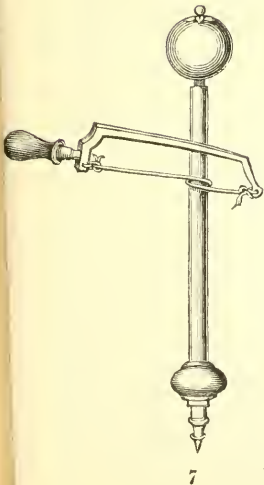
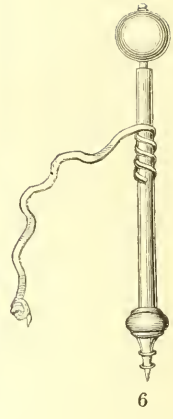
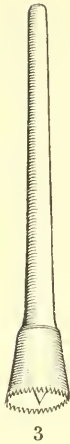
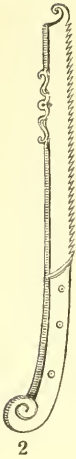
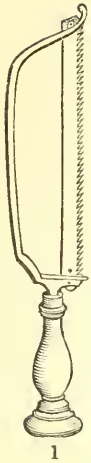


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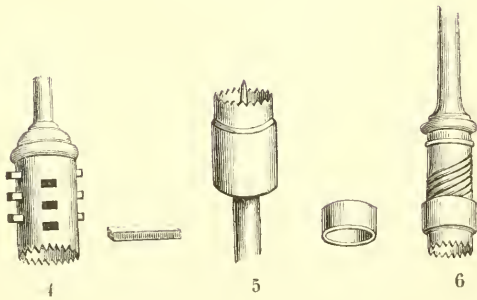
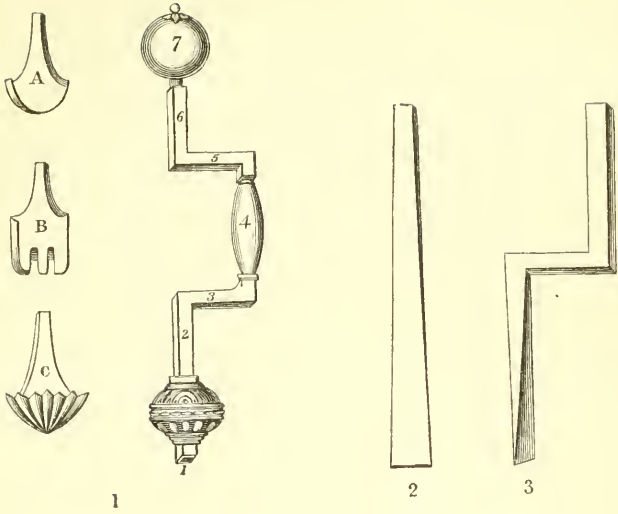


PLATE III.



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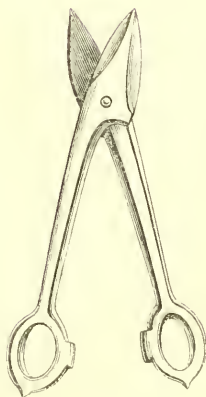
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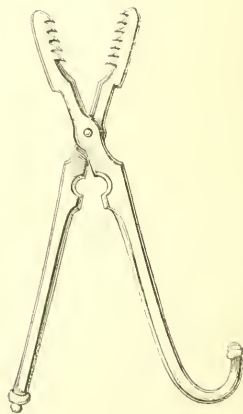
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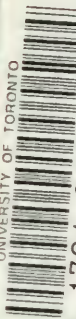
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THE

GENUINE WORKS

OF

H I P P O C R A T E S

TRANSLATED FROM THE GREEK

WITH

A PRELIMINARY DISCOURSE AND ANNOTATIONS

BY

FRANCIS ADAMS, LL.D.

SURGEON.

VOL. II.

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ON
THINGS RELATING TO THE SURGERY.

THE PHYSICIAN'S ESTABLISHMENT,

OR

THE SURGERY.

THE ARGUMENT.

IN the critical notice of this treatise given in the second section of the Preliminary Discourse, I have briefly described the nature and object of the *Iatrium*. There seems to be no doubt that it was an establishment belonging to the *periodeuta*, or travelling physicians, in which were kept all sorts of medicines and surgical apparatus required in the practice of the profession. This, then, would resemble "the surgery" spoken of by Pott,¹ as a place in which he received his patients for consultation. In my younger days I have visited what I regard as having been "the surgery" of a famous operator in the north, a contemporary of Pott, Dr. Thomas Livingston, of Aberdeen. It was then in the keeping of his son, and, in accordance with the spirit of the times, had ceased to be "a surgery," and was become little more than "a cabinet of antique curiosities;" it consisted, in short, of a choice collection of surgical instruments and everything else that constituted a portion of the *armamentarium chirurgicum*; but I was given to understand that, in former times, medicines were regularly prepared and compounded in it by the apprentices and attendants of the physician, for the purpose, no doubt, of being used by him in the practice of his profession, although I can scarcely suppose that it was patent to the public as a laboratory. Such an establishment, then, would be quite akin to the *Iatrium* of Hippocrates and his successors. I have ventured then to translate *Iatrium* by "the surgery." Galen hesitates respecting the title; he says, some named it, "On the

Iatrium;” and some “On the things relating to the Iatrium,” because it treats of matters connected with the Iatrium.¹

No one can read this tract attentively without being impressed with the truth of Galen’s remark respecting it, namely, that it is merely a rough sketch of a work, and that it had not been finished by the author for publication. Indeed, Galen sometimes expresses himself in equivocal terms as to its authenticity, and M. Littré was at first disposed to exclude it from the list of genuine works, but afterwards decided upon admitting it. One thing, at all events, is quite clear respecting it, namely, that it is a compendium of the subject-matters which are discussed fully in the works ‘On Fractures,’ and ‘On the Articulations,’ more especially in the former of these. In a word, it is a succinct outline of surgical matters, nearly unintelligible by itself, but highly valuable for refreshing the memory and methodising the information collected from the works we have just referred to. In execution it bears a resemblance to some of the esoteric works of Aristotle, which are composed in so condensed a style, that they would be nearly unintelligible if they were not illustrated by copious commentaries. The tract of Theophrastus ‘On Stones,’ is another work of the same class as the present one.

§ 1. The work begins with a brief enumeration of the general principles of diagnosis, or, more properly speaking, of semeiology, and of the objects and means by which diseases are to be recognised. The grand rule for discrimination is held to be the comparison of the diseased part with the corresponding part on the sound side.

¹ The fullest account which we possess of the ancient iatrium, is that which is contained in the Hippocratic treatise, *De Medico*. The author of the treatise, after giving some general directions respecting the construction of the house, namely, that it should be so constructed that neither the wind nor sun might prove offensive to the patient, goes on to enumerate the various articles which it should contain, such as scalpels, lancets, cupping-instruments, trepans, raspatories, with bandages and medicines. That it was “an operation-room” there can be no doubt; whether it was also a public laboratory for the sale of medicines is not so clear; but it seems probable, from what we learn respecting the iatrium which Aristotle inherited from his father, Nicomachus (see Suidas, under *Aristoteles*), for Athenæus taunts Aristotle with having been a druggist (*φαρμακοπώλης*).—Deïmos, viii, 13. I ought to have stated above, that Galen, in his *Exegesis*, &c. explains the title of this work as follows : *κατ’ ἰητροίων τὰ κατὰ τὴν χειρουργίαν*.—See further, Malgaigne, *Operat. Sug.*, Pref. Engl. Edn.

§ 2. A most comprehensive statement is then given of all the matters and objects relating to the surgery,—the operator,—the patient,—the assistants,—the instruments,—the light,—the position of the patient and of the operator, and so forth.

§ 3. The circumstances connected with surgical operations are then discussed somewhat more fully, and very sensible directions are laid down in regard to the conduct of the operator and of the patient.

§ 4. Some very acute remarks are next made with regard to the operator's hand, and the means to be used in order to acquire dexterity and elegant manipulation.

§ 5. Directions are then given for the disposal of the surgical instruments, so that they may be readily got hold of when required by the operator. This paragraph evinces much practical acquaintance with the business of the operation-room.

§ 6. The duties of the assistant are distinctly laid down and prescribed.

§ 7. General directions are given for the application of the bandages along with a description of the characters by which to distinguish bandaging when properly applied. Names of some of the most important fasciæ, or forms of bandages.

§ 8. Directions are given for regulating the amount of the compression produced by the bandages, and for securing the bandages by a thread with knots.

§ 9. Many remarks are made on the tendency of a bandage to fall off from particular parts of the body, and directions are given to obviate this tendency.

§ 10. The general characters of the bandage are again described somewhat more fully than before.

§ 11. The application of several forms of bandage, especially the hypodesmis and epidesmis, according to circumstances and the object for which they are used, is described with much precision and minuteness of detail.

§ 12. The remainder of the directions for bandaging a fractured limb is given, along with the application of the splints, and the use of cerate for giving firmness, and of selvages or slips of cloth for giving security to them. The splints also are minutely described.

§ 13. The affusion of hot water on the limb after the removal of the bandages is particularly enjoined.

§ 14. The adjustment of the limb, more especially by means

of canals, *or* gutters for giving greater security to the inferior extremity, is particularly insisted upon.

§ 15. Directions are given with regard to the natural, that is to say, the proper position of a fractured limb while in the acts of setting and adjusting it. The fore-arm is to be placed at right angles to the arm, in a state intermediate between pronation and supination, and an inferior extremity is to be laid in an extended position.

§ 16. Directions are given with regard to the force to be applied in adjusting fractured bones: it is to be in proportion to the size of the bone, and stronger in the case of young than of old persons.

§ 17. The general effects of friction are briefly defined.

§ 18. Minute and very sensible directions are given as to the appearances which the bandaging should present during the process of treatment.

§ 19. The general object of the surgical contrivances connected with the management of a fractured limb is correctly defined to be—to keep the limb in position.

§ 20. The effects of rest and exercise on the condition of the limb or member are briefly defined.

§ 21. The strength of the bandaging is directed to be made to depend on the number of the bandages, rather than the tightness with which they are applied.

§ 22. The effects of bandaging in the treatment of ecchymosis, contusions, and swellings are described, along with other circumstances connected with the treatment of these cases.

§ 23. The application of bandages, position, and friction, in the treatment of dislocations, sprains, separation of bones, club-feet, and other surgical cases, are minutely and accurately defined.

§ 24. The treatment of limbs which have become atrophied from want of exercise and the compression of tight bandages during the process of treatment for fracture, is strikingly defined. The application of a loose bandage in a peculiar form, as here described, is well deserving of attention.

§ 25. The means to be taken in order to steady the head and chest in injuries of the same, are briefly and distinctly defined.

From this brief analysis of its contents the reader will readily perceive that the greater part of the work is devoted to the treatment of fractures and injuries of a similar nature. The

rules for the management of this part of surgical practice are certainly laid down here with a degree of precision which bespeaks a minute and accurate acquaintance with the subject, and evinces a great talent for judging correctly the bearings of practical questions in surgery. It may well be doubted whether the same subject be methodised and defined with the same precision in any other work, ancient or modern. It must always be borne in mind, however, that, as stated above, the work is to be viewed in the light of a rough sketch, which, in order to be understood, must be taken in connexion with the fuller exposition of the subject given in the work 'On Fractures.' At first, then, I was inclined to arrange the present treatise after the works 'On Fractures,' and 'On the Articulations,' believing that it would thus occupy its most suitable position, by serving as a remembrancer to the reader of the various objects which he had previously viewed in detail. But although it might, no doubt, prove very useful according to this arrangement (and indeed it is so arranged by Galen), I am not sure but that it stands more properly in its present place, as it is always of advantage to take at first, as it were, a *coup-d'œil* of a subject, so as to ascertain its limits, divisions, and the bearings of its particular parts upon one another, before proceeding to examine each of them in detail. There is also a great advantage to a student in having a syllabus of any subject which he intends to investigate, so that his attention may be awakened and directed beforehand to the matters which will be presented to him in going over the intended field of inquiry. For the reasons now adverted to, I am of opinion, then, that whoever would wish to make himself thoroughly acquainted with the surgical works of Hippocrates, should commence his studies with the present treatise. In a word, this work may be regarded as the prologue, and the 'Mochlicus' as the epilogue, to the great work 'On Fractures and Dislocations.'

I may mention, in conclusion, that although Galen in one place expresses himself rather undecidedly regarding its authenticity, it would appear that, after all, this tract was a great favorite of his, for he has not only written an elaborate Commentary upon it, but has made frequent allusions to it in other parts of his works.

ON THE SURGERY.

1. It is the business of the physician to know, in the first place, things similar and things dissimilar; those connected with things most important, most easily known, and in any-wise known;¹ which are to be seen, touched, and heard; which are to be perceived in the sight, and the touch, and the hearing, and the nose, and the tongue, and the understanding;² which are to be known by all the means we know other things.³

2. The things relating to surgery, are—the patient; the operator; the assistants; the instruments; the light, where and how; how many things, and how; where the body, and the instruments; the time; the manner; the place.⁴

¹ The meaning of the first clause of this sentence, according to Galen, is, that the first thing which the medical practitioner must do is to make himself well acquainted with semeiology, by comparing carefully the condition of disease with that of health. In all cases of accident it was the practice of the ancient surgeons to compare carefully the injured part with its fellow or corresponding part on the opposite side. Galen, in his Commentary, relates an interesting case, which shows the necessity of care in making such a comparison. A patient had met with an accident, by which the acromion was torn from the scapula, and the nature of the injury was not recognised at first, owing to the appearances being similar on the opposite side; but Galen, upon inquiry, found that these had been occasioned by a previous accident. I may mention here, by the way, that Sir Charles Bell, in treating of dislocations of the hip-joint, very properly inculcates the propriety of ascertaining the previous state of matters before deciding in a case of supposed luxation.

² It will be perceived that this clause is little else than an apparent repetition of the preceding one. Galen mentions several explanations which had been given to account for this; the most plausible of which appears to me to be, that the former clause relates to the senses of the physician, and the latter to those of the patient.

³ The last clause is illustrated by a very elaborate Commentary of Galen, in which he discusses with his usual subtilty the question respecting the criteria of human knowledge. Galen holds that our gnostic powers may all be referred to these three—sensation, understanding, and memory. These questions would now be reckoned too metaphysical for a surgical treatise.

⁴ This will be admitted even now to be a comprehensive list of everything that relates to the operation-room. The general meaning is quite obvious, and the only obscurity in this paragraph consists in the reading, for which see Galen's Commentary, and the Annotations of Littré. I shall only mention that by place, in the end of the sentence, was probably meant the diseased part, or seat of the disease. The term is thus used in the Hippocratic treatise, *De Locis in Homine*.

3. The operator is either sitting or standing, conveniently for himself, for the person operated upon, for the light. There are two kinds of light, the common and the artificial; the common is not at our disposal, the artificial is at our disposal. There are two modes of using each, either to the light, or from the light (to the side?). There is little use of that which is from (*or* oblique to the light), and the degree of it is obvious.¹ As to opposite the light, we must turn the part to be operated upon to that which is most brilliant of present and convenient lights, unless those parts which should be concealed, and which it is a shame to look upon;² thus the part that is operated upon should be opposite the light, and the operator opposite the part operated upon, except in so far as he does not stand in his own light; for in this case the operator will indeed see, but the thing operated upon will not be seen. With regard to himself: when sitting, his feet should be raised to a direct line with his knees, and nearly in contact with one another; the knees a little higher than the groins, and at some distance from one another, for the elbows to rest upon them. The robe, in a neat and orderly manner, is to be thrown over the elbows and shoulders equally and proportionally.³ With regard to the part operated upon; we have to consider how far distant, and how near, above, below, on this side, on that side, or in the middle. The measure as to distance and proximity is, that the elbows do not press the knees before, nor the sides behind; that the hands be not raised higher than the breasts, nor lower than so as that when the breast reposes on the knees he may have the

¹ By "from the light," Galen explains is meant "turned from the light," that is to say, oblique to the light. Galen mentions that it is applicable principally in operations on the eye, such as the anabrochismus, the removing of tumours from the eyelids, excision of the pterygium, and couching the cataract.

² Galen remarks, that in operations on the parts of generation, and on the breasts in females, it is proper that the patient should be blindfolded. He also recommends in certain cases, when the patient is remarkably timid, to deceive him by telling him that the operation had been put off until another day, and while in the act of making, as it were, preparations for it, to perform the necessary incision.

³ The ancient physicians attached much importance to decorum, and studied effect very much in the practice of their art. In the Hippocratic treatise, On Elegance, the dress of the physician is not forgotten. In this passage it will be seen that the manner in which the surgeon's robe, *or* mantle, should be flung over him, while in the act of operating, is graphically described.

hands at right angles with the arm: thus it is as regards the medium; but as concerns this side or that, the operator must not be beyond his seat, but in proportion as he may require turning he must shift the body, or part of the body, that is operated upon. When standing, he must make his inspection, resting firmly and equally on both feet; but he must operate while supporting himself upon either leg, and not the one on the same side with the hand which he makes use of; the knee being raised to the height of the groins as while sitting; and the other measures in like manner. The person operated upon should accommodate the operator with regard to the other parts of his body, either standing, sitting, or lying; so as that he may continue to preserve his figure, avoid sinking down, shrinking from, turning away; and may maintain the figure and position of the part operated upon, during the act of presentation, during the operation, and in the subsequent position.¹

4. The nails should be neither longer nor shorter than the points of the fingers; and the surgeon should practise with the extremities of the fingers, the index-finger being usually turned to the thumb; when using the entire hand, it should be prone; when both hands, they should be opposed to one another. It greatly promotes a dexterous use of the fingers when the space between them is large, and when the thumb is opposed to the index. But it is clearly a disease when the thumb is impaired from birth, or when, from a habit contracted during the time of nursing, it is impeded in its motions by the fingers. One should practise all sorts of work with either of them, and with both together (for they are both alike), endeavouring to do them well, elegantly, quickly, without trouble, neatly, and promptly.²

¹ The description of the position of the operator, and of the person operated upon, contained in this paragraph, is so clear as to stand little in need of elucidation. I may mention, that by the act of presentation, an expression which often occurs in the surgical treatises of Hippocrates, was meant the position in which the injured or diseased member of the patient is presented to the surgeon for operating upon it. By subsequent positions, it will readily be understood, is meant the state in which the limb is placed after the operation; such, for example, as the adjustment of the leg in a canal, and the suspension of the arm in a sling after bandaging for fracture. These questions we shall find fully discussed in the work *On the Articulations*.

² The importance of these general directions for the surgeon, in order that he may acquire skilful manipulation, is obvious. The free motion of the thumb and index-finger evidently contributes in an especial manner to the dexterity of the ope-

5. The instruments, and when and how they should be prepared, will be treated of afterwards; so that they may not impede the work, and that there may be no difficulty in taking hold of them, with the part of the body which operates. But if another gives them, he must be ready a little beforehand, and do as you direct.¹

6. Those about the patient must present the part to be operated upon as may seem proper, and they must hold the rest of the body steady, in silence, and listening to the commands of the operator.

7. There are two views of bandaging: that which regards it while doing, and that which regards it when done.² It should be done quickly, without pain, with ease, and with elegance; quickly, by despatching the work; without pain, by being readily done; with ease, by being prepared for everything; and with elegance, so that it may be agreeable to the sight. By what mode of training these accomplishments are to be acquired has been stated. When done, it should fit well and neatly; it is neatly done when with judgment, and when it is equal and unequal, according as the parts are equal or unequal. The forms of it (the bandage?) are the simple, the slightly winding (called *ascia*), the sloping (*sima*), the monoculus, the rhombus, and the semi-rhombus.³ The form of bandage should be suitable to the form and the affection of the part to which it is applied.

rator. The importance also of practising with either hand, so as to become ambidextrous, is now generally admitted. The text in the clause of the sentence, where the impediment of the hand is described, would appear to be corrupted. See Galen, Foës, and Littré.

¹ The directions, I need scarcely remark, are most apposite, and bespeak a familiar acquaintance with surgical practice. By instruments, as Galen in his Commentary remarks, is meant in this place not only mechanical contrivances, such as the ambe and bench, used in the reduction of dislocations, but all the apparatus used by the surgeon in performing operations.

² The meaning of this clause, although rather quaintly expressed, seems pretty obvious. It is thus rendered by Verduc: "We must observe, with Hippocrates, that with regard to the first difference drawn from the time of the operation, we must consider a bandage while it is yet amaking, by way of distinction from one that is already made. For the former there are three conditions required, which are couched under these three words, *cito, tute, jucunde*, i. e. speedily, safely, and dexterously, &c." (On Fractures, Bandages, &c.)

³ Our author here describes, rather confusedly and indistinctly, six sorts of bandages, namely, three simple, and three compound: the simple are, the circular, the *ascia*, and the *sima*; the compound are, the monoculus, the rhombus, and the semi-rhombus. The circular cannot be misunderstood; it consisted of a single roll of

8. There are two useful purposes to be fulfilled by bandaging :¹ (*first*), strength, which is imparted by the compression and the number of folds. In one case the bandage effects the cure, and in another it contributes to the cure. For these purposes this is the rule—that the force of the constriction be such as to prevent the adjoining parts from separating, without compressing them much, and so that the parts may be adjusted but not forced together ; and that the constriction be small at the extremities, and least of all in the middle. The knot and the thread that is passed through should not be in a downward but in an upward direction, regard being had to the circumstances under which the case is presented ; to position, to the bandaging, and to the compression. The commencement of the ligatures is not to be placed at the wound, but where the knot is situated.² The knot should not be placed where it will be exposed to friction, nor where it will be in the way, nor where it will be useless. The knot and the thread should be soft, and not large.

9. (*Second*.) One ought to be well aware that every bandage has a tendency to fall off towards the part that declines or becomes smaller ; as, for example, upwards, in the case of the head, and downwards, in the case of the leg. The turns of the bandage should be made from right to left, and from left to right, except on the head, where it should be in a straight direction.³ When opposite parts are to be bandaged together,

bandage carried circularly round the limb or member. The *ascia* (*σκέπαρρον*) and the *sima* were two forms of spiral bandage differing only in this respect, that in the former the edges of the bandage passed each other to a small extent, in the latter to a greater. The *oculus*, or *monoculus*, was a bandage adapted to dressings on one eye. The *rhombus* and *semi-rhombus* took their names from their figure, and were used principally on the head and feet. It being very difficult to convey a correct idea of these bandages in words, I will give figures of them taken from Vidus Vidius, from which their construction will be readily comprehended at a glance.

¹ As Galen states in his Commentary, it does not clearly appear from the text what are the two purposes which bandaging supplies. M. Littré supposes that the exposition of the second begins at § 9.

² The meaning of this sentence is doubtful. See Galen's Commentary, and Littré's notes.

³ Galen explains the meaning of this expression (*κατ' ἕξιν*) by stating that in bandaging the head, the fold of the bandage is to be brought from the top of the head straight down below the chin, and is to be carried thence to the part affected, and then again in like manner, either twice, or thrice, or as often as is thought necessary. *Digitized by Microsoft®*

we must use a bandage with two heads; or if we make use of a bandage with one head, we must attach it in like manner at some fixed point; such, for example, as the middle of the head; and so in other cases. Those parts which are much exposed to motion, such as the joints, where there is flexion, should have few and slight bandages applied to them, as at the ham; but where there is much extension, the bandage should be single and broad, as at the kneepan; and for the maintenance of the bandage in its proper place, some turns should be carried to those parts which are not much moved, and are lank, such as the parts above and below the knee.¹ In the case of the shoulder, a fold should be carried round by the other armpit; in that of the groin, by the flanks of the opposite side; and of the leg, to above the calf of the leg. When the bandage has a tendency to escape above, it should be secured below, and *vice versâ*; and where there is no means of doing this, as in the case of the head, the turns are to be made mostly on the most level part of the head, and the folds are to be done with as little obliquity as possible, so that the firmest part being last applied may secure the portions which are more moveable. When we cannot secure the bandaging by means of folds of the cloth, nor by suspending them from the opposite side, we must have recourse to stitching it with ligatures, either passed circularly or in the form of a seam.²

10. The bandages should be clean, light, soft, and thin.³ One should practise rolling with both hands together, and with either separately. One should also choose a suitable one, according to the breadth and thickness of the parts. The heads of the bandages should be hard, smooth, and neatly put on.

¹ The propriety of these directions for bandaging the knee will readily be acknowledged. By lank parts (*λαπαρά*), Galen explains, were meant loose and slender parts, as opposed to such as are full and prominent.

² The meaning in the last clause of this paragraph is difficult to determine. See Galen, Vidus Vidius, and Littré.

³ Verduc translates and explains this passage as follows: "Hippocrates enjoins further, that the bands be smooth, plain, soft, and light; by smoothness and plainness he excludes unevenness, or the least puckering and rising unequally; by requiring softness, he insinuates that they must not press, or wring, or wound the part; and fineness is requisite to facilitate the passage of the liquors through its substance; and the inconveniency of overloading the affected part makes lightness a necessary quality." On Fractures, Bandages, &c., p. 291.

That sort of bandaging is the worst which quickly falls off; but those are bad bandages which neither compress nor yet come off.¹

11. The following are the objects which the upper bandage, the under bandage, or both aim at:² The object of the under bandage is either to bring together parts that are separated, or to compress such as are expanded, or to separate what are contracted, or to restore to shape what are distorted, or the contrary. It is necessary to prepare pieces of linen cloth, which are light, thin, soft, clean, having no seams nor protuberances on them, but sound, and able to bear some stretching, or even a little more than required; not dry, but wetted with a juice suitable to the purpose required. We must deal with parts separated (*in a sinus?*) in such wise, that the parts which are raised may touch the bottom without producing pressure; we must begin on the sound part, and terminate at the wound; so that whatever humour is in it may be expelled, and that it may be prevented from collecting more.³ And straight parts are to be bandaged in a straight direction, and oblique obliquely, in such a position as to create no pain; and so that there may be no constriction nor falling off on a change of position, either for the purpose of taking hold of anything, or laying the limb; and that muscles, veins, nerves, and bones may be properly placed and adjusted to one another. It should be raised or laid in a natural position, so as not to occasion pain. In those cases in which an abscess is formed, we must act in a contrary way.⁴ When our object is to bring together

¹ Though the general drift of this paragraph be sufficiently clear, there are many things in it by no means easy to be understood. Indeed, Galen finds the language so unworthy of Hippocrates, that he does not scruple to give it as his opinion that the work had never been finished for publication by the author. By heads Galen says, that some of the commentators understood the ends, and others the edges of the bandages. The text in the last clause seems evidently to be corrupt.

² The *epidesmis* and *hypodesmis*, which are both described in a very distinct manner in this paragraph, evidently apply principally to fractures and other injuries of the extremities. There is little in this description that requires explanation. The application of them in the case of a fractured arm, we shall find minutely described in the work On the Articulations.

³ This description seems evidently to apply to a sinus, or collection of matter below the skin. In this sense it is understood by Galen, and by Verduc, in his work on Fractures and Bandages.

⁴ There is great uncertainty about the meaning of this sentence, as may be

parts which have become expanded, in other respects we must proceed on the same plan ; and we must commence the bringing together from some considerable distance ; and after their approach, we must apply compression, at first slight, and afterwards stronger, the limit of it being the actual contact of the parts. In order to separate parts which are drawn together, when attended with inflammation, we must proceed on the opposite plan ; but when without inflammation, we must use the same preparations, but bandage in the opposite direction. In order to rectify distorted parts, we must proceed otherwise on the same principles ; but the parts which are separated must be brought together by an under bandage, by agglutinants, and by suspending it (*the limb?*) in its natural position.¹ And when the deformities are the contrary, this is to be done on the contrary plan.

12. In fractures we must attend to the length, breadth, thickness, and number of the compresses. The length should be that of the bandaging ; the breadth, three or four fingers ; thickness, three or fourfold ; number so as to encircle the limb, neither more nor less ; those applied for the purpose of rectifying a deformity, should be of such a length as to encircle it ; the breadth and thickness being determined by the vacuity, which is not to be filled up at once. The under bandages are two, the first of which is to be carried from the seat of the injury upwards, and the second from the seat of the injury downwards, and from below upwards ; the parts about the seat of the injury being most compressed, the extremities least, and the rest in proportion. The upper bandages should take in a considerable portion of the sound parts. We must attend to the number, length, and breadth of the bandages ; the number must be such as not to be inferior to what the injury requires, nor occasion compression with the splints, nor prove cumbersome, nor occasion any slipping of them, nor render them in-

learned from the Commentary of Galen. He informs us that some read it negatively, that is to say, with the negative particle ($\mu\eta$), and that Asclepiades put an entirely different sense on the passage, understanding the words to apply to the loosening of the bandages, and not to the condition of the part to which they are applied. Foës inclines to adopt this interpretation, which I must say is, in many respects, more feasible than the other. Galen seems undecided.

¹ This passage refers apparently to fractures of the fore-arm, which we shall find treated of very fully in the work On Fractures. The suspension of the limb in a napkin, or other cloth, constituted a very important part of the process of treatment.

efficient. As to length and breadth, they should be three, four, five, or six cubits in length, and as many fingers broad. The folds of the strings (*selvages?*)¹ should be such as not to occasion pressure; they are to be soft and not thick; and all these things are to be proportionate to the length, breadth, and thickness of the part affected. The splints are to be smooth, even, and rounded at the extremities; somewhat less all along than the upper bandaging, and thickest at the part to which the fracture inclines. Those parts where there are tuberosities, and which are devoid of flesh, such as the ankles or fingers, we must guard from the splints which are placed over them, either by position or by their shortness. They are to be secured by the strings in such a manner as not to occasion pressure at first. A soft, consistent, and clean cerate should be rubbed into the folds of the bandage.²

13. As to the temperature and quantity of the water used, its heat should be just such as the hand can bear, and it ought

¹ There is a good deal of difficulty in determining the exact meaning of this term (*παράρημα*); indeed, there is considerable uncertainty about the reading. Consult Galen, Vidus Viduus, Foës, Littré, and Schneider (*Lexicon*). Both Foës and Littré incline to render it by *lisière* in Freuch, that is to say, the *list* or *selvage* of linen cloth. That this should have been used to secure the compresses, and keep them in position, seems very natural, and I am inclined to adopt this explanation of the term, as it suits so well with the sense. See Avicenna, iv, 5, 2, 7; also, Sculteti *Annamentarium Chirurgicum*, tab. 29. In plate 1, the appearance of the bandaged limb, having the splints secured with strings, is well represented.

² I need scarcely remark that this description of the process of treating a fractured limb is remarkable for precision and clearness, and it may well be doubted whether in the whole compass of medical literature there be a passage which contains so judicious an exposition of the principles upon which this surgical case should be managed. An important point connected with the ancient mode of treating fractures was the use of cerate, or a composition from wax, in the application of the bandages. Unfortunately our information regarding the use of this article by the ancient surgeons in bandaging is very limited, being mostly confined to this passage of our author, and the Commentary of Galen on the same, which, it is to be regretted, has come down to us in a corrupt state. It appears from it, however, that the wax was rubbed not only into the skin of the part to which the bandage was to be applied, but also upon every fold of the bandage as it was put on. It was applied in moderate quantity. See *Chirurgiæ Græci*, ed. Cocchi (p. 66). There can be no doubt then, that applied in this manner, the waxed bandages must have been fully as secure as the starched bandages now in use. The wax used for this purpose was cleaved from all impurities, and probably bleached. On the ancient mode of bleaching wax, see Dioscorides (ii, 195). The Arabians adopted this and all the other steps of this process from the Greeks. See, in particular, Avicenna (iv, 5, 2, 6). I may be allowed to re-

to be known that a large quantity is best for producing relaxation and attenuation, whereas a moderate quantity is best for incarnating and softening. The limit to the affusion is, to stop when the parts become swelled up, and before the swelling subsides; for the parts swell up at first, and fall afterwards.¹

14. The object on which it (*the limb?*) is laid should be soft, smooth, and sloping upwards towards the protuberant parts of the body, such as the heel or hips, so that there may be no projection, nor bending inwards, nor turning aside.² The canal (*spout or gutter?*) should rather comprehend the whole limb than the half of it, attention being paid to the injury and to whatever else appears to create inconvenience.³

15. The presentation of the injured part to the physician, the extension, the arrangement, and so forth, are to be regulated according to nature. What is nature in these operations is to be determined by the accomplishment of the object which we have in view, and for this purpose we must look to the part in the state of rest, in its middle state, and to habit; in regard to the state of rest and relaxation, as in the arm, that it be in a line with the hand; and with regard to the medium between

mark in this place, that it is not unlikely that the Arabs in Algiers, from whom it is well known that the French surgeons learned the process of treating fractures by the immoveable apparatus, may have derived their knowledge from their forefathers. How or when this excellent practice fell into disuse in civilized Europe I cannot pretend to explain. I may mention, however, that Verduc, who professes to follow Galen and Hippocrates implicitly in describing the application of bandages to fractured limbs, takes no notice whatever of the use of cerate. Thus it is that we always pass by valuable things when we do not estimate the use of them properly.

¹ The warm water, I may just mention, was applied upon the removal of the bandages. The objects for which it was applied are briefly noticed by our author, and are fully explained by Galen in his Commentary. Galen further alludes to the practice elsewhere. (*Meth. Med.*, xiv; and *Hygiene*, ii.) We shall find further mention of it in the work *On Fractures*.

² The meaning of this sentence, notwithstanding the explanations furnished by Galen, is somewhat obscure. One can readily appreciate the propriety of the direction to lay the heel in particular on an elevated object, in order, as Galen remarks, to prevent a defluxion to the part.

³ The canal (called in French *gouttière*), although Hippocrates elsewhere expresses himself regarding its usefulness in rather equivocal terms, appears to me to be one of the simplest and most ingenious contrivances imaginable for securing a fractured leg. For several years I have used in imitation of it a half-boot made of the strongest pasteboard, and have found it the greatest improvement imaginable in the treatment of fractures. It appears to me preferable to any of the mechanical contrivances which are at present in use in the London hospitals.

flexion and extension, that the forearm be at right angles to the arm; and with regard to habit, it should be considered that some limbs bear certain positions preferably, as, for example, the thighs extension; for in such attitudes the parts can best bear to be placed for a considerable time without a change of posture. And in the change from the state of distension, the muscles, veins, nerves, and bones, when properly arranged and secured, will preserve their relations to one another while the limb is raised or placed.¹

16. The extension should be most powerful when the largest and thickest bones, or when both are broken; next when the under-bone, and least of all, when the upper. When immoderate, it is injurious, except in the case of children. The limb should be a little elevated. The model by which we judge if the part be properly set is the sound part of the same name, or the part which is its pair.²

17. Friction can relax, brace, incarnate, attenuate: hard braces, soft relaxes, much attenuates, and moderate thickens.³

18. The following should be the state of matters on the first application of the bandage. The person to whom it has been applied should say that he feels the compression particularly at the seat of the injury, but very little at the extremities; the parts should be adjusted but not pressed together, and that rather by the number of the bandages than by the force of the constriction; and the tightness should rather be on the increase during the first day and night; but on the next it

¹ There is not much of any practical importance in this paragraph which requires illustration. The best position for a fractured limb, as Galen remarks, is that in which it can be longest kept without producing pain; this, in the forearm, Hippocrates holds to be the state intermediate between pronation and supination, with the forearm at right angles to the arm, and in the leg complete extension. Galen pronounces decidedly in favour of the extended position during the treatment of a fractured thigh.

² This paragraph, it will readily be perceived, relates to fractures of the forearm. There is little in it which requires illustration. Galen remarks, that the bodies of young persons, being of a softer and more humid nature, endure greater extension than those of the aged without being exposed to pain or more serious consequences. This is no doubt the fact, and it is equally true that aged persons can scarcely bear to be touched without experiencing most acute pain.

³ This subject is so fully treated of in the English edition of PAULUS ÆGINETA, Book I, 18, that I need not touch upon it in this place. See, in particular, Galen (De Sanit. tuend., ii, Comment. l. l.), and Oriliasius (Med. Collect., vi).

should be less, and on the third the bandages should be loose. On the next day a soft swelling should be observed in the extremities;¹ and on the third day, when the bandaging is loosed, the swelling should be found diminished in size, and this should be the case every time the bandages are removed. At the second application of the bandage, it should be ascertained whether the dressing has been properly done, and then greater compression should be made, and with more bandages; and on the third, still greater, and still more. On the seventh day from the first dressing, when the bandages are loosed, the limb should be found slender and the bones mobile. We must then have recourse to the splints, provided the limb be free of swelling, pruritus, and ulceration, and allow them to remain until twenty days after the accident; but if any suspicions arise, the bandages must be loosed in the interval. The splints should be tightened every third day.²

19. The suspending of a fractured limb in a sling, the disposition of it, and the bandaging, all have for their object to preserve it in position. The principal considerations with regard to the position are the habits and the peculiar nature of each of the limbs: the varieties are shown in running, walking, standing, lying, action, repose.³

¹ On this direction Verdue makes the following remark: "Hippocrates, who so often forewarns us of the danger of making the bandages either too tight or too slack, gives us a certain sign of the due tightness of the bandage, viz. the inflammation and rising softness of the lower extremity, whether the foot or hand. So that if the foot is not at all inflamed, you must immediately undo the dressings, for fear of a false callus. If the inferior extremities are very much inflamed, and have a hard tumour upon them, you must slacken the rollers."—On Fractures, Bandages, &c. It is well known that in modern practice the extremities are bandaged to prevent swelling from taking place in them. Whether or not this be in all cases a wise practice, I have my doubts; indeed I am inclined to think that the swelling below relieves the swelling, and consequently the congestion, in the seat of the fracture. When the bandages are not too tight, nor the patient in an unhealthy condition of body, the swelling below, to say the least of it, can do no harm, and, besides serving as an index of the state of the bandaging above, may, and I think certainly in some cases does, relieve the tension in the seat of the injury. The contents of this chapter is an accurate *résumé* of the more ample directions which, as we shall see below, are given in the works On Fractures and On Articulations.

² The splints, I believe, were secured by ligatures going round the limb in different places, care being taken to avoid the spot where the fracture was situated. See, in particular, Avicenna (iv, 5, 2, 7, 8).

³ The subject-matters contained in this passage are evidently pretty much the

20. It should be kept in mind that exercise strengthens, and inactivity wastes.¹

21. Compression should be produced by the number of bandages, rather than by the force of the constriction.

22. In cases of ecchymosis, contusions, sprains, or swellings not attended with inflammations, blood is to be expelled from the wound, in greatest quantity to the upper part, and in smallest to the inferior; neither the arm nor the leg should be placed in a declining position: the head of the bandage should be placed on the wound, and there the greatest pressure should be made; the least at the extremities, and intermediately in the middle; the last fold of the bandage should be at the upper part of the body. As to binding and compression, these objects are to be attained rather by the number of the bandages than the force of the constriction; and moreover, in these cases the bandages should be thin, light, soft, clean, broad, sound, so that they may effect their purpose, even without splints. And we must use affusions.²

23. Dislocations, sprains, diastases of bones, violent separation, abruption of the extremities of bones, and distrainings, so as to induce *varus* or *valgus*, in these cases we must apply the bandages so as not to compress the part whence the displacement took place, and that we may render them tight at the side to which the displacement was, and give the limb an inclination in the opposite direction, and that in an excessive degree. We employ bandages, compresses, suspension of the limb in a sling, attitude, extension, friction, rectification; and along with these the affusion of much water.³

same as those contained in §15. Galen insists strongly upon this being a clear proof that the present work is a mere rough sketch, and that it had never been completed by our author. In the course of his Commentary, he repeatedly insists that the original publisher must have used great liberties with the text.

¹ As a corollary to this proposition Galen remarks, that in surgical treatment an injured limb ought not to be too long kept entirely without motion, but that as soon as the inflammation has subsided, it should be cautiously moved after hot water has been poured upon it, &c.

² It is foreign to my purpose to enter upon a discussion of the different readings in this paragraph, as this would occupy too much time and space. See Galen, Fœs, and Littré. As I have translated it, the meaning seems obvious, and the practice very rational. The subject herein treated will be found more fully discussed in the work On Fractures.

³ This paragraph, as Galen remarks, contains an epitome of a variety of matters

24. In treating parts which are atrophied, we must comprehend a considerable part of the sound limb with the bandage, so that by the influx thereby produced, the wasted part may acquire a supply greater than its loss, and may be thus disposed to growth and restoration of its fleshy parts. It is better also to bandage the parts above, as the thigh in the case of the leg, and also the thigh and leg of the opposite side, so that they may be placed in similar circumstances, and may both equally be deprived of motion; and that the supply of nourishment may be alike curtailed and open to both. The compression should be the effect rather of the number of the bandages than of their tightness. We relax first the part most requiring it, and have recourse to that kind of friction which will promote the growth of flesh, and to affusion. No splints.¹

25. Those things which are for the purpose of giving support and strength to the part, as to the breast, side, head, and so forth, are used in such cases as the following: for pulsations, that there may be no motion in the part; and in separation at the sutures of the skull, in order to give support; and in order to strengthen the chest and head, in coughs, sneezings, and other movements. In all these cases the same measure of

which are fully treated of in the treatises, *On Fractures*, and *On the Articulations*. Whatever is obscure in it will readily be understood upon reference to these works. I shall only notice a few of the terms which may be somewhat obscure to the modern reader who is not familiar with the two treatises now referred to. *Diastasis* is the separation of the two bones not connected together by diarthrosis, but in immediate connexion, such as the separation of the radius from the ulna at the elbow-joint, and the separation of the cranial bones at a suture. *Abruption* applies to the snapping off of the extremity of a bone, such as that of the humerus. The *distrainings*, or *distortions* (*διαστρέμματα*), relate principally to cases of club-foot, and will come to be more properly treated of in the portion of the work *On the Articulations*, which relates to that subject.

¹ Upon reference to Galen, it will be seen that he bestows a very lengthy and elaborate Commentary on this paragraph, partly in illustration of the verbal meaning of the terms here used, and partly in discussing the merit of the practical rules laid down by our author. By atrophied parts in this place, Hippocrates would appear to allude to parts which have become wasted in flesh, owing to the compression and want of exercise during their treatment for fractures. The treatment of emaciated parts is briefly laid down by PAULUS ÆGINETA, Book I, 59, and the other authorities. See the Commentary. It is remarkable that, as far as I can discover, none of the later authorities make mention of the loose bandaging here recommended by our author. Galen, however, states that he had used it as directed by Hippocrates, and with good effect.

bandaging is to be observed, for where the injury is, there the bandage should compress most, and something soft is to be placed below that suits with the complaint; and we must not apply the bandages tighter than just to stop the pulsations from creating disturbance, and that the separated parts at the sutures may be brought into contact, they must not be such as absolutely to stop the coughs and sneezings, but so as to give support, and, without occasioning uneasiness,¹ prevent the parts from being shaken.

¹ There is not much in this paragraph which stands in need of illustration, but then Galen's Commentary is well deserving of being consulted. He explains that, in affections of the head and chest, it was customary to use small pillows and bags filled with millet to give support to the parts affected and stop motion in them. It will be remarked, that in this place our author makes distinct mention of diastasis or separation of the bones of the cranium at the sutures. See above.

ON FRACTURES.

ON FRACTURES.

THE ARGUMENT.

THE work commences with an announcement of the general principle upon which all cases of fracture and dislocation are to be rectified, which is this, that extension should be made as straight as possible, the term straight being immediately afterwards explained to be meant as applying to that direction which is most natural to the limb affected, that is to say, the position which will afford the patient most ease and comfort after the limb has been properly arranged. This principle of treatment he illustrates at considerable length, and with great force of argument, in the case of the fore-arm, and reviews the different positions in which it had been recommended that it should be placed, namely, the state of pronation, of supination, the intermediate, and, lastly, that of the archer when he is in the attitude of drawing the string of his bow. The author shows, in a very striking manner, the evil effects resulting from the practice of not putting the limb, during the process of bandaging, into the attitude in which it is meant that it should be kept afterwards, as by the change of position the whole apparatus will be in so far deranged. §§ 1—3.

Fractures of the fore-arm are next considered, and most minute directions are given regarding the whole process of managing it—the setting of the fractured bones—the application of the bandages, the compresses, and splints, and the arrangement of the limb after the process is completed. The general rules of practice laid down for the management of this case are meant to apply to all fractures, with a few exceptions. §§ 4—7.

Fracture of the arm, *or* humerus, is next considered, and here our author's mode of procedure is highly deserving of attention, as being considerably different from the method

now in use: he attaches much importance to the mode in which extension is made, and pointedly directs that the limb be placed in its proper position before the application of the bandages and the rest of the apparatus. § 8.

He then proceeds to the consideration of the foot and the injuries of the bones which compose it. § 9.

The displacement of the tarsal bones from those of the leg are next considered, by which luxations of the astragalus and os calcis are probably meant. §§ 10, 11.

After a brief description of the bones of the leg, he gives an account, in general terms, of luxations of the foot, and then describes very elaborately the process of reducing them, and of conducting the treatment afterwards. §§ 13, 14.

Fractures of the leg are then treated of at considerable length in §§ 15, 16, 17, 18.

Fractures of the thigh-bone are next taken into consideration, and most minute directions are given for the management of them in §§ 19, 20, 21, 22, 23. Our author gives some account of the canals, *or* gutters, then used for receiving the limb in cases of fractured leg or thigh; he does not much approve of them, but gives it as his opinion that the beneficial effects of them had been much exaggerated.

Compound fractures are next considered, and all the different modes of treating them which were then in vogue are discussed, and freely criticised in §§ 24, 25, 26, 27, 28, 29. The exfoliation of the bones and the separation of spiculæ are next brought under notice, and the treatment of such cases freely considered. § 30.

Many minute directions are given relative to the reduction of broken bones by means of the lever, and the treatment afterwards. §§ 31, 32.

The treatment in those cases in which it has been found impracticable to reduce the fractured bones is next delivered, including many important observations regarding the exfoliation of bones, and the resection of them. §§ 33, 34.

The danger of compound fractures of the femur and humerus is pointedly declared, and the treatment of such cases when it is to be attempted is clearly indicated. §§ 35, 36.

In § 37 is given a brief description of luxations of the knee, along with an elaborate, and, upon the whole, a very accurate

statement of the points of analogy between the knee- and elbow-joints.

In §§ 38, 39, 40, 41, 42, 43, 44, the luxations and subluxations at the elbow-joint are treated of very succinctly, but so as to display a very intimate acquaintance with this class of accidents.

In § 45 there is given a curious, but rather obscure, description of fracture of the olecranon.

In § 46 is given a brief account of fracture of the epiphysis, or trochlea of the humerus, a most interesting subject, on which we shall enter more fully by and by.

In the last two paragraphs some general rules are given respecting accidents at the elbow, as regards bandages and position.

From this enumeration of the contents of the present work, it will be readily seen that it is not a complete work on fractures; and, moreover, that it contains many things which are altogether foreign to that subject. In short, a considerable portion of it is evidently devoted to dislocations and other cognate subjects, as in like manner it will be presently seen that a considerable portion of the next work, which is more especially devoted to dislocations, is occupied with observations on fractures. It is difficult to account in a satisfactory manner for this want of arrangement, more especially as the two treatises are generally acknowledged to have constituted originally one work. The most plausible conjecture which I can form, in order to account for this mixing up together of the different matters in each, is this,—that when, for convenience sake, the work was divided into two, namely, one part ‘On Fractures,’ and another ‘On the Articulations,’ it was found necessary, in order to give a clear view of the subjects treated of in the one, to illustrate them by extracts relative to the cognate subjects treated of in the other. And, in fact, although the subjects here discussed be given rather confusedly, it will be found, in a practical point of view, very convenient, nay, indispensably necessary, to consider certain fractures and dislocations at the same time, in order to establish an accurate diagnosis between them. For example, how is it possible to understand dislocations at the elbow without a knowledge of fractures of the extremities of the

bones which enter into the formation of it, namely, of the humerus and the bones of the fore-arm? And again, who could understand fractures at the lower end of the tibia and fibula without an acquaintance with dislocations at the ankle-joint? Altogether, then, it certainly appears to me, upon mature reflection, rather an advantage to the student to have these two classes of accident treated of together, as they are in this and the succeeding work. The complete manner in which the various subjects are handled, the admirable plan upon which our author proceeds from obvious and indisputable principles, cannot fail to command the admiration of every careful and intelligent reader. The whole treatise, also, is written in so lucid a style that, with the few foot-notes which I have added, the reader will find no more difficulty in availing himself of the contents of this work, although written twenty-two centuries ago, than if it had been a publication of the present day. I shall now only make a few observations on certain subjects, either because they seem to require some elucidation, owing to their being treated of very succinctly, or because I look upon them as being particularly deserving of attention.

The process of setting, bandaging, and arranging a fractured limb, although this truly is now a hackneyed subject, will be found described in this treatise with so much precision, that I am persuaded the surgeon of the present day may derive information from it, for it appears to me that certain of the rules of practice here laid down by Hippocrates, are sometimes improperly overlooked by the modern practitioner. For example, although the propriety of putting a fractured limb, before it is set, into the position in which it is to be kept afterwards, is so clearly stated in this work, it is often disregarded in modern practice, and the consequences here described follow accordingly, namely, the derangement of the bandages, and, consequently, displacement of the fractured portions of bone after the position of the limb is altered. I am also of opinion, after having repeatedly adopted the practice recommended by Hippocrates, that the rule here stated, not to apply the bandages and apparatus beyond the fractured limb, is consistent with sound principles, and that the departure from it in modern practice is, in many cases, anything but an improvement. This I have hinted in the annotations

on the preceding treatise, and I am now glad to find that so distinguished an authority as M. Malgaigne joins me in expressing this opinion. Treating of the splints, compresses, and bandages used in the Hippocratic system of bandaging a fractured limb, he adds: " Reste enfin leur longueur, qui choque nos habitudes; car où est le chirurgien qui se borne à recouvrir l'avant-bras fracturé, sans empiéter sur la main et avec les bandes et avec les attelles? Or, déjà l'occasion ne m'a pas manqué pour le dire, et je n'hésiterai pas à le répéter ici, ces bandes, ces attelles, prolongées sur la main, ne sont justifiées par aucune considération sérieuse et légitime, et elles ont de graves inconvénients. En thèse générale, attelles ou bandages ne sont faits que pour remplacer par un squelette extérieur le squelette naturel fracturé, qui donnait au membre sa longueur, sa forme, sa solidité, et ils ne doivent pas se prolonger au-delà, à moins d'indications toutes spéciales. Il faut ajouter cependant que tout membre fracturé, pour arriver à la consolidation, devant rester long-temps dans l'immobilité, a besoin d'une position stable qui la lui garantisse, et que l'appareil que nous venons d'étudier serait insuffisant à cet égard. Mais les moyens de remplir cette indication nouvelle sont divers pour chaque membre et pour chaque brisure du membre; ils pourraient être décrits sous le nom d'appareils complémentaires. Or, ces appareils complémentaires ne sont pas oubliés par Hippocrate; l'écharpe pour l'avant-bras, le bandage de corps pour le bras, les coussins ou les gouttières pour le membre inférieur."¹ And, in addition to the reasons here assigned by M. Malgaigne for confining the apparatus, in general, to the fractured portion of the limb, I would again say, that I am inclined to think that bandaging the part below the injury, for example, the hand, in fractures of the fore-arm, has a tendency to increase the swelling above, which would otherwise be determined to the parts below, and thus relieve the seat of the injury.

I would beg leave most particularly to direct attention to the condemnatory remarks of our author upon the method of treating compound fractures, by bandaging the parts on both sides of the wound, and leaving it uncovered to admit of dressings being applied to it. I may mention in this place, that the last occasion on which I met with the lamented Mr. Liston, we

¹ Des Appareils pour le Traitement des Fractures en général, &c.

conversed on this subject, when he stated decidedly that he agreed with Hippocrates in condemning the practice, which, however, he often saw adopted in hospital practice. Our author's treatment of compound fractures is also deserving of much attention, as indicating the large amount of experience which he must have had in this way.

There are three surgical subjects which are very fully, but yet rather confusedly, treated of by our author in this and the two following works, namely, the accidents which befall the knee, the ankle, and the elbow.

On Dislocations at the Knee.

It strikes one as very remarkable, that the ancient surgeons should all speak of dislocations at the knee-joint as being of frequent occurrence, whereas they are now regarded as being among the rarest accidents of the kind to which the joints of the human body are subject. In this case, we must either suppose that the ancient surgeons had somehow been guilty of a mistake, or that the accident had been more common in ancient times than it is now. I have often wondered whether the difficulty might not be got over, by supposing that the wrestlers at the public games of his country, who, it is clear, furnished Hippocrates with a large proportion of his cases of fracture and dislocation, may not have been particularly liable to this accident. Having once met with a very interesting case of dislocation at the knee-joint, I persuade myself that I cannot better illustrate this subject than by giving a Report of it which I published in the LONDON MEDICAL GAZETTE, Dec. 1812. I do so the more readily, as it will enable me to correct some unfortunate typographical blunders which occur in the Report as it appeared in the Gazette.

“Case of Dislocation at the Knee-joint.—By Francis Adams, Esq., Surgeon; Sept. 10th, 1812. Alexander Robie, æt. 55, while in the act of carrying provender between two large bullocks in their stall, was knocked down by a stroke of one of their hind legs on the right knee; and while lying on the ground, was severely injured by being trod upon in several parts of the body, especially near the middle of the right leg. I saw him about two hours after the accident, and found the bones of the right leg lying on the fore part of the femur; the articular cavities could be distinctly felt, while, below, the contour of the

condyles could be traced : in short, I never saw a case of dislocation in which the symptoms were so strongly marked. The patella was pulled considerably up the thigh; but it appeared pretty obvious that neither the *ligamentum patellæ*, nor the tendon of the *triceps*, was ruptured; but my impression at the time certainly was, that, in order to admit of so great a displacement, all the principal ligaments of the joint must be torn. The limb was immoveably extended. By making proper extension and counter-extension, the reduction was effected with little difficulty. The limb was then bandaged loosely, from the toes to near the middle of the thigh, and laid half-bent on a thick pillow, and evaporating lotions were directed to be applied occasionally. For some days no severe symptoms occurred in the joint; but swelling and suppuration having afterwards taken place in the leg, especially about the calf of it, the bandages had to be removed and poultices applied. The limb continued very much swollen, and the discharges became fetid, while, owing perhaps to its weight, the bones of the leg, about the twelfth day, were dragged downwards, so as then to give the knee-joint the appearance of a semi-luxation backwards. The limb was secured in the best manner that could be managed in its tender state, and the bones retained in position by means of a jointed splint applied below the thigh and leg.

“30th. The limb has gone on getting daily into a worse state; the foot has lost its heat and sensibility, and the whole leg behind up to the knee is of a darkish green colour. About the calf of the leg it is greatly swollen, and the discharge from it very copious. The joint is so loose that the bones can with difficulty be kept in position: the pulse about 115. He has agreed to have his limb removed to-morrow, if no improvement take place in the interval.

“Oct. 1st. I amputated the limb to-day about the middle of the thigh, with the assistance of my professional neighbour Mr. Walker. The patient bore the operation with great fortitude, and appeared soon afterwards much relieved from his sufferings. The muscles felt so soft and flabby, as to excite apprehensions in my mind, that the vessels might not bear the ligatures well; no unpleasant symptoms, however, occurred, and in the course of three weeks the stump was completely healed.

“We examined the parts about the knee-joint immediately

after the operation. As I had formerly supposed to be the case, the tendon of the *quadriceps* and *ligamentum patella* were entire; the latter, however, was remarkably stretched and slackened; contrary to my expectations, I found that the lateral ligaments were not torn. Upon cutting into the joint, the crucial ligaments were found to be torn in pieces, but all the other parts were uninjured; the posterior ligament, the heads of the gastrocnemius, and the popliteal vessels, being all safe from any serious injury. The limb below being a general mass of suppuration and putridity, was but cursorily examined; it appeared certain, however, that the back part of the leg had been bruised to the state of a pulp. The condyles of the femur were somewhat smaller than they normally are, and were so rounded as to show an unusual aptitude to slip out of the articular cavities; and to this construction of the bones, joined, perhaps, to some preternatural laxity of the ligaments, the accident, in all probability, is to be ascribed.

“This would appear to be one of the rarest dislocations to which the joints of the human body are subject. The only unequivocal case which I know of as having been reported in this country, is the one related by Mr. Jonathan Toogood, in the ‘Provincial Medical and Surgical Journal,’ June, 1842. Another, supposed to be of a similar nature, he justly regards as probably incomplete. In these two cases recovery took place without any untoward symptoms, as I have no doubt would have happened to my patient, had the injury been confined to the knee-joint. Mr. Toogood mentions, that neither Sir Astley Cooper, Dupuytren, nor Roux, had ever met with such a case, nor, as far as I can discover, do any of our latest writers on surgery mention having ever had occasion to treat this accident. Cheselden, although correct in stating that ‘the knee cannot be completely dislocated without breaking the *cross* ligaments’ (Anatom. p. 45), may be supposed from the problematical way in which he expresses himself, to have had no experience of such a case. Boyer also writes of the accident in equivocal terms, and is wrong in stating that the heads of the gastrocnemius, and other soft parts, must necessarily be torn. Of the ancient authorities in surgery Celsus is the only one who makes mention of dislocation forwards: he says, ‘In priorem non prolabi plerique scripserunt; potestque id vero proximum

esse, cum inde opposita patella ipsa quoque tibiæ caput contineat. Meges tamen eum cui in priorem partem excidisset, a se curatum esse memoriæ prodidit.' (viii. 21.) Hippocrates, the great ancient authority on fractures and dislocations, describes dislocations of the knee outwards, inwards, and backwards, but says nothing of dislocations forwards; and all the other ancient writers on surgery, both Greek and Arabian, repeat the same statement. In like manner the earlier surgical writers in modern times, being all servile copyists of the Arabians, give the same account of dislocations at the knee. See Theodoricus, ii, 52. As far as I can learn, the case now related is the only one on record in which the actual state of the parts was ascertained by dissection."

Since writing the above report, I have ascertained that I had overlooked an unequivocal case of dislocation at the knee-joint related by our old authority, Wiseman. He describes it most circumstantially, to the effect that "the head of the os tibiæ was shot under the thigh-bone, and lay stretched out straight. By making extension and counter-extension, and fixing the limb towards the buttocks, it slipped into its place." This, then, was a case of dislocation of the tibia backwards, and in so far differed from mine, which was a dislocation forwards. It has been made a question whether or not our author, in treating of displacements at the knee, regards the femur or the tibia as the fixed point. M. Littré inclines to the opinion, that he makes the tibia the fixed point, and regards the femur as the part which is displaced; according to this rule, the case I have related would have been ranked by Hippocrates as a dislocation backwards. It would appear, then, after all, that the case related above is one of the forms which Hippocrates recognises. Of the lateral dislocations noticed by Hippocrates, and the other ancient authorities, there is hardly any unequivocal case reported in modern works on surgery. I am inclined to think that they must all be incomplete, or connected with congenital malformation. Subluxations constitute a class of accidents, about the nature of which there is still much uncertainty, after all the investigations which they have undergone of late years. Many of them would appear to be mere displacements of the semi-lunar cartilages. It is curious to remark, that all our earlier authori-

ties agree with the ancient in representing dislocations at the knee as a very mild class of accidents. Wiseman says, "They are not difficult to reduce, nor subject to such accidents as those of the elbow." (v, 9.) Vesalius speaks of them as being very insignificant accidents, insomuch that the patient himself can readily reduce them. (Chirurg. Mag. i, 17.) Ambrose Paré writes of them in similar terms. It is probable that these, and other modern authorities, merely copy from the ancient authorities, and that severe sprains, exaggerated by the imaginations of the patients into dislocations, have been often recognised as such by the professional attendants.

On the Accidents which befall the Bones of the Elbow.

As there is scarcely a subject connected with surgery more puzzling, even at the present day, than the fractures and luxations which occur at the elbow-joint, so it is one to which Hippocrates had evidently paid the most minute attention, and accordingly he has treated of it in three different works, namely, at 'Fractures,' §§ 38, 39, 40, 41, 42, 43, 44, 45, 46; 'Articulations,' §§ 17, 18, 19, 20, 21, 22, 23, 24, 25, 66; 'Mochlicus,' §§ 7, 8, 9, 10, 11, 12, 13. Of the important matters contained in these paragraphs I now feel myself called upon to attempt an accurate analysis, without which it must be admitted that my translation can possess but little value; for he forms but a very imperfect idea of the duties of a translator who thinks he has nothing to do but merely to render certain vocables of the original into the corresponding ones in the language of the translation, without concerning himself with the exact sense and import of the original author.

I shall now proceed to enumerate all the varieties of dislocation and fracture at the elbow-joint, which our author describes, or, at least, appears to describe.

1. Dislocation of the ulna and radius backwards, 'Articulations,' §§ 19—23; 'Fractures,' § 42; 'Mochlicus,' § 9: there his descriptions agree very well with those of Sir Astley Cooper, Mr. Bransby Cooper,¹ and all the best modern authorities. Incomplete dislocations, described by our author,

¹ Lectures in the Medical Gazette, No. 1065.

'Articulations,' §§ 17—24; 'Fractures,' §§ 39, 40; 'Mochlicus,' § 14; but scarcely recognised by modern authorities.¹

2. Dislocation of the ulna and radius forwards; see 'Fractures,' § 43; 'Articulations,' §§ 19—23; 'Mochlicus,' § 9. This case is scarcely admitted as possible, by modern authorities, unless attended with fracture of the olecranon. Dr. Fergusson, however, is not quite decided upon this point, and in great laxity of the joint I can easily suppose it possible.

3. Complete lateral dislocation described at 'Fractures,' § 41; 'Articulations,' §§ 18—22; 'Mochlicus,' § 12. This case is scarcely recognised as possible by Sir Charles Bell, Sir Astley Cooper, Mr. Bransby Cooper, and Mr. Liston; but is distinctly admitted by Chelius, § 1048, and partially so by Mr. R. Adams, in the 'Cyclopædia of Anatomy.'²

4. Partial or incomplete lateral dislocations described at 'Fractures,' § 40. These are recognised and described by Sir Charles Bell, Mr. Liston, Mr. R. Adams, in the 'Cyclopædia of Anatomy,' and by Chelius, and all our best authorities of the present day.

5. Luxation of the radius forwards, backwards, and to either side, obscurely noticed at 'Fractures,' § 41—44; 'Articulations,' § 18. Those backwards and forwards are described by Sir Astley Cooper, Mr. Bransby Cooper, Mr. R. Adams (Cyc. Anat., l. c.), and all our best authorities; but lateral dislocation has been noticed by few. It is recognised, however, by Sir Astley Cooper, in the Appendix to his work on Luxations, and Mr. R. Adams, in the 'Dublin Journal of Medical Science,' vol. xxii, p. 504.

6. Fractures of the olecranon, described by our author at 'Fractures,' § 45, and still more distinctly by Galen, (*Chirurgici Græci*, p. 87). Sir Charles Bell, and all the best modern authorities describe this accident in similar terms. I may mention, under this head, that neither Hippocrates, nor any other author, ancient or modern, as far as I am aware, has noticed rupture of the tendon of the triceps, and yet I have met with a case of this accident.

7. Abruption of the articular extremity of the humerus, that is to say, of its apophysis, *or* trochlea, is described by our

¹ Chelius, indeed, speaks of incomplete lateral dislocations, but only in very general terms (§ 1048).

² Abnormal Condition of the Elbow-joint.

author as being an accident which, although it may appear more serious, is, in fact, far milder than most of the injuries of the elbow-joint, 'Fractures,' § 46. It is more distinctly noticed by Galen, in a fragment of his 'Commentary,' preserved by Cocchi (Chirurg. Græc., p. 86): "Abruptio is not a different sort of injury from fracture, but abruptio is a fracture taking place in the seat of the articulation. In the articulation at the elbow sometimes the bone of the fore-arm is broken off,¹ and sometimes that of the arm (the humerus)." Nothing can be more distinct than the description given by these two authors, and yet it is singular that scarcely any modern authority has noticed this accident, although I believe it to be of frequent occurrence. Complicated with dislocations, it has, indeed, been described of late, and most distinctly by Sir Charles Bell and Baron Dupuytren. Sir Charles writes of it thus: "*Fracture through the trochlea and across the fossa.* Take care to distinguish this accident from dislocation of the ulna and radius backwards, etc."² Baron Dupuytren, in like manner, in his admirable work, on Fractures and Dislocations, lately reprinted by the Sydenham Society, gives a masterly account of this case when it puts on the appearance of dislocation at the elbow-joint, but neither he, nor any other authority of late years, as far as I am aware, has described the case when not accompanied by displacement. This appears to me most remarkable, since I can attest, from the most ample experience, that it is an accident of very frequent occurrence, insomuch that scarcely a year passes in which I am not called upon to treat several cases of it. It occurs most frequently in young persons from falls, and may be readily discovered by pulling gently at the arm and fore-arm, and placing the thumb on the front of the articulation, when a crepitus will be easily detected. If not detected and properly treated, the case ends in a stiff joint, so that extension cannot be made to a greater extent than about 130 or 140 degrees, and flexion also is imperfectly performed. The fore-arm at first should be bent at about a

¹ Does he mean fracture of the coronoid process of the ulna? Dr. Fergusson, as far as I am aware, is the only one of our recent authorities who hints that it is often fractured in dislocations backwards. Sir A. Cooper, however, has also noticed fracture of the coronoid process. See his work on Dislocations, &c., p. 183.

² Institutes of Surgery, p. 126.

right angle to the arm, and secured with bandages, as the ligatures are usually put on after venesection, but these should soon be loosed, and the motion of the joint secured by making extension in good time. I also avail myself of the present opportunity to state it as my own belief, after a pretty extensive acquaintance with this class of accidents, that what is taken for a dislocation at the elbow is usually complicated with fracture of the apophysis of the humerus. Hence it is that patients so frequently complain of their surgeon having left them with a stiff joint after such an accident.

8. Congenital dislocation at the elbow-joint is briefly noticed by our author; 'Mochlicus,' § 11; 'Articulations,' § 21. Cases of congenital dislocations would appear to be particularly rare, but yet congenital dislocation of the radius is noticed by Dupuytren and R. Adams.¹

From the account which I have now given of our author's opinions regarding the accidents which befall the elbow-joint, it will be admitted even at the present day, that his information on the subject was almost complete. The only well-marked case which is omitted by him is the separate dislocation of the ulna; it is noticed by Mr. Bransby Cooper in the following terms: "It sometimes, but very rarely, occurs that the ulna is thrown backwards from the inner condyle, without a corresponding displacement of the radius." It is also noticed by Sir Astley Cooper and by R. Adams in the 'Cyclopædia of Anatomy.' But, in fact, it had been distinctly described in ancient times, by Celsus and Oribasius. See the Comment. on PAULUS ÆGINETA, Book VI, 115. Is it not, in so far, consolatory to find that a great genius, like our author, does not anticipate all the discoveries which any subject he handles is capable of receiving? Yet, after the lapse of twenty-two centuries, how few additions have been made to the information which he supplies on this head!²

¹ Cyclopædia of Anatomy, Abnormal Elbow-joint.

² The reader may find it interesting to compare with the list of accidents described by our author that which is given of them in the Cyclopædia of Anatomy: "1, Luxations of both bones backwards; 2, Luxations of both bones laterally, complete and incomplete; 3, Luxations of both bones laterally and posteriorly; 4, Luxation of the ulna alone backwards; 5, Luxation of the radius alone forward; 6, Luxation of the radius externally and superiorly; 7, Complete luxation of the radius backwards; 8, Sub-luxation of the radius backwards; 9, Congenital luxation of the radius." (Abnormal Elbow-joint.)

On the Fractures and Dislocations at the Ankle-joint.

In order to understand the account given by our author of accidents which befall the ankle-joint, it will be necessary to advert to his description of the bones which compose the leg. Turning, then, to 'Fractures,' § 12, and 'Mochlicus,' § 1, it will be seen that Hippocrates describes the tibia and fibula as being united together, above and below, by an *epiphysis*, and it appears problematical whether, by the lower *epiphysis*, he meant the outer malleolus, or the two malleoli taken together; and further, it will be a question for the reader to consider whether he does not use the term vaguely, sometimes in the one sense and sometimes in the other. It is to be borne in mind that Hippocrates lived at a time when the terms of art were by no means strictly defined. Thus it is well known that he applies the term nerve (*νεῦρον*) to nerves properly speaking, and also to tendons and membranes. By "great vertebra" he sometimes means the second cervical, sometimes the first dorsal, and at other times the last lumbar. It seems undeniable that he applies the term "head of the humerus," both to its upper and inferior extremity.¹ It need not be thought singular, then, that he should be found to use the term *epiphysis* in the same indefinite manner. He knows nothing of the distinction between *epiphysis* and *apophysis*, as applied by Galen, the one to the junction of two bones together, and the other to a protuberance of a single bone;² the latter term, indeed, he rarely or never uses, as applied to bones. See Foës, 'Œcon. Hippocrat.'

We shall now examine the contents of the paragraphs in which these accidents are described. See 'Fractures,' §§ 10, 11, 12, 13; 'Articulations,' §§ 83, 84, 85, 86, 87; 'Mochlicus,' §§ 27, 28, 29, 30, 31.

Dislocations of the astragalus, along with the other bones of the tarsus from the bones of the leg, are described at 'Fractures,' § 10, and at 'Articulations,' §§ 83, 85, 87; in the last of these paragraphs to the following effect: "In those cases

¹ Our old authority Wiseman, in like manner, applies the term "head" to the inferior as well as to the upper extremity of the humerus; he says, "the os humeri cuncteth broad towards the cubit, with a double head," &c. (vii, 6.)

² De Ossibus ad Tirones.

in which the foot is displaced, either by itself or with its epiphysis, it generally is dislocated inwards." Nearly the same description is repeated at 'Mochlicus,' § 31, and dislocations of these bones are otherwise alluded to at §§ 27, 28, 29, of the same work. The great puzzle is the description given at § 13 of 'Fractures,' which is as follows: "The bones connected with the foot are sometimes displaced, sometimes both the bones with the epiphysis; sometimes the epiphysis is displaced, and sometimes the other bone." It would be tedious to the professional reader, I fear, if I were to go into a lengthened discussion of all the different interpretations which might be given of this very obscure passage, and I must own that I have but little heart for the task, knowing, as I do, that I should not arrive at any very satisfactory result at the conclusion of my long labours. I shall give, then, a summary view of a question, the consideration of which has cost me no little time and application. If by *epiphysis* is here meant the conjoined malleoli, that is to say, the extremity of both bones of the leg, the first case described thus: "The bones connected with the foot are sometimes displaced, sometimes both bones with the epiphysis," may be taken to mean simple fracture of the extremity of the leg in the immediate vicinity of the joint—a case of not unfrequent occurrence, and which, from ample experience, I know puts on very much the appearance of a dislocation; in fact, this is the case which Mr. Bransby Cooper describes as dislocation of the astragalus outwards.¹ The next case, "sometimes the epiphysis is moved," may mean subluxation outwards; and the third, "sometimes the other bone," may apply to subluxation inwards. Indeed, the word here used (*ἐκκινήθη*) is generally restricted by our author to subluxations. It is to be recollected that, by dislocation at the ankle, Hippocrates meant, like Sir Astley Cooper, Mr. Bransby Cooper, and most of our late authorities, displacement of the bones of the leg from the astragalus.

If we turn to the authorities subsequent to Hippocrates, we shall not meet with much that is calculated to throw additional light upon the subject. Paulus Ægineta describes dislocation at the ankle briefly and vaguely. Celsus says the displacements

¹ See his Lectures in the Medical Gazette, formerly referred to.

may be in all directions. Oribasius describes three, namely, inwards, outwards, and backwards. The Arabian Albucasis mentions only two, inwards and outwards. See PAULUS ÆGINETA, Book VI, 120. Most of our late authorities, like Celsus, admit the possibility of displacements inwards, outwards, backwards, and forwards. But, after all, it is a subject which still stands much in want of further elucidation. For my own part, after a good deal of experience in treating these accidents, I must say that I incline very much to Mr. Syme's views, and am disposed to range them with fractures rather than with luxations, for I believe that fracture is generally, if not always, the primary and the more important injury.

Dislocation of the os calcis from the cuboid, or dislocation at Chopart's tarsal joint, would seem to be the accident described at § 11 of 'Fractures,' § 86 of 'Articulations,' and § 30 of 'Mochlicus.' See the annotations.

These are the only luxations at the ankle described by our author, and I need scarcely say that they comprise the principal accidents of this class with which the modern surgeon is acquainted. It will be seen, that the explanation of the passages in which they are noticed is attended with much difficulty; and I am bound to say, that great credit is due to M. Littré, and his countrymen MM. Malgaigne and Bosquillon, for the pains they have taken in elucidating their obscurities. I shall be much gratified if my exertions be found to have cast some additional light upon the subject. See further the annotations.

Congenital dislocations at the ankle-joint, *or* clubfoot, and also those of the hip-joint and wrist, will come to be treated of in the Argument prefixed to the next treatise.

ON FRACTURES.

IN treating fractures and dislocations, the physician must make the extension as straight as possible, for this is the most natural direction.¹ But if it incline to either side, it should rather turn to that of pronation, for there is thus less harm than if it be towards supination. Those, then, who act in such cases without deliberation, for the most part do not fall into any great mistake, for the person who is to have his arm bound, presents it in the proper position from necessity, but physicians who fancy themselves learned in these matters, are they who commit blunders. There is no necessity for much study, then, in order to set a broken arm, and in a word, any ordinary physician can perform it; but I am under the necessity of giving the longer directions on this subject, because I know physicians who have the reputation of being skilled in giving the proper positions to the arm in binding it up, while in reality they are only showing their own ignorance. But many other things in our art are judged of in this manner, for people rather admire what is new, although they do not know whether it be proper or not, than what they are accustomed to, and know already to be proper; and what is strange, they prefer to what is obvious. I must now state what the mistakes of medical men are, which I wish to unteach, and what instructions I have to give as to the management of the arm; for what I have to say regarding it, will apply to the other bones in the body.

¹ I may mention at the commencement, that, in this treatise and the succeeding one, On the Articulations, our author expresses himself in general so fully that there is little need of any commentary to explain his meaning. For this reason my annotations on these two works will be much briefer than those on the preceding treatises. In this place I have to remark that the reader must understand the epithet "straight," as explained by the context, that is to say, as signifying "the most natural" direction for the limb to which it is applied; its meaning in the case of fractures of the fore-arm will appear presently. See an elaborate disquisition on the meaning of the term by M. Littré (*Œuvres d'Hippocrate*, tom. iii, p. 389). It does not appear to me, however, that there is any difficulty in comprehending our author's use of the term.

2. The arm, then, for that is the subject we were treating of, was presented in the prone position to be bound, but the physician forced his patient to hold it as the archers do when they project the shoulder, and in this position he bound it up, thinking within himself that he was acting according to Nature, and in proof of this he pointed out that all the bones in the forearm were thus in a straight line, and that the integuments both inside and outside, were also in a straight line, and that the flesh and nerves (*tendons?*) were thus put in their natural position, and he appealed to what happens in archery, as a proof of this.¹ And so saying, and so doing, he is looked up to as a sage; and yet he forgets that in all the other arts and performances, whether executed by strength or dexterity, what is reckoned the natural position is not the same, and that in the same piece of work it may happen that the natural position of the right arm is not the same as that of the left. For there is one attitude in throwing the javelin, and another in slinging, another in casting stones, another in boxing, and another in a state of repose. And whatever arts one examines, it will be found that the natural position of the arms is not the same in each, but that in every case the arms are put into the attitude which suits best with the instrument that is used, and the

¹ There is a good deal of difficulty in determining what position of the arm is here meant, and there is the greatest diversity of opinion among the expositors on this head. Palladius says expressly, that supination is the position here referred to; but this apparently cannot be the case, as supination is treated of below in the third paragraph. Galen also calls the position either complete supination or nearly so. Littré sought to solve the difficulty by examining the figures of ancient archers in the attitude of drawing the bow, as represented in the Temple of Jupiter in Egina. In general, he found the arm in the position intermediate between pronation and supination. This, then, would appear to be the position here meant; but as this is, in fact, the best and easiest position in which a fractured arm can be placed, it may be asked in what respect then is it condemned as faulty? From what is stated in the latter part of this paragraph, it is clear that it is in being completely extended; whereas the easy and natural position is that with the fore-arm at right angles to the body. In the attitude of drawing the bow, of course the left arm is strongly extended. Were a fractured arm, then, to be put into this position while it was in the act of being bandaged, its position could not be changed without deranging the bandages; and if it were to be kept thus extended for a time, the attitude, as stated by our author, would no doubt be very painful. Galen, in his very lucid description of the process of putting up fractured limbs, states decidedly that, in the case of the fore-arm, the proper position is the rectangular (*ἰσγώνιον*).—Meth. Med., vi, 5. This is a principle which our author enforces on all occasions.

work to be performed. In practising archery, no doubt this is the best attitude of the left arm, for the ginglymoid extremity of the humerus being fixed in the cavity of the ulna, in this position, throws the bones of the forearm and arm into a line, as if they constituted a single bone, and all flexion at the joint is prevented in this position. It is no doubt certain that the member is thus put into the most unbending and extended position possible, so as not to be overcome or yield when the string is drawn by the right arm, and thus will the archer be enabled to draw the string farthest, and discharge his arrow with the greatest force and rapidity, for arrows thus discharged have the greatest swiftness and force, and are carried to the greatest distances. But there is nothing in common between the binding up of an arm and archery. Moreover, if having thus bound up the arm, the physician direct the patient to keep it thus, he will occasion him greater pain than he had from the wound itself; and thus also, if the physician order him to bend the arm, neither the bones, the nerves, nor the flesh will any longer be in the same condition, but will be arranged differently, having overcome the bandaging. What use, then, is there of the archer's attitude? And these mistakes, the physician, conceited in his knowledge, would probably not have committed if he had allowed the patient himself to present his arm.

3. But another physician putting the arm into the state of supination, gives orders to extend the arm thus, and bandages it in this position, reckoning it the one according to nature, judging thus from the skin, and also fancying the bones to be thus in their natural position, because the bone which protrudes at the wrist, where the little finger is, appears to be in a line with the bone from which people measure the bone of the forearm. These things he brings forwards as proofs that the parts are in their natural state, and he is supposed to speak correctly. But, indeed, if the arm be kept stretched in a supine position, it will become very painful, and this fact any one may ascertain by extending his own arm in this attitude. And also a weaker man grasping with his hands a stronger man whose arm is turned in a supine position, could lead him wherever he chose, and neither, if a man held a sword thus in his hand, could he make any proper use of it, so constrained is this position. And, moreover, if, when a physician has thus

bound up the arm, he allow it to remain in the same position, the patient will endure greater pain if he walk about, but considerable, even if he remain at rest. And thus too, if he shall bend the arm, the muscles and the bones must necessarily assume a different position. But, in addition to other mischief, he is ignorant of these facts regarding the position, that the bone which protrudes at the wrist, close to the little finger, belongs to the forearm, whereas the one at the joint, from which people measure the forearm, is the head of the humerus. He fancies that both these belong to the same bone, and many others are of this opinion. The latter, in fact, is the same part as that which is called the elbow, upon which we sometimes rest,¹ and when he holds the arm thus in a supine position, in the first place the bone appears distorted, and in the next place the tendons which extend from the carpus along the inner side and from the fingers become distorted while the arm has a supine position; for these tendons proceed to the bone of the humerus, from which the forearm is measured. Such, and so many mistakes and marks of ignorance are committed, regarding the natural construction of the arm. But if one will extend a broken arm as I direct, he will turn the bone, situated at the extremity of the little finger, into the straight line, and also the one at the elbow, and the tendons which stretch from the carpus to the extremity of the humerus will be placed in the straight line; and when the arm is suspended in a sling, it will be in the same attitude as that in which it was bound up, and will give no pain to the patient when he walks about, nor when he lies reclined, and will not become fatigued.² The man should be so seated that the prominent part of the bone may be turned to the brightest light which is at hand, so that the operator in making the extension, may be at no loss to discover if it be sufficiently straight. The prominence of a broken bone could not escape being detected by the hand of an experienced person, when applied for this purpose, and, moreover, the projecting part is particularly painful to the touch.

¹ Compare Ruffus Ephesius (*De Partib. Hom.*), and Galen (*De Motu Muscul.*, ii).

² All the ancient authorities put a fractured fore-arm in this position, with the thumb above and the little finger below. See PAULUS ÆGINETA, Book VI, 100, and the authorities quoted in the Commentary, Syd. Soc. edition.

4. In cases of fracture in either of the bones of the forearm, it is easier to effect a cure if the upper bone be broken, although it be the thicker one, both because the sound bone is situated below, and forms a support to it, and because the deformity is more easily concealed, there being a thick mass of flesh on the upper side, except near to the wrist. But the lower bone is without a covering of flesh, is not easily concealed, and requires stronger extension. If it is not this bone, but the other which is broken, a more feeble extension proves sufficient, but if both be broken, a more powerful extension is required. In the case of a young person I have known the extension made more strong than was necessary, but in general the extension made is less than what is required. And when they are extended, the physician should apply the palms of his hands, and adjust the fractured parts and then having rubbed the parts with cerate,¹ but not in large quantity, so that the bandages may not come off, it is to be bound up in this state, care being taken that the hand be not lower than the elbow, but a little higher, so that the blood do not flow towards the extremity, but may be determined to the upper part; and then it is to be secured with the bandage, the head of which is to be placed at the fracture, and the bandage should impart firmness to the parts without occasioning strong compression.² When you have carried the bandage twice or thrice round at the seat of the fracture, it is to be carried upwards, so that the afflux of blood into it may be stopped, and the bandage should terminate there, and the first bandages ought not to be long. The head of the second bandage is also to be placed upon the seat of the fracture, and a single round of it being made there, it is then to be carried

¹ I have drawn attention, in the annotations on the work, *On the Surgery*, to this highly important article on the ancient system of bandaging. Palladius says expressly, that the object for which it was used was to secure the fractured parts by agglutinating the bandages. On the nature of the ancient cerates, see Galen's *Comment.*, tom. v, p. 531; ed. Basil. Galen, however, seems to say, in another place, that the cerate was used to dispel inflammation (*Meth. Med.*, vi, 5). Mention, however, is made on various occasions of rosin being added to the cerate, evidently for the purpose of rendering it more glutinous.

² Galen, in his description of the process, points out in strong terms the propriety of putting the arm into position before the bandages are applied, otherwise they will become deranged when the position is altered. (*Meth. Med.*, vi, 5.) This rule, I have reason to think, is often forgot in modern practice.

downwards, and is not to be applied so tight as the other, and there should be greater distances between the turns, so that the bandage may prove sufficient to revert to the spot where the other terminated. The bandages may be rolled to the left hand or to the right, or to whatever side suits best with the position of the fractured arm, or according to the inclination which it may have. Afterwards we must place along the arm, compresses, smeared with a little cerate, for thus they occasion less uneasiness, and are more easily arranged. And then we must apply the bandages cross-ways, sometimes to the right hand, and sometimes to the left, for the most part beginning below and terminating above, but sometimes commencing above and ending below. The parts which are thinly covered with flesh should be wrapped round with compresses, and inequalities should be made up, not by a number of folds at once, but by degrees. Some slack turns are also to be made around the wrist, to this side and to that. These two bandages are sufficient at first.¹

5. And these are the signs that the patient has been well treated and properly bandaged: if you ask him if the arm feels tight, and he says it does, but moderately so, and especially about the fracture; and this reply he should make all along, if the bandage be properly applied. And these are symptoms of the bandaging being moderately tight; if for the first day and night he fancies that the tightness does not diminish, but rather increases; and if on the next day there be a soft swelling in the hand, for this is a sign of moderate compression, but at the end of the second day the compression should feel less, and on the third day the bandaging should appear loose. And if any of these symptoms be wanting, you may conclude that the bandaging is slacker than it should be; or if any of these symptoms be in excess, you may infer that the compression is more than moderate; and judging from these, you will apply the next bandages either slacker or tighter. Having removed the bandages on the third day, you must make extension and adjust the frac-

¹ The dimensions of these two bandages, in the work *On the Surgery*, are fixed to be three or four cubits in length, and three, four, five, or six inches in breadth, according to the age and size of the patient. See Galen's Comment. Palladius remarks, that it is inconvenient to have the bandages very broad, as they get ruffled, that is to say, do not lie smooth on the limb.

ture, and bind it up again ; and if the first bandaging was moderately applied, the second bandaging should be made somewhat tighter. The heads of the bandages should be placed on the fracture as in the former case ; for, by so doing, the humours will be driven to the extremities, whereas if you bandage any other part beforehand, the humours will be forced from it to the seat of the fracture : it is of much importance that this should be properly understood. Thus the bandaging and compression should always commence at the seat of the fracture, and everything else should be conducted on the same principle, so that the farther you proceed from the fracture, the compression should always be the less. The bandages should never be actually loose, but should be smoothly put on. At each dressing the number of bandages should be increased ; and the patient, if asked, should answer, that he feels the bandages somewhat tighter than on the former occasion, especially about the fracture, and everything else in proportion ; and with respect to the swelling, the pain, and recovery, everything should proceed as after the former dressing. But on the third day the outer bandaging should appear looser. Then having removed the bandages, you should bind it up again, somewhat tighter than before, and with all the bandages which will be required on the occasion, and afterwards one ought to experience the same train of symptoms as at the former periods of bandaging.

6. When the third day arrives, that is to say, the seventh from the first dressing, if properly done, the swelling in the hand should be not very great ; and the part which has been bandaged should be found more slender and less swelled at each time, and on the seventh day the swelling should be quite gone, and the broken bones should be more readily moved, and admit of being easily adjusted. And if these things be so, you should, after setting the fracture, apply the bandages so as to suit the splints, and a little more tight than formerly, unless there be more pain from the swelling in the hand. When you have applied the bandages, you must adjust the splints all around the limb, and secure them with strings so loose as just to keep them in their place, without the application of the splints contributing at all to the compression of the arm.¹ After this the pain and

¹ Our author nowhere describes the *ferulæ* or splints, nor defines their dimensions or the materials of which they consisted. Palladius speaks of their being made of

recovery should proceed as in the preceding periods of the bandaging. But if, on the third day, the patient say that the bandaging is loose, you must then fasten the splints, especially at the fracture, but also elsewhere, wherever the bandaging is rather loose than tight. The splint should be thickest where the fracture protrudes, but it should not be much more so than elsewhere. Particular attention should be paid to the line of the arm corresponding to the thumb, so that no splint be laid on it, but upon each side of it, nor in the line of the little finger where the bone is prominent at the wrist, but on each side of it. And if it be found necessary that splints should be applied in these directions at the seat of the fracture, they should be made shorter than the others, so as that they may not reach the bones which are prominent at the wrist, for otherwise there is danger of ulceration, and of the tendons being laid bare. The splints should be adjusted anew every third day in a very gentle manner, always keeping in mind that the object of the splints is to maintain the lower bandages in their place, and that they are not needed in order to contribute to the compression.

7. If, then, you see that the bones are properly adjusted by the first dressings, and that there is no troublesome pruritus in the part, nor any reason to suspect ulceration, you may allow the

the wood of the *philyra*, by which was probably meant the *Tilia europæa*, or lime-tree. See Theophrastus (H. P., i, 12; C. PL., vi, 12). When they could not be procured, he recommends *reeds* (*κάλαμοι*) to be used instead. The ancients have described various *calami*, but the sort here referred to was most probably the common reed, or *Arundo phragmites*. I can readily suppose that it might serve this purpose very well. The Arabian medical authors make mention of various other substances out of which splints were fabricated, such as the pine-tree, the aleanna, the oleander, the palm-tree, and the pomegranate. See the authorities quoted at PAULUS ÆGINETA, Book VI, 99. Triller, as quoted by M. Littré in the Advertisement to the fourth volume of Hippocrates, decides, respecting the splints of the ancients, that they were composed of the stalks of ferulæ and of reeds. Not having seen Triller's work, I am ignorant what his authorities are for this opinion, but I cannot suppose them superior to those I have referred to above. Palladius says, the splints were secured by three loose fillets or ribands, one at each end and another in the middle. From the directions given by our author, it will be readily seen that he was aware of the danger of tying the ligatures too tight. I need scarcely say that tight bandages and strings, in fractures of the fore-arm, do mischief by encroaching upon the inter-osseous space. For the same reason our author has properly forbid splints to be put on along the bone of the thumb and the little finger. I need scarcely add that modern surgery can boast of no new views or improved methods of practice in the treatment of fractures of the fore-arm.

arm to remain bandaged in the splints until after the lapse of more than twenty days. The bones of the fore-arm generally get consolidated in thirty days altogether; but there is nothing precise in this matter, for one constitution differs from another, and one period of life from another. When you remove the bandages, you must pour hot water on the arm and bind it up again, but somewhat slacker, and with fewer bandages than formerly: and again on the third day you undo the bandages, and bind it still more loosely, and with still fewer bandages. And if, while the arm is bound up in the splints, you should at any time suspect that the bones do not lie properly, or if anything about the bandages annoys the patient, you should loose them at the middle of the time, or a little earlier, and apply them again. A diet slightly restricted will be sufficient in those cases in which there was no external wound at first, or when the bone does not protrude; but one should live rather sparingly until the tenth day, as being now deprived of exercise; and tender articles of food should be used, such as moderately loosen the bowels; but one should abstain altogether from flesh and wine, and then by degrees resume a more nourishing diet.¹ This doctrine may be laid down as a just rule in the treatment of fractures, both as to how they should be treated, and what will be the results of a proper plan of treatment; so that one may know, that if things do not turn out thus, there has been some defect or excess in the treatment. And in this simple plan of treatment it is necessary to attend also to the following directions, which some physicians pay little attention to, although, when improperly executed, they are capable of marring the whole process of bandaging: for if both the bones be broken, or the lower one only, and the patient who has got his arm bandaged keep it slung in a shawl, and that the shawl is particularly loose at the fracture, so that the arm is not properly suspended at this end or that, in this case the bone must necessarily be found distorted upwards; whereas, when both bones are thus broken, if the arm recline in the shawl at the wrist and elbow, but the rest of it be not kept up, the bone in this case will be

¹ Galen, in his Commentary, states that our author, in his works, makes mention of three modes of diet, namely, the full, the ordinary, and the low. That which is here recommended as applicable in the case of fractures is the ordinary, wine and flesh being principally forbidden.

distorted to the lower side. The greater part of the arm and the wrist of the hand should therefore be equally suspended in a broad soft shawl.¹

8. When the arm is broken, if one stretch the fore-arm and adjust it while in this position, the muscle of the arm will be bound while extended; but when the dressing is over, and the patient bends his arm at the elbow, the muscle of the arm will assume a different shape.² The following, then, is the most natural plan of setting the arm: having got a piece of wood a cubit or somewhat less in length, like the handles of spades, suspend it by means of a chain fastened to its extremities at both ends; and having seated the man on some high object, the arm is to be brought over, so that the armpit may rest on the piece of wood, and the man can scarcely touch the seat, being almost suspended; then having brought another seat, and placed one or more leather pillows under the arm, so as to keep it at a moderate height while it is bent at a right angle, the best plan is to put round the arm a broad and soft skin, or broad shawl, and to hang some great weight to it, so as to produce moderate extension; or otherwise, while the arm is in the position I have described, a strong man is to take hold of it at the elbow and pull it downwards.³ But the physician

¹ Galen, in his Commentary, has some very sensible observations on the two forms of displacement occasioned by suspending the arm improperly in the sling, but they are pretty obvious, and are given in too diffuse a style to suit my necessary limits. The process of suspending the arm in a sling was called *analepsis* (ἀνάληψις), a term for which we have no equivalent in modern nomenclature.

² The muscle of the arm to which our author refers is evidently the biceps. The direction here given to apply the bandages to a broken arm, while it is held in the same position as it is to be kept in afterwards, appears to me most important; and yet it is now generally overlooked. Galen expresses himself very forcibly on the propriety of not changing the position of the arm after the apparatus is adjusted. (See note, § 4.) The process of adjusting the parts in fracture of the arm is minutely described by PAVLUS ÆGINETA. See the Commentary, Vol. II, p. 456, Syd. Soc. edition.

³ The description of this process, as given by our author, is remarkably distinct and easily understood when illustrated by a drawing, as is done in the Latin edition of Galen's works published by the Juntas, from which M. Litté would appear to have borrowed the figure which he gives (tom. iii, p. 445). The following description of the method of setting a fractured humerus is taken from a modern author, who is a servile copyist from Hippocrates and Galen, and deserves to be introduced here as illustrating the principles upon which our author proceeded in the management of this case: "Here there is one remark to be made that is very necessary in

standing erect, must perform the proper manipulation, having the one foot on some pretty high object,¹ and adjusting the bone with the palms of his hands; and it will readily be adjusted, for the extension is good if properly applied. Then let him bind the arm, commencing at the fracture, and do otherwise as directed above; let him put the same questions, and avail himself of the same signs to ascertain whether the arm be moderately tight or not; and every third day let him bind it anew and make it tighter; and on the seventh or ninth day let him bind it up with splints, and leave it so until after the lapse of more than thirty days. And if he suspect that the bone is not lying properly, let him remove the bandages in the interval, and having adjusted the arm, let him bind it up again. The bone of the arm is generally consolidated in forty days. When these are past, the dressing is to be removed, and fewer and slacker bandages applied instead of it. The patient is to be kept on a stricter diet, and for a longer space of time than in the former case; and we must form our judgment of it from the swelling in the hand, looking also to the strength of the patient. This also should be known, that the arm is naturally inclined outwards; to this side, therefore, the distortion usually takes place, if not properly treated; but indeed, all the other bones are usually distorted during treatment for fracture to that side to which they naturally incline. When, therefore, anything of this kind is suspected, the arm is to be encircled in a broad shawl, which is to be carried round the breast, and when the patient goes to rest, a compress of many folds, or some such thing, is to be folded and placed between the elbow and the side, for thus the bending of the bone will be rectified, but care must be taken lest it be inclined too much inwards.

9. The human foot is composed of several small bones like

the way of practice, namely, that in setting the arm the patient must sit on an unarmed chair, that a servant may embrace and grasp him under the armpit of the sound arm; that another servant must take hold of his arm and draw it upwards, without raising it; that, at the same time, a third servant is to pull the arm downwards towards the ground; and, in fine, that the arm must never be extended, and that the elbow must be always bent in when you thus draw the arm." (Verdus, *Treatise on Fractures, &c.*, p. 352.)

¹ Galen explains, that the intention in directing the physician to stand in this position is to give steadiness to him. This attitude is alluded to in the work *On the Surgery*, as Galen also remarks.

the hand.¹ These bones therefore are scarcely ever broken, unless the skin at the same time be wounded by some sharp and heavy body. The treatment of such injuries, therefore, will be delivered under the head of wounds. But if any bone be moved from its place, or any joint of the toes be luxated, or any of the bones of the part called the tarsus be displaced,² it must be forced back again to its place as described with regard to the hand; and is to be treated with cerate, compresses, and bandages, like the fractures, with the exception of the splints; and is to be secured tightly in the same way, and the bandages renewed on the third day; and the patient thus bandaged should return the same answers as in fractures, as to the bandages feeling tight or slack. All these bones recover perfectly in twenty days, except those that are connected with the bones of the leg, and are in a line with them. It is advantageous to lie in bed during the whole of this time; but the patients, thinking light of the complaint, have not perseverance to do this, and they walk about before they get well; wherefore many of these do not make a perfect recovery. And often the pain puts them in mind of the injury; and deservedly, for the feet sustain the weight of the whole body. When, therefore, they walk about before they are whole, the joints which have been luxated are cured incompletely; and, on that account, while walking about, they have pains in the leg from time to time.

10. But those bones which are connected with the bones of the leg are larger than the others,³ and the cure of them when

¹ The analogy between the construction of the hand and the foot is strikingly described by Galen in his Commentary on this passage. His description of the ankle-joint and the tarsal bones is, upon the whole, wonderfully accurate, except that he makes the number of the tarsal bones to be equal to those of the carpal. How this mistake originated I do not well know. I need scarcely add that modern anatomists count eight bones of the carpus, and only seven of the tarsus.

² The account of the displacement of the tarsal bones here given is, on the whole, very correct. In this way the navicular bone is sometimes displaced from the astragalus, and the cuboid from the os calcis. Several cases of this nature have been related in modern times. See Sir Astley Cooper's Lectures, and Bransby Cooper's Lectures, *Medical Gazette*, No. 1069, as quoted in the Annotations on the eleventh paragraph.

³ The meaning would appear to be this, that the tarsal bones are larger than their analogues in the upper extremities, namely, than the carpal. The accident described in this paragraph seems evidently to be displacement of the foot, either complete or partial from bones of the leg, that is to say (to use the terminology lately introduced

luxated is more protracted. The mode of treatment then is the same; but we must use more bandages and more splints, and the bandage is to be carried round to this side and to that, and pressure is to be made as in the other cases, particularly at the seat of the luxation, and the first circles of the bandages are to be made there. And at each time the bandages are taken off, much hot water is to be used, for in all injuries at joints the affusion of hot water in large quantity is to be had recourse to. And the same symptoms of compression and relaxation should manifest themselves in the same times, as in the cases formerly treated of, and the subsequent bandagings should be conducted in like manner. These cases get completely well for the most part in forty days, if the patients have resolution to keep their bed; but if not, they are subjected to the complaints formerly described, or still worse.

11. In persons who jumping from any high object pitch upon their heel with great force, the bones are separated, and the veins pour forth their contents, owing to the contusion of the flesh surrounding the bone, and hence a swelling and much pain supervene.¹ For this bone (os calcis) is not a small one,

by Mr. Bransby Cooper), displacement of the astragalus. It appears clear that by dislocation at the ankle-joint, Hippocrates here meant a displacement of the astragalus along with the other tarsal bones from the ends of the bones of the leg.

¹ Galen, in his Commentary, states expressly that the accident here described consists in a separation of the astragalus from its connexion with the navicular, and of the os calcis from its connexion with the cuboid, by the rupture of the ligaments which unite them. The following description of this accident was lately given by Mr. Bransby Cooper, in one of his Lectures published in the Medical Gazette, No. 1069: "*Dislocation of the navicular bone from the astragalus and the cuboid from the os calcis.*—This is, in fact, a dislocation of 'Chopart's tarsal joint.' I once saw it in the case of a man who was admitted into Guy's Hospital. The toes, metatarsus, and anterior part of the tarsus were twisted inwards; the anterior articular surface of the astragalus and os calcis formed a projection on the outer side of the foot, the astragalus being so tightly pressed against the skin as to threaten momentary laceration; and a deep hollow, evidently resulting from the displacement of the cuboid bone, could be felt just in front of the os calcis. Reduction was accomplished by the usual extension and counter-extension, and by forcing the metatarsus outwards, while pressure on the bones of the leg in the opposite direction guided the displaced tarsal bones into their proper situation." This accident is obscurely described in Liston's Practical Surgery. It is not noticed in the elaborate work of Baron Dupuytren On the Injuries of Bones. The case, however, which we are now treating of would appear to be noticed by Paulus Aegineta in the following passage, where, however, the description is rather obscure: "If from a leap, as commonly

protrudes beyond the line of the leg, and is connected with important veins and tendons; for the back tendon of the leg is inserted into this bone. Such cases are to be treated with cerate, and with compresses and bandages; and hot water is to be used in large quantity; and they require many bandages, which ought to be particularly good and appropriate. And if the patient happen to have a tender skin about the heel, nothing is to be done to it; but if, as some have it, the skin be thick and hardened, it is to be pared down smoothly and thinned, but without wounding it. It is not everybody who can apply the bandage properly in such cases; for if one shall bind the parts, as in other accidents about the ankle, sometimes bringing a fold round the foot and sometimes round the tendon, these turus leave out the heel, which is the seat of the contusion, and thus there is danger that the os calcis may sphacelate; and if this should take place, the impediment may endure for life; and also in all the other cases of sphacelus, not proceeding from such a cause as this; as when, from being carelessly allowed to lie in a certain position during confinement to bed, the heel becomes black, or when a serious wound has occurred in the leg and it is long of healing, and is connected with the heel, or when the same thing happens in the thigh, or when in any disease a protracted decubitus takes place on the back, in all such cases the sores are inveterate, troublesome, and frequently break out again, unless particular attention be paid to the cure, along with much rest, as in all the cases attended with sphacelus. And cases of sphacelus connected with this cause, in addition to other inconveniences, are attended with great danger to the whole body. For they are apt to be attended with very acute fevers, of the continual type, accompanied with tremblings, hiccup, aberration of intellect, and which prove fatal within a few days: and there may be lividities of bloody veins,¹ with nausea, and gangrene from pressure;

happens, the bone of the heel is moved from its place, or if any inflammatory state is brought on, it is to be remedied by gentle extension and reduction, anti-inflammatory embrocations and secure bandages, the man being kept also in a quiet state until the part is restored." (VI, 120.) See the Commentary of Palladius on this passage of our author, p. 926, ed. Föcs.

¹ By bloody veins is meant veins of a large size, as Galen explains. Contusions of such necessarily produce extravasation and hemorrhage, and the other bad consequences described by our author.

these diseases may occur, besides the splacelus.¹ Those which have been described are the most violent contusions; but in general the contusions are mild, and no great care is required with regard to the treatment, and yet it must be conducted properly. But when the contusion appears to be severe, we must do as described above, making many turns of the bandage around the heel, sometimes carrying it to the extremity of the foot, sometimes to the middle, and sometimes around the leg; and, in addition, all the surrounding parts are to be bandaged in this direction and that, as formerly described; and the compression should not be made strong, but we should make use of many bandages, and it is better also to administer hellebore the same day or on the morrow; and the bandages should be removed on the third day and reapplied. And these are the symptoms by which we discover whether the case will get worse or not: when the extravasated blood, the lividities, and the surrounding parts become red and hard, there is danger of an exacerbation. But if there be no fever, we must give emetics, as has been said, and administer the other remedies which are applicable when the fever is not of a continual type; but if continual fever be present, we must not give strong medicines, but enjoin abstinence from solid food and soups, and give water for drink, and not allow wine but *oxyglyky*² (a

¹ That gangrene should have often supervened in such a case, as described by our author, need not appear surprising. It shows that Hippocrates had a wonderful talent for original observation when he was able to detect and describe such a case; and it ought to teach our profession a lesson of humility, in comparing our present state of knowledge with that of our forefathers, when we thus find that the "old man of Cos," twenty-two centuries ago, understood the nature of this accident better than many of us did not many years since. We are all too apt to flatter ourselves with the belief that we are possessed of all the knowledge which our forefathers had acquired, along with many valuable additions of our own. It is unfortunately but too certain that there is a tendency in the human mind, at certain times, to retrograde, as well as in others to advance, both in knowledge and in virtue.

" Sic omnia fatis

In pejus rueret et retro sublapsa referri.

Non aliter quam qui adverso vix flumine lembum

Remigiis subigit, si brachia forte remisit,

Atque illum in præceps prono rapit alveus amni."

Virgil, Georg. i.

² Galen states that if the *oxyglyky* be not at hand, oxymel may be used in its stead.

composition from vinegar and honey?). But if the case be not going to get worse, the ecchymosed and livid parts, and those surrounding them become greenish and not hard; for this is a satisfactory proof in all cases of ecchymosis, that they are not to get worse; but when lividity is complicated with hardness, there is danger that the part may become blackened. And we must so manage the foot as that it may be generally raised a little higher than the rest of the body. Such a patient will get well in sixty days if he keep quiet.

12. The leg consists of two bones, of which the one is much more slender than the other at one part, but not much more slender at another. These are connected together at the foot, and form a common epiphysis,¹ but they are not united together along the line of the leg; and at the thigh they are united together and form an epiphysis, and this epiphysis has a diaphysis;² but the other bone in a line with the little toe is a little longer. Such is the nature of the bones of the leg.

13. Sometimes the bones connected with the foot are displaced, sometimes both bones with their epiphysis; sometimes the whole epiphysis is slightly moved, and sometimes the other bone.³ These cases are less troublesome than the same accidents

¹ Galen states expressly, that although the tibia and fibula are described as being connected together at the foot, it is not to be understood that they form one bone, but merely that they are in close contact together. It would seem, then, that by epiphysis our author, in this place, meant the malleolus externus. We shall find many examples of its occurring in this sense in the present and two following works.

² Galen states in explanation, that the *epiphysis* or protuberance here described belongs principally to the tibia. By *diaphysis*, he says, is meant a ligamento-cartilaginous prominence connected with it; it appears therefore doubtful whether he applied it to the spinous process of the tibia, or to the semilunar cartilages, as Bosquillon supposes. M. Littré refers the term to the former; but Galen's description of the *diaphysis*, as being of a ligamento-cartilaginous nature, and not being to be met with in the skeleton, would seem to exclude this supposition.

³ If by epiphysis we understand the outer malleolus, the meaning of this passage will be, "The bones of the leg at the ankle may be completely dislocated along with the outer malleolus, or subluxated, in which case either the malleolus externus or the tibia may be partially displaced." This is pretty much the same interpretation as is given to this passage by Gardeil, as quoted by M. Littré (*Œcon. Hip.*, tom. iii, p. 393), who, however, does not at all approve of it, but enters into a very elaborate disquisition on this passage, yet without bringing it to any very satisfactory conclusion. I need scarcely mention that partial dislocations have been frequently observed and described recently. See Sir Charles Bell's *Surgery*, p. 196; and the discussion on the luxations at the ankle given in the *Argument*.

at the wrist, if the patients will have resolution to give them rest. The mode of treatment is the same as that of the other, for the reduction is to be made, as of the other, by means of extension, but greater force is required, as the parts of the body concerned are stronger in this case. But, for the most part, two men will be sufficient, by making extension in opposite directions, but, if they are not sufficiently strong, it is easy to make more powerful extension in the following way : having fixed in the ground either the nave of a wheel, or any such object, something soft is to be bound round the foot, and then some broad thongs of ox-skin being brought round it, the heads of the thongs are to be fastened to a pestle or any other piece of wood, the end of which is to be inserted into the nave, and it, the pestle, is to be pulled away, while other persons make counter-extension by grasping the shoulders and the ham. It is also sometimes necessary to secure the upper extremity otherwise ; this if you desire to effect, fasten deeply in the ground a round, smooth piece of wood, and place the upper extremity of the piece of wood at the perineum, so that it may prevent the body from yielding to the pulling at the foot, and, moreover, to prevent the leg while stretched, from inclining downwards ; some person seated at his side should push back the hip, so that the body may not turn round with the pulling, and for this purpose, if you think fit, pieces of wood may be fastened about the armpits on each side, and they are to be stretched by the hands, and thus secured, while another person takes hold of the limb at the knee, and aids in thus making counter-extension. Or thus, if you prefer it : having bound other thongs of leather about the limb, either at the knee, or around the thigh, and having fastened another nave of a wheel in the ground above the head, and adjusted the thongs to some piece of wood adapted to the nave, extension may thus be made in the opposite direction to the feet. Or if you choose, it may be done thus : instead of the naves, lay a moderate-sized beam under the couch, and then having fastened pieces of wood in this beam, both before and behind the head, make counter-extension by means of thongs, or place windlasses at this extremity and that, and make extension by means of them. There are many other methods of making extension. But the best thing is, for any physician who practises in a large city, to have prepared a

proper wooden machine, with all the mechanical powers applicable in cases of fractures and dislocation, either for making extension, or acting as a lever. For this purpose it will be sufficient to possess a board in length, breadth, and thickness, resembling the quadrangular threshing-boards made of oak.¹

14. When you have made proper extension, it is easy to reduce the joint, for the displaced bone is thus raised into a line with the other. And the bones are to be adjusted with the palms of the hands, pressing upon the projecting bone with the one, and making counter-pressure below the ankle with the other. When you have replaced the bones, you must apply the bandages while the parts are upon the stretch, if you possibly can; but if prevented by the thongs, you must loose them, and make counter-extension until you get the bandages applied. The bandage is to be applied in the manner formerly described, the heads of the bandages being placed on the projecting part, and the first turns made in like manner, and so also with regard to the number of compresses and the compression; and turns of the bandages are to be brought frequently round on this and on that side of the ankle. But this joint must be bound more tight at the first dressing than in the case of the hand. But when you have applied the bandage, you must place the bandaged part somewhat higher than the rest of the body, and in such a position that the foot may hang as little as possible. The attenuation of the body is to be made proportionate to the magnitude of the luxation, for one luxation is to a small, and another to a great extent. But in general we must reduce more, and for a longer time, in injuries about the legs, than in those about the hands; for the former parts are larger and thicker than the latter, and it is necessary that the body should be kept in a state of rest, and in a recumbent position. There is nothing to prevent or require the limb to be bandaged anew on the third day. And all the treatment otherwise is to be conducted in like manner,

¹ These descriptions are remarkably clear and easily understood when illustrated by drawings, as they are by Vidus Viduus and M. Littré. All our author's modes of making extension and counter-extension appear to be very judicious. The board or bench (*scammum Hippocratis*) is described in the work *On the Articulations*. The text in the conclusion of the paragraph is in a doubtful state. I have adopted the emendation of M. Littré.

as in the preceding cases. And if the patient have resolution to lie quiet, forty days will be sufficient for this purpose, if only the bones be properly reduced, but if he will not lie quiet, he will not be able to use the limb with ease, and he will find it necessary to wear a bandage for a long time. When the bones are not properly replaced, but there has been some defect in this respect, the hip, the thigh, and the leg become wasted, and if the dislocation be inwards, the external part of the thigh is wasted, and *vice versá*. But for the most part the dislocation is inwards.¹

15.² And when both bones of the leg are broken without a wound of the skin, stronger extension is required. We may make extension by some of the methods formerly described, provided the bones ride over one another to a considerable degree. But extension by men is also sufficient, and for the most part two strong men will suffice, by making extension and counter-extension. Extension must naturally be made straight in a line with the leg and thigh, whether on account of a fracture of the bones of the leg or of the thigh. And in both cases they are to be bandaged while in a state of extension, for the same position does not suit with the leg and the arm. For when the fractured bones of the arm or fore-arm are bandaged, the fore-arm is suspended in a sling, and if you bind them up while extended, the figures of the fleshy parts will be changed in bending the arm at the elbow, for the elbow cannot be kept long extended, since persons are not in the custom of keeping the joint long in this form, but in a bent position, and persons who have been wounded in the arm, and are still able to walk about, require to have the arm bent at the elbow-joint. But the leg, both in walking and standing, is habitually extended, either completely or nearly so, and is

¹ According to Galen, the cause why dislocation inwards is more common than outwards is, that the end of the fibula extends lower down than the inner malleolus, and that has a tendency to prevent dislocation outwards. All our best authorities at the present day are agreed that dislocation of the astragalus inwards is the most frequent form of luxation at the ankle-joint. See Bransby Cooper's Lectures, where the same reason is assigned for the greater frequency of this mode of displacement as that given by Galen: "This is the most frequent luxation, in consequence of the malleolus internus not descending so low as the external." (Med. Gaz., 1069.)

² The treatment of fracture of the bones of the leg, as given in this and the two following paragraphs, is deserving of much attention.

usually in a depending position from its construction, and in order that it may bear the weight of the rest of the body. Wherefore it readily bears to be extended when necessary, and even when in bed the limb is often in this position. And when wounded, necessity subdues the understanding, since the patients become incapable of raising themselves up, so that they neither think of bending the limb nor of getting up erect, but remain lying in the same position. For these reasons, neither the same position nor the same mode of bandaging applies to the arm and to the leg. If, then, extension by means of men be sufficient, we should not have recourse to any useless contrivances, for it is absurd to employ mechanical means when not required; but if extension by men be not sufficient, you may use any of the mechanical powers which is suitable. When sufficiently extended, it will be easy to adjust the bones and bring them into their natural position, by straightening and arranging them with the palms of the hand.

16. When the parts are adjusted, you should apply the bandages while the limb is in a stretched position, making the first turns to the right or to the left, as may be most suitable; and the end of the bandage should be placed over the fracture, and the first turns made at that place; and then the bandage should be carried up the leg, as described with regard to the other fractures. But the bandages should be broader and longer, and more numerous, in the case of the leg than in that of the arm. And when it is bandaged it should be laid upon some smooth and soft object, so that it may not be distorted to the one side or the other, and that there may be no protrusion of the bones either forwards or backwards; for this purpose nothing is more convenient than a cushion, or something similar, either of linen or wool, and not hard; it is to be made hollow along its middle, and placed below the limb. With regard to the canals (*gutters*?) usually placed below fractured legs, I am at a loss whether to advise that they should be used or not.¹ For they certainly are beneficial, but not to the

¹ I have given a summary of all the information which I could collect respecting the *canals* or *gutters*, used by the ancients for greater security to a fractured leg, in my annotations On the Surgery, and in the Commentary on PAULUS ÆGINETA, Book VI, 106. Galen mentions, in his Commentary on this part, that the more ancient authorities sometimes made use of a mechanical apparatus which he calls *glossos-*

extent which those who use them suppose. For the canals do not preserve the leg at rest as they suppose; nor, when the rest of the body is turned to the one side or the other, does the canal prevent the leg from following, unless the patient himself pay attention; neither does the canal prevent the limb from being moved without the body to the one side or the other. And a board is an uncomfortable thing to have the limb laid upon, unless something soft be placed above it. But it is a very useful thing in making any subsequent arrangements of the bed and in going to stool. A limb then may be well and ill treated with or without the canal. But the common people have more confidence, and the surgeon is more likely to escape blame, when the canal is placed under the limb, although it is not *secundum artem*. For the limb should by all means lie straight upon some level and soft object, since the bandaging must necessarily be overcome by any distortion in the placing of the leg, whenever or to whatever extent it may be inclined. The patient, when bandaged, should return the same answers as formerly stated, for the bandaging should be the same, and the same swellings should arise in the extremities, and the slackening of the bandages in like manner, and the new bandaging on the third day; and the bandaged part should be found reduced in swelling; and the new bandagings should be more tightly put on, and more pieces of cloth should be used; and the bandages should be carried loosely about the foot, unless the wound be near the knee. Extension should be made and the bones adjusted at every new bandaging; for, if properly treated, and if the swelling progress in a suitable manner, the bandaged limb will have become more slender and attenuated, and the bones will be more mobile, and yield more readily to extension. On the seventh, the ninth, or the eleventh day, the splints should be applied as described in treating of the other fractures. Attention should be paid to the position of the splints about the ankles and along the tendon of the foot which runs up the leg. The bones of the leg get

comum, a drawing of which is given in the Latin translation of Galen by Vidus Vidius (Venetiis apud Juntas, 1565); and a still better one in the *Institutiones Chirurgicæ* of Tagaultius (iv, 3). It would appear to me to be a most ingenious machine, and excellently adapted for the position required. It is so constructed, that extension and counter-extension are constantly kept up by a double set of pulleys.

consolidated in forty days, if properly treated. But if you suspect that anything is wanting to the proper arrangement of the limb, or dread any ulceration, you should loose the bandages in the interval, and having put everything right, apply them again.

17. But if the other bone (*fibula?*) of the leg be broken, less powerful extension is required, and yet it must not be neglected, nor be performed slovenly, more especially at the first bandaging. For in all cases of fracture this object should be attained then as quickly as possible. For when the bandage is applied tight while the bones are not properly arranged, the part becomes more painful. The treatment otherwise is the same.¹

18. Of the bones of the leg, the inner one, called the tibia, is the more troublesome to manage, and requires the greater extension; and if the broken bones are not properly arranged, it is impossible to conceal the distortion, for the bone is exposed and wholly uncovered with flesh; and it is much longer before patients can walk on the leg when this bone is broken. But if the outer bone be broken, it causes much less trouble, and the deformity, when the bones are not properly set, is much more easily concealed, the bone being well covered with flesh; and the patients speedily get on foot, for it is the inner bone of the leg which supports the most of the weight of the body. For along with the thigh, as being in a line with weight thrown upon the thigh, the inner bone has more work to sustain; inasmuch as it is the head of the thigh-bone which sustains the upper part of the body, and it is on the inner and not on the outer side of the thigh, being in a line with the tibia; and the other half of the body approximates more to this line than to the external one; and at the same time the inner bone is larger than the outer, as in the fore-arm the bone in the line of the little finger is the slenderer and longer. But in the joint of the inferior extremity, the disposition of the longer bone is not alike, for the elbow and the ham are bent differently.² For these reasons when the external bone is

¹ In this paragraph fracture of the fibula is treated of so distinctly, that no illustration of the text is needed.

² The analogy which our author describes between the bones of the upper and the lower extremity is very striking, and has been the subject of much discussion with

broken, the patients can soon walk about; but in fractures of the inner, it is a long time before they can walk.

19¹. When the thigh-bone is broken, particular pains should be taken with regard to the extension that it may not be insufficient, for when excessive, no great harm results from it. For, if one should bandage a limb while the extremities of the bone are separated to a distance from one another by the force of the extension, the bandaging will not keep them separate, and so the bones will come together again as soon as the persons stretching it let go their hold; for the fleshy parts (*muscles*?) being thick and strong, are more powerful than the bandaging, instead of being less so. In the case then which we are now treating of, nothing should be omitted in order that the parts may be properly distended and put in a straight line; for it is a great disgrace and an injury to exhibit a shortened thigh. For the arm, when shortened, might be concealed, and the

modern physiologists, especially those of the French school, namely, Vicq-d'Azyr, Cuvier, Cruveilhier, and Flourens. M. Littré gives some very interesting extracts from the works of these authors in his *Argument* to this treatise. The following passage, taken from the work of Flourens, contains a very lucid exposition of what I regard as the most rational view of the subject: "La longue indécision des anatomistes touchant les rapports réels des membres supérieurs et inférieurs ne tenait donc qu'à l'oubli, dans des comparaisons faites sur le squelette, du mécanisme vrai de la pronation de la main par la rotation du radius; et la simple restitution de ce mécanisme suffit pour rendre, comme je viens de le dire, à toutes les parties correspondantes une position semblable.—Or, dans cette position semblable de toutes les parties des extrémités du même côté, donnée par le mécanisme vrai de la pronation de la main, le radius répond au tibia, et le cubitus au péroné. C'est justement le contraire de ce qu'a pensé Vicq-d'Azyr, qui assimile le cubitus au tibia, et le radius au péroné. Mais, indépendamment de la raison décisive tirée du vrai mécanisme de la pronation de la main, combien d'autres raisons encore ne se présente-t-il pas contre l'opinion que je réfute, les unes prises de l'anatomie même de l'homme et les autres de l'anatomie comparée!—Dans l'homme, l'os essentiel de l'avant-bras, l'os qui continue le bras, l'os qui porte la main, est le radius; le cubitus n'est là que pour, d'une part, élargir la surface des insertions musculaires, et, de l'autre, prêter un appui solide au membre pendant la rotation de l'os principal, du radius. De même au membre inférieur, l'os essentiel de la jambe, l'os qui continue la cuisse, l'os qui porte le pied, est le tibia. Plus évidemment encore qu'au membre supérieur, le péroné n'est là que pour l'agrandissement des surfaces musculaires; il ne prend aucune part à l'articulation du fémur, il n'en prend qu'une latérale avec le pied." (Sur le Parallèle des Extrémités dans l'Homme et les Quadrupèdes.) The remarks made by Galen in his *Commentary* on the points of analogy between the elbow and the knee-joints are very pertinent.

¹ Fracture of the femur is elaborately treated of in this and the four following paragraphs.

mistake would not be great ; but a shortened thigh-bone would exhibit the man maimed. For when the sound limb is placed beside it, being longer than the other, it exposes the mistake, and therefore it would be to the advantage of a person who would be improperly treated that both his legs should be broken, rather than either of them ; for in this case the one would be of the same length as the other. When, then, proper extension has been made, you must adjust the parts with the palms of the hands, and bandage the limb in the manner formerly described, placing the heads of the bandages as was directed, and making the turns upwards. And the patient should return the same answers to the same questions as formerly, should be pained and recover in like manner, and should have the bandaging renewed in the same way ; and the application of the splints should be the same. The thigh-bone is consolidated in fifty days.

20. But this also should be known, that the thigh-bone is curved rather to the outside than to the inside, and rather forwards than backwards ; when not properly treated, then, the distortions are in these directions ; and the bone is least covered with flesh at the same parts, so that the distortion cannot be concealed. If, therefore, you suspect anything of this kind, you should have recourse to the mechanical contrivances recommended in distortion of the arm. And a few turns of the bandage should be brought round by the hip and the loins, so that the groin and the articulation near the perineum may be included in the bandage ; and moreover, it is expedient that the extremities of the splints should not do mischief by being placed on parts not covered with the bandages. The splints, in fact, should be carefully kept off the naked parts at both ends ; and the arrangement of them should be so managed, as that they may not be placed on the natural protuberances of the bone at the knee-joint, nor on the tendon which is situated there.

21. The swellings which arise in the ham, at the foot, or in any other part from the pressure, should be well wrapped in unscoured and carded wool, washed with wine and oil, and anointed with cerate, before bandaging ; and if the splints give pain they should be slackened. You may sooner reduce the swellings, by laying aside the splints, and applying plenty of bandages to them, beginning from below and rolling upwards ;

for thus the swellings will be most speedily reduced, and the humours be propelled to the parts above the former bandages. But this form of bandaging must not be used unless there be danger of vesications or blackening in the swelling, and nothing of the kind occurs unless the fracture be bound too tight, or unless the limb be allowed to hang, or it be rubbed with the hand, or some other thing of an irritant nature be applied to the skin.¹

22. More injury than good results from placing below the thigh a canal which does not pass farther down than the ham, for it neither prevents the body nor the leg from being moved without the thigh. And it creates uneasiness by being brought down to the ham, and has a tendency to produce what of all things should be avoided, namely, flexion at the knee, for this completely disturbs the bandages; and when the thigh and leg are bandaged, if one bend the limb at the knee, the muscles necessarily assume another shape, and the broken bones are also necessarily moved. Every endeavour then should be made to keep the ham extended.² But it appears to me, that a canal which embraces the limb from the nates to the foot is of use. And moreover, a shawl should be put loosely round at the ham, along with the canal, as children are swathed in bed; and then, if the thigh-bone gets displaced either upwards or to the side, it can be more easily kept in position by this means along with the canal.³ The canal then should be made so as to extend all along the limb or not used at all.

¹ The text of this paragraph, which is very corrupt in all the previous editions, is very ingeniously restored by M. Littré, so as to afford a meaning which exactly suits the context. No experienced surgeon will question the propriety of the practice here recommended; that is to say, when the splints are producing much pain, swelling, and irritation, to remove them for a time and trust entirely to bandages. The text of Galen's Commentary is remarkably corrupt. M. Littré attempts to restore it, but whether or not he was warranted in making so many conjectural emendations, I dare scarcely venture to express my opinion.

² From the text it will be seen how strongly our author disapproves of the half bent position in the treatment of a fractured leg. All the ancient authorities adopted his views in this case, with the exception of Rhazes, who approves of the limb being partially bent. (Contin. xxix.) See further PAULUS ÆGINETA, Book VI, 102.

³ Galen, in his Commentary, informs us that the mode in which the shawl or scarf was to be used had been differently understood, some supposing that the shawl was to be wrapped round the canal after it had been adjusted, and others holding that the shawl was to be wrapped round the limb at the ham, so as to secure immobility of the limb at the knee before applying the canal.

23. The extremity of the heel should be particularly attended to, so that it may be properly laid, both in fractures of the leg and of the thigh. For if the foot be placed in a dependent position, while the rest of the body is supported, the limb must present a curved appearance at the forepart of the leg; and if the heel be placed higher than is proper, and if the rest of the leg be rather too low, the bone at the forepart of the leg must present a hollow, more especially if the heel of the patient be naturally large. But all the bones get consolidated more slowly, if not laid properly, and if not kept steady in the same position, and in this case the callus is more feeble.

24. These things relate to cases in which there is fracture of the bones without protrusion of the same or wound of any other kind.¹ In those cases in which the bones are simply broken across, and are not comminuted, but protrude, if reduced the same day or next, and secured in their place, and if there be no reason to anticipate that any splintered bones will come away; and in those in which the broken bones do not protrude, nor is the mode of fracture such that there is reason to expect the splinters will come out, some physicians heal the sores in a way which neither does much good nor harm, by means of a cleansing application, applying pitch ointment, or some of the dressings for fresh wounds, or anything else which they are accustomed to do, and binding above them compresses wetted with wine, or greasy wool, or something else of the like nature. And when the wounds become clean and are now healed, they endeavour to bind up the limb with plenty of bandages, and keep it straight with splints. This treatment does some good, and never much harm. The bones, however, can never be equally well restored to their place, but the part is a little more swelled than it should be; and the limb will be somewhat shortened, provided both bones either of the leg or fore-arm have been fractured.

25. There are others who treat such cases at first with bandages, applying them on both sides of the seat of the injury, but

¹ Our author now proceeds to lay down the treatment of fractures complicated with a wound of the skin. In this paragraph he describes the first plan, which he does not much approve of, nor strongly condemns. It consists in applying suitable dressings to the wound until it is healed, and then attending to the fractured bones. The disadvantages of this system he has briefly stated, namely, that the fractured parts are apt to be swelled and the limb shortened.

omit them there, and leave the wound uncovered; and afterwards they apply to the wound some cleansing medicine, and complete the dressing with compresses dipped in wine and greasy wool. This plan of treatment is bad, and it is clear that those who adopt this mode of practice are guilty of great mistakes in other cases of fracture as well as these. For it is a most important consideration to know in what manner the head of the bandage should be placed, and at what part the greatest pressure should be, and what benefits would result from applying the end of the bandage and the pressure at the proper place, and what mischiefs would result from applying the head of the bandage and the pressure otherwise than at the proper place. Wherefore it has been stated in the preceding part of the work what are the results of either; and the practice of medicine bears witness to the truth of it, for in a person thus bandaged, a swelling must necessarily arise on the wound. For, if even a sound piece of skin were bandaged on either side, and a part were left in the middle, the part thus left unbandaged would become most swelled, and would assume a bad colour; how then could it be that a wound would not suffer in like manner? The wound then must necessarily become discoloured and its lips everted, the discharge will be ichorous and without pus, and the bones, which should not have got into a state of necrosis, exfoliate; and the wound gets into a throbbing and inflamed condition. And they are obliged to apply a cataplasm on account of the swelling, but this is an unsuitable application to parts which are bandaged on both sides, for a useless load is added to the throbbing which formerly existed in it. At last they loose the bandages when matters get very serious, and conduct the rest of the treatment without bandaging; and notwithstanding, if they meet with another case of the same description, they treat it in the same manner, for they do not think that the application of the bandages on both sides, and the exposure of the wound are the cause of what happened, but some other untoward circumstance. Wherefore I would not have written so much on this subject, if I had not well known that this mode of bandaging is unsuitable, and yet that many conduct the treatment in this way, whose mistake it is of vital importance to correct, while what is here said is a proof, that what was formerly written as to the circumstances under which bandages

should be tightly applied to fractures or otherwise has been correctly written.¹

26. As a general rule it may be said, that in those cases in which a separation of bone is not expected, the same treatment should be applied as when the fractures are not complicated with an external wound; for the extension, adjustment of the bones, and the bandaging, are to be conducted in the same manner. To the wound itself a cerate mixed with pitch is to be applied, a thin folded compress is to be bound upon it, and the parts around are to be anointed with white cerate. The cloths for bandages and the other things should be torn broader than in cases in which there is no wound, and the first turn of the bandage should be a good deal broader than the wound. For a narrower bandage than the wound binds the wound like a girdle, which is not proper, for the first turn should comprehend the whole wound, and the bandaging should extend beyond it on both sides. The bandage then should be put on in the direction of the wound, and should be not quite so tight as when there is no wound, but the bandage should be otherwise applied in the manner described above. The bandages should be of a soft consistence, and more especially so in such cases than in those not complicated with a wound. The number of bandages should not be smaller, but rather greater than those formerly described. When applied, the patient should have the feeling of the parts being properly secured, but not too tight, and in particular he should be able to say that they are firm about the wound. And the intervals of time during which the parts seem to be properly adjusted, and those in which they get loose, should be the same as those formerly described. The bandages should be renewed on the third day, and the after treatment

¹ The method of treating compound fractures, which our author has so fully described and so pointedly condemned, I have occasionally seen practised by surgeons who, I have no doubt, thought themselves too expert in the art of bandaging to take a lesson from the ancients; yet there can be no doubt that the plan deserves all the censure which Hippocrates bestows upon it. As he represents, by bandaging the surrounding parts, and leaving the wound uncovered, or not equally supported, great congestion and swelling, with all their attendant ill consequences, are produced in the wound. What he says against the use of poultices in such a case, I regard as being equally well founded. The method described and recommended by our author in the next paragraph I believe to be based upon most correct principles, and the best that can possibly be devised.

conducted in the same manner as formerly described, except that in the latter case the compression should be somewhat less than in the former. And if matters go on properly, the parts about the wound should be found at every dressing always more and more free of swelling, and the swelling should have subsided on the whole part comprehended by the bandages. And the suppurations will take place more speedily than in the case of wounds treated otherwise; and the pieces of flesh in the wound which have become black and dead, will sooner separate and fall off under this plan of treatment than any other, and the sore will come more quickly to cicatrization when thus treated than otherwise. The reason of all this is, that the parts in which the wound is situated, and the surrounding parts, are kept free of swelling. In all other respects the treatment is to be conducted as in cases of fracture without a wound of the integuments. Splints should not be applied. On this account the bandages should be more numerous than in the former case, both because they must be put on less tight, and because the splints are later of being applied. But if you do apply the splints, they should not be applied along the wound, and they are to be put on in a loose manner, especial care being taken that there may be no great compression from the splints. This direction has been formerly given. And the diet should be more restricted, and for a longer period, in those cases in which there is a wound at the commencement, and when the bones protrude through the skin; and, in a word, the greater the wound, the more severe and protracted should the regimen be.

27. The treatment of the sores is the same in those cases of fracture in which there was no wound of the skin at first, but one has formed in the course of treatment, owing to the pressure of the splints occasioned by the bandages, or from any other cause. In such cases it is ascertained that there is an ulcer, by the pain and throbbing; and the swelling in the extremities becomes harder than usual, and if you apply your finger the redness disappears, but speedily returns. If you suspect anything of the kind you must loose the dressing, if there be any itching below the under-bandages, or in any other part that is bandaged, and use a pitched cerate instead of the other. If there be nothing of that, but if the ulcer be found in an irri-

table state, being very black and foul, and the fleshy parts about to suppurate, and the tendons to slough away, in these cases no part is to be exposed to the air, nor is anything to be apprehended from these suppurations, but the treatment is to be conducted in the same manner as in those cases in which there was an external wound at first. You must begin to apply the bandages loosely at the swelling in the extremities, and then gradually proceed upwards with the bandaging, so that it may be tight at no place, but particularly firm at the sore, and less so elsewhere. The first bandages should be clean and not narrow, and the number of bandages should be as great as in those cases in which the splints were used, or somewhat fewer. To the sore itself a compress, anointed with white cerate, will be sufficient, for if a piece of flesh or nerve (*tendon*?) become black, it will fall off; for such sores are not to be treated with acrid, but with emollient applications, like burns. The bandages are to be renewed every third day, and no splints are to be applied, but rest is to be more rigidly maintained than in the former cases, along with a restricted diet. It should be known, that if any piece of flesh or tendon be to come away, the mischief will spread much less, and the parts will much more speedily drop off, and the swelling in the surrounding parts will much more completely subside, under this treatment, than if any of the cleansing applications be put upon the sore. And if any part that is to come away shall fall off, the part will incarnate sooner when thus treated than otherwise, and will more speedily cicatrize. Such are the good effects of knowing how a bandage can be well and moderately applied. But a proper position, the other parts of the regimen, and suitable bandages cooperate.

28. If you are deceived with regard to a recent wound, supposing there will be no exfoliation of the bones, while they are on the eve of coming out of the sore, you must not hesitate to adopt this mode of treatment; for no great mischief will result, provided you have the necessary dexterity to apply the bandages well and without doing any harm. And this is a symptom of an exfoliation of bone being about to take place under this mode of treatment; pus runs copiously from the sore, and appears striving to make its escape. The bandage must be renewed more frequently on account of the discharge, since otherwise

fevers come on; if the sore and surrounding parts be compressed by the bandages¹ they become wasted. Cases complicated with the exfoliation of very small bones, do not require any change of treatment, only the bandages should be put on more loosely, so that the discharge of pus may not be intercepted, but left free, and the dressings are to be frequently renewed until the bone exfoliate, and the splints should not be applied until then.

29. Those cases in which the exfoliation of a larger piece of bone is expected, whether you discover this at the commencement, or perceive subsequently that it is to happen, no longer require the same mode of treatment, only that the extension and arrangement of the parts are to be performed in the manner that has been described; but having formed doubled compresses, not less than half a fathom in breadth (being guided in this by the nature of the wound), and considerably shorter than what would be required to go twice round the part that is wounded, but considerably longer than to go once round, and in number what will be sufficient, these are to be dipped in a black austere wine; and beginning at the middle, as is done in applying the double-headed bandage, you are to wrap the part around, and proceed crossing the heads in the form of the bandage called "ascia."² These things are to be done at the wound, and on both sides of it; and there must be no compression, but they are to be laid on so as to give support to the wound. And on the wound itself is to be applied the pitched cerate, or one of the applications to recent wounds, or any other medicine which will suit with the embrocation. And if it be the summer season, the compresses are to be frequently damped with wine; but if the winter season, plenty of greasy wool, moistened with wine and oil, should be applied. And a goat's skin should be spread below, so as to carry off the fluids which run from the wound; these must be guarded against, and it should be kept in mind,

¹ The text in this place is in a very corrupt state, at least there are various readings, which involve considerable diversity of interpretation. I must own that I prefer the old reading in the edition of Foës, and in the Basle edition of Galen, to that proposed by M. Littré.

² These bandages are described in the annotations on the Surgery. See also Galen, Meth. Med., vi, and his Commentary on this place.

that parts which remain long in the same position are subject to excoriations which are difficult to cure.¹

30. In such cases as do not admit of bandaging according to any of the methods which have been described, or which will be described, great pains should be taken that the fractured part of the body be laid in a right position, and attention should be paid that it may incline upwards rather than downwards. But if one would wish to do the thing well and dexterously, it is proper to have recourse to some mechanical contrivance, in order that the fractured part of the body may undergo proper and not violent extension; and this means is particularly applicable in fractures of the leg. There are certain physicians who, in all fractures of the leg, whether bandages be applied or not, fasten the sole of the foot to the couch, or to some other piece of wood which they have fixed in the ground near the couch. These persons thus do all sorts of mischief but no good; for it contributes nothing to the extension that the foot is thus bound, as the rest of the body will no less sink down to the foot, and thus the limb will no longer be stretched, neither will it do any good towards keeping the limb in a proper position, but will do harm, for when the rest of the body is turned to this side or that, the bandaging will not prevent the foot and the bones belonging to it from following the rest of the body. For if it had not been bound it would have been less distorted, as it would have been the less prevented from following the motion of the rest of the body. But one should sew two balls of Egyptian leather, such as are worn by persons confined for a length of time in large shackles, and the balls should have coats on each side, deeper towards the wound, but shorter towards the joints; and the balls should be well stuffed and soft, and fit well, the one above the ankles, and the other below the knee. Sideways it should have below two appendages, either of a single or double thong, and short, like loops, the one set being placed on either side of the ankle, and the other on the knee. And the other upper ball should have others of the same kind in the same line. Then taking four

¹ Galen, in illustration, refers to the ulcerations which occur over the os sacrum, and are often found very difficult to cure. See the last section of the Second Book of PAULUS ÆGINETA.

rods, made of the cornel tree, of equal length, and of the thickness of a finger, and of such length that when bent they will admit of being adjusted to the appendages, care should be taken that the extremities of the rods bear not upon the skin, but on the extremities of the balls. There should be three sets of rods, or more, one set a little longer than another, and another a little shorter and smaller, so that they may produce greater or less distension, if required. Either of these sets of rods should be placed on this side and that of the ankles. If these things be properly contrived, they should occasion a proper and equable extension in a straight line, without giving any pain to the wound; for the pressure, if there is any, should be thrown at the foot and the thigh. And the rods are commodiously arranged on either side of the ankles, so as not to interfere with the position of the limb; and the wound is easily examined and easily arranged. And, if thought proper, there is nothing to prevent the two upper rods from being fastened to one another; and if any light covering be thrown over the limb, it will thus be kept off from the wound. If, then, the balls be well made, handsome, soft, and newly stitched, and if the extension by the rods be properly managed, as has been already described, this is an excellent contrivance; but if any of them do not fit properly, it does more harm than good.¹ And all other mechanical contrivances should either be properly done, or not be had recourse to at all, for it is a disgraceful and awkward thing to use mechanical means in an unmechanical way.

31. Moreover, the greater part of physicians treat fractures, both with and without an external wound, during the first

¹ When illustrated by a good drawing, as it is in the edition of M. Littré, the description here given is easily understood, and the machine would appear to be an ingenious contrivance well adapted for the purpose of keeping the leg extended. It evidently consisted of two pairs of elastic rods running along the sides of the leg, and fastened to two pads, or, rather, air-bladders, applied at the knee and the ankle. The contrivance is distinctly described by Palladius in his Commentary on this work. By the way, I am at a loss to apprehend exactly the objections which M. Littré states to the drawings given by Vidus Vidius; indeed they appear to me to be in principle the same as his own, except that they are more rudely constructed. I have given both drawings, so that the reader may judge for him self. Though, as I have stated, the nature of this mechanical contrivance may be pretty clearly understood from the description, when compared with the drawings, it must be admitted that there is a good deal of difficulty in determining certain expressions contained in this paragraph.

days, by means of unwashed wool, and there does not appear to be anything improper in this. It is very excusable for those who are called upon to treat newly-received accidents of this kind, and who have no cloth for bandages at hand, to do them up with wool; for, except cloth for bandages, one could not have anything better than wool in such cases; but a good deal should be used for this purpose, and it should be well carded and not rough, for in small quantity and of a bad quality it has little power. But those who approve of binding up the limb with wool for a day or two, and on the third and fourth apply bandages, and make the greatest compression and extension at that period, such persons show themselves to be ignorant of the most important principles of medicine; for, in a word, at no time is it so little proper to disturb all kinds of wounds as on the third and fourth day; and all sort of probing should be avoided on these days in whatever other injuries are attended with irritation. For, generally, the third and fourth day in most cases of wounds, are those which give rise to exacerbations, whether the tendency be to inflammation, to a foul condition of the sore, or to fevers. And if any piece of information be particularly valuable this is; to which of the most important cases in medicine does it not apply? and that not only in wounds but in many other diseases, unless one should call all other diseases wounds. And this doctrine is not devoid of a certain degree of plausibility, for they are allied to one another in many respects. But those who maintain that wool should be used until after the first seven days, and then that the parts should be extended and adjusted, and secured with bandages, would appear not to be equally devoid of proper judgment, for the most dangerous season for inflammation is then past, and the bones being loose can be easily set after the lapse of these days. But still this mode of treatment is far inferior to that with bandages from the commencement; for, the latter method exhibits the patient on the seventh day free from inflammation, and ready for complete bandaging with splints; while the former method is far behind in this respect, and is attended with many other bad effects which it would be tedious to describe.¹

¹ This mode of treating recent fractures and other injuries would appear to be now entirely lost sight of, and yet I can well believe that, under peculiar circum-

31.¹ In those cases of fracture in which the bones protrude and cannot be restored to their place, the following mode of reduction may be practised:—Some small pieces of iron are to be prepared like the levers which the cutters of stone make use of, one being rather broader and another narrower; and there should be three of them at least, and still more, so that you may use those that suit best; and then, along with extension, we must use these as levers, applying the under surface of the piece of iron to the under fragment of the bone, and the upper surface to the upper bone; and, in a word, we must operate powerfully with the lever as we would do upon a stone or a piece of wood. The pieces of iron should be as strong as possible, so that they may not bend. This is a powerful assistance, provided the pieces of iron be suitable, and one use them properly as levers. Of all the mechanical instruments used by men, the most powerful are these three, the axis in peritrochio, the lever, and the wedge.² Without these, one or all, men could not perform any of their works which require great force. Wherefore, reduction with the lever is not to be despised, for the bones will be reduced in this way, or not at all. But if the upper fragment which rides over the other does not furnish a suitable point of support for the lever, but the protruding part is sharp, you must scoop out of the bone what will furnish a proper place for the lever to rest on. The lever, along with extension, may be had recourse to on the day of the accident, or next day, but by no means on the third, the fourth, and the fifth. For if the limb is disturbed on these

stances, as, for example, in military practice, it might be often found a very advantageous and useful method of treatment to bind a limb at first either, as our author mentions, with well-carded wool or with raw cotton. If disposed of in this way, and laid in the half-boot of pasteboard, which I have formerly mentioned as being used by myself in lieu of the ancient *canals*, I have no doubt but a fractured limb would lie very securely, and the patient in this state might be carried to a distance if required.

¹ *Bis.*

² From the terms in which our author expresses himself, it has been supposed that these are the only mechanical powers which were known in his day. But, considering the advances in the arts which had then been made, it is not likely that the Greeks could have been entirely unacquainted with the screw, although our author omits to mention it here as not being of any application to surgical practice. The pulley (*trochlea*) is mentioned in the work *On the Articulations*, § 43, and, if I recollect right, in other parts of the Hippocratic treatises; but, as we have already stated, it does not appear that it was used anciently in the reduction of dislocations.

days, and yet the fractured bones not reduced, inflammation will be excited, and this no less if they are reduced; for convulsions are more apt to occur if reduction take place, than if the attempt should fail. These facts should be well known, for if convulsions should come on when reduction is effected, there is little hope of recovery; but it is of use to displace the bones again if this can be done without trouble. For it is not at the time when the parts are in a particularly relaxed condition that convulsions and tetanus are apt to supervene, but when they are more than usually tense.¹ In the case we are now treating of, we should not disturb the limb on the aforesaid days, but strive to keep the wound as free from inflammation as possible, and especially encourage suppuration in it. But when seven days have elapsed, or rather more, if there be no fever, and if the wound be not inflamed, then there will be less to prevent an attempt at reduction, if you hope to succeed; but otherwise you need not take and give trouble in vain.

32. When you have reduced the bones to their place, the modes of treatment, whether you expect the bones to exfoliate or not, have been already described. All those cases in which an exfoliation of bone is expected, should be treated by the method of bandaging with cloths, beginning for the most part at the middle of the bandage, as is done with the double-headed bandage; but particular attention should be paid to the shape of the wound, so that its lips may gape or be distorted as little as possible under the bandage. Sometimes the turns of the bandage have to be made to the right, and sometimes to the left, and sometimes a double-headed bandage is to be used.

33. It should be known that bones, which it has been found impossible to reduce, as well as those which are wholly denuded of flesh, will become detached. In some cases the upper part of the bone is laid bare, and in others the flesh dies all around; and, from a sore of long standing, certain of the bones become carious, and some not, some more, and some less; and in some the small, and in others the large bones. From what has been said it will be seen, that it is impossible to tell in one word when the bones will separate. Some come away more quickly,

¹ We recognise here two terms, the *strictum* and *laxum*, which formed the groundwork of the whole system of the Methodists. See Cælius Aurelianus, *passim*.

owing to their smallness, and some from being merely fixed at the point; and some, from pieces not separating, but merely exfoliating, become dried up and putrid; and besides, different modes of treatment have different effects. For the most part, the bones separate most quickly in those cases in which supuration takes place most quickly, and when new flesh is most quickly formed, and is particularly sound, for the flesh which grows up below in the wound generally elevates the pieces of bone. It will be well if the whole circle of the bone separate in forty days; for in some cases it is protracted to sixty days, and in some to more; for the more porous pieces of bone separate more quickly, but the more solid come away more slowly; but the other smaller splinters in much less time, and others otherwise. A portion of bone which protrudes should be sawn off for the following reasons: if it cannot be reduced, and if it appears that only a small piece is required in order that it may get back into its place; and if it be such as that it can be taken out, and if it occasions inconvenience and irritates any part of the flesh, and prevents the limb from being properly laid, and if, moreover, it be denuded of flesh, such a piece of bone should be taken off. With regard to the others, it is not of much consequence whether they be sawed off or not. For it should be known for certain, that such bones as are completely deprived of flesh, and have become dried, all separate completely. Those which are about to exfoliate should not be sawn off. Those that will separate completely must be judged of from the symptoms that have been laid down.

34. Such cases are to be treated with compresses and vinous applications, as formerly laid down regarding bones which will separate. We must avoid wetting it at the beginning with anything cold; for there is danger of febrile rigors, and also of convulsions; for convulsions are induced by cold things, and also sometimes by wounds.¹ It is proper to know that the members are necessarily shortened in those cases in which the bones have been broken, and have healed the one across the other, and in those cases in which the whole circle of the bone has become detached.

35. Those cases in which the bone of the thigh, or of the

¹ See Aphorism v, 17, 20. Celsus renders this sentence as follows: "Frigus omnium ratione vitandum," &c. (viii, 10.)

arm, protrudes, do not easily recover. For the bones are large, and contain much marrow; and many important nerves, muscles, and veins are wounded at the same time. And if you reduce them, convulsions usually supervene; and, if not reduced, acute bilious fevers come on, with singultus and mortification.¹ The chances of recovery are not fewer in those cases in which the parts have not been reduced, nor any attempts made at reduction.² Still more recover in those cases in which the lower, than those in which the upper part of the bone protrudes; and some will recover when reduction has been made, but very rarely indeed. For modes of treatment and peculiarity of constitution make a great difference as to the capability of enduring such an injury. And it makes a great difference if the bones of the arm and of the thigh protrude to the inside; for there are many and important vessels situated there, some of which, if wounded, will prove fatal; there are such also on the outside, but of less importance. In wounds of this sort, then, one ought not to be ignorant of the dangers, and should prognosticate them in due time. But if you are compelled to have recourse to reduction, and hope to succeed, and if the bones do not cross one another much, and if the muscles are not contracted (for they usually are contracted), the lever in such cases may be advantageously employed.

36. Having effected the reduction, you must give an emollient draught of hellebore³ the same day, provided it has been

¹ Modern experience has amply confirmed the opinion here expressed by our author as to the danger there is in all cases of compound fracture of the femur or humerus from tetanus and gangrene. In whatever way treated, whether the parts be let alone at first, or reduced, or amputation be practised, such cases commonly prove fatal.

² Paulus Ægineta, in reference to this passage, says: "Hippocrates, in fractures of the thigh and arm, dissuades from replacing at once the protruding bones, predicting danger from it, owing to the inflammation, or perhaps spasm of the muscles and nerves, which are apt to be brought on by the extension. But time has shown that the attempt will sometimes succeed." (VI, 107.) For the practice of the other ancient authorities in this case, see the Commentary, l. c.

³ Even Galen confesses himself unable to determine what is the exact meaning of the term (*μαλακῶς*) here applied by our author, but supposes it probable that he means some gentle method of administering the hellebore. He mentions that he was in the practice of giving an infusion of radishes in oxymel with a few branches of hellebore in such cases, and that when thus administered the purgative operation of the hellebore was mild. The reader will remark our author's partiality to hellebore in all cases of a spasmodic nature, such as tetanus.

reduced on the day of the accident, but otherwise it should not be attempted. The wound should be treated with the same things as are used in fractures of the bones of the head, and nothing cold should be applied; the patient should be restricted from food altogether, and if naturally of a bilious constitution, he should have for diet a little fragrant *oxyglyky* sprinkled on water; but if he is not bilious, he should have water for drink; and if fever of the continual type come on, he is to be confined to this regimen for fourteen days at least, but if he be free of fever, for only seven days, and then you must bring him back by degrees to a common diet. To those cases in which the bones have not been reduced, a similar course of medicine should be administered, along with the same treatment of the sores and regimen; and in like manner the suspended part of the body should not be stretched, but should rather be contracted, so as to relax the parts about the wound. The separation of the bones is protracted, as also was formerly stated. But one should try to escape from such cases, provided one can do so honorably, for the hopes of recovery are small, and the dangers many; and if the physician do not reduce the fractured bones he will be looked upon as unskillful, while by reducing them he will bring the patient nearer to death than to recovery.

37. Luxations and sublaxations at the knee are much milder accidents than sublaxations and luxations at the elbow.¹ For the knee-joint, in proportion to its size, is more compact than

¹ The subject of dislocations at the knee- and elbow-joints is so important, that I have thought it necessary to enter into a pretty full discussion of it in the Argument. A few points, notwithstanding, will require consideration in this place. There is still great diversity of opinion respecting the nature of sublaxations at the knee-joint, even after all the investigations which the subject has received from Hey of Leeds, Sir Astley Cooper, Mr. Liston, and Mr. Bransby Cooper. No doubt, partial displacements of the femur from the tibia do take place occasionally; but there appears good reason for suspecting that the accidents generally referred to this category have been displacements of the semilunar cartilages; with these it does not appear that Hippocrates or any other of the ancient authorities was acquainted. Partial dislocations from disease I have frequently seen. I am acquainted with a case of nearly complete luxation backward of the tibia, from the disease usually called white swelling; and yet, strange to say, the limb is still not much impaired either in its strength or motions. These cases of displacement from disease have probably been sometimes confounded with sublaxations from accident; indeed I cannot but think that the ancient surgeons must have committed this mistake sometimes, otherwise

that of the arm, and has a more even conformation, and is rounded, while the joint of the arm is large, and has many cavities. And in addition, the bones of the leg are nearly of the same length, for the external one overtops the other to so small an extent as hardly to deserve being mentioned, and therefore affords no great resistance, although the external nerve (*ligament?*) at the ham arises from it; but the bones of the fore-arm are unequal, and the shorter is considerably thicker than the other, and the more slender (*ulna*) protrudes, and passes up above the joint, and to it (the *olecranon?*) are attached the nerves (*ligaments?*) which go downwards to the junction of the bones; and the slender bone (*ulna?*) has more to do with the insertion of the ligaments in the arm than the thick bone (*radius?*). The configuration then of the articulations, and of the bones of the elbow, is such as I have described. Owing to their configuration, the bones at the knee are indeed frequently dislocated, but they are easily reduced, for no great inflammation follows, nor any constriction of the joint. They are displaced for the most part to the inside, sometimes to the outside, and occasionally into the ham.¹ The reduction in all these cases is not difficult, but in the dislocations inwards and outwards, the patient should be placed on a low seat, and the thigh should be elevated, but not much. Moderate extension for the most part sufficeth, extension being made at the leg, and counter-extension at the thigh.

38. Dislocations at the elbow are more troublesome than those at the knee, and, owing to the inflammation which comes on, and the configuration of the joint, are more difficult to reduce if the bones are not immediately replaced. For the bones at the elbow are less subject to dislocation than those of the

they would not have represented this accident as being of so frequent occurrence as they describe it to be. As we have stated elsewhere, of all the joints of the human body this perhaps is the one which most rarely meets with dislocation. The description which our author gives of the ligaments connected with the elbow-joint is so curious, that I have inserted in the Argument to the next work Beclard's very ingenious observations on the subject.

¹ The Commentary of Galen is particularly valuable on this passage, as putting it beyond a doubt that, in dislocations at the knee, our author represents the femur as the bone which is displaced. In modern works the femur is generally considered as the fixed point. See Mr. Bransby Cooper's Lectures, and Mr. Liston's Practical Surgery.

knee, but are more difficult to reduce and keep in their position, and are more apt to become inflamed and ankylosed.¹

39. For the most part the displacements of these bones are small, sometimes towards the ribs, and sometimes to the outside; and the whole articulation is not displaced, but that part of the humerus remains in place which is articulated with the cavity of the bone of the fore-arm that has a protuberance (*ulna*?). Such dislocations, to whatever side, are easily reduced, and the extension is to be made in the line of the arm, one person making extension at the wrist, and another grasping the arm-pit, while a third, applying the palm of his hand to the part of the joint which is displaced, pushes it inwards, and at the same time makes counter-pressure on the opposite side near the joint with the other hand.²

40. The end of the humerus at the elbow gets displaced (*subluxated*?) by leaving the cavity of the ulna. Such luxations readily yield to reduction, if applied before the parts get inflamed. The displacement for the most part is to the inside, but sometimes to the outside, and they are readily recognised by the shape of the limb. And often such luxations are reduced

¹ No person possessed of a practical acquaintance with the subject can fail to perceive that, in the following descriptions of dislocation at the elbow-joint, our author comprises (and perhaps I may say confounds together) simple displacement of the trochlea of the humerus from the great sigmoid cavity of the ulna, and fractures of the humerus immediately above the epiphysis, accompanied with displacement of the bones of the fore-arm. See the Argument, and Dupuytren on Injuries of Bones, p. 102 &c., Sydenham Society edition. Dupuytren was well aware of the occurrence of abruption of the extremity of the humerus with displacement, although not without it. See § 46.

² The case here described would seem to be dislocation of the radius at its upper extremity, an accident which has been described by Duverney, Desault, Sir Astley Cooper, and many other modern authorities. It is distinctly noticed by Oribasius (*De Machinamentis*, xiii and xiv). Our author, upon this supposition, describes both the dislocations forwards and backwards. This is the explanation of the paragraph which Apollonius Citiensis would appear to sanction. (*Schol. in Hippocrat.*, tom. i, p. 15.) Galen, however, in his Commentary preserved by Cocchi, would seem to refer it to the incomplete lateral luxations of the arm. A third interpretation of the meaning has been advanced by Bosquillon, and to it M. Littré at last inclines, namely, that it is incomplete dislocation backwards. His observations on this point show the great pains which the French editor takes in elucidating the text of his author; but I cannot say that I think he and his countryman make out anything like a strong case in support of their opinion, and I still incline to agree with Apollonius in referring the case here described to dislocation of the radius. I leave the reader, however, to judge for himself.

without any powerful extension. In dislocations inwards, the joint is to be pushed into its place, while the fore-arm is brought round to a state of pronation. Such are most of the dislocations at the elbow.¹

41. But if the articular extremity of the humerus be carried to either side above the bone of the fore-arm, which is prominent, into the hollow of the arm (?), this rarely happens; but if it do happen, extension in the straight line is not so proper under such circumstances; for in such a mode of extension, the process of the ulna (*olecranon*?) prevents the bone of the arm (*humerus*?) from passing over it. In dislocations of this kind, extension should be made in the manner described when treating of the bandaging of fractured bones of the arm, extension being made upwards at the armpit, while the parts at the elbow are pushed downwards, for in this manner can the humerus be most readily raised above its cavity; and when so raised, the reduction is easy with the palms of the hand, the one being applied so as to make pressure on the protuberant part of the arm, and the other making counter-pressure, so as to push the bone of the fore-arm into the joint. This method answers with both cases. And perhaps this is the most suitable mode of reduction in such a case of dislocation. The parts may be reduced by extension in a straight line, but less readily than thus.²

42. If the arm be dislocated forwards—this rarely happens, indeed, but what would a sudden shock not displace? for many other things are removed from their proper place, notwithstanding a great obstacle,—in such a violent displacement the part (*olecranon*?) which passes above the prominent part of the bones is large, and the stretching of the nerves (*ligaments*?) is intense; and yet the parts have been so dislocated in certain cases.—The following is the symptom of such a displacement: the arm cannot be bent in the least degree at the elbow, and

¹ This would certainly appear to be incomplete lateral luxation of the fore-arm. See the Argument.

² This is evidently meant as a description of complete lateral luxation. Such a case of displacement is very uncommon; indeed, until lately, it was thought impossible. See Cooper's Surgical Dictionary, p. 391, Fifth edition, 1825. It is described, however, by Mr. Liston in the following terms: "Displacement of both bones laterally is met with, though rarely, the olecranon process being placed upon either the outer or inner condyle; in the latter case the head of the radius rests in the fossa on the posterior aspect of the humerus." (Practical Surgery, p. 124, Third edition.)

upon feeling the joint the nature of the accident becomes obvious. If, then, it is not speedily reduced, strong and violent inflammation, attended with fever, will come on, but if one happen to be on the spot at the time it is easily reduced. A piece of hard linen cloth (for a piece of hard linen, not very large, rolled up in a ball, will be sufficient) is to be placed across the bend of the elbow, and the arm is then to be suddenly bent at the elbow, and the hand brought up to the shoulder. This mode of reduction is sufficient in such displacements; and extension in the straight line can rectify this manner of dislocation, but we must use at the same time the palms of the hands, applying the one to the projecting part of the humerus at the bend of the arm for the purpose of pushing it back, and applying the other below to the sharp extremity of the elbow, to make counter-pressure, and incline the parts into the straight line. And one may use with advantage in this form of dislocation the method of extension formerly described, for the application of the bandages in the case of fracture of the arm; but when extension is made, the parts are to be adjusted, as has been also described above.¹

43. But if the arm be dislocated backwards (but this very rarely happens, and it is the most painful of all, and the most subject to bilious fevers of the continual type, which prove fatal in the course of a few days), in such a case the patient cannot extend the arm. If you are quickly present, by forcible extension the parts may return to their place of their own accord; but if fever have previously come on, you must no longer attempt reduction, for the pain will be rendered more intense by any such violent attempt. In a word, no joint whatever should be reduced during the prevalence of fever, and least of all the elbow-joint.²

44. There are also other troublesome injuries connected with

¹ This would seem to be dislocation of the fore-arm forwards. Whether or not it ever occurs without fracture of the olecranon, as our author's description seems to infer, I cannot pretend to determine. See the Argument.

² There can be no mistake about the nature of the accident described in this paragraph: it is evidently the ordinary luxation of the elbow-joint, namely, displacement of the bones of the fore-arm backward. The following description of its leading character agrees exactly with our author's account of it: "The fore-arm is in a state of half-flexion, and every attempt to extend it produces acute pain." (Cooper's Surgical Dictionary, p. 390, Fifth edition.)

the elbow-joint; for example, the thicker bone (*radius*?) is sometimes partially displaced from the other, and the patient can neither perform extension nor flexion properly. This accident becomes obvious upon examination with the hand at the bend of the arm near the division of the vein that runs up the muscle. In such a case it is not easy to reduce the parts to their natural state, nor is it easy, in the separation of any two bones united by symphysis, to restore them to their natural state, for there will necessarily be a swelling at the seat of the diastasis. The method of bandaging a joint has been already described in treating of the application of bandages to the ankle.¹

45. In certain cases the process of the ulna (*olecranon*?) behind the humerus is broken; sometimes its cartilaginous part, which gives origin to the posterior tendon of the arm, and sometimes its fore part, at the base of the anterior coronoid process; and when this displacement takes place, it is apt to be attended with malignant fever.² The joint, however, remains in place, for its whole base protrudes at that point. But when the displacement takes place where its head overtops the arm, the joint becomes looser if the bone be fairly broken across. To speak in general terms, all cases of fractured bones are less dangerous than those in which the bones are not broken, but the veins and important nerves (*tendons*?) situated in these places are contused; for the risk of death is more immediate in the latter class of cases than in the former, if continual fever come on. But fractures of this nature seldom occur.

46. It sometimes happens that the head of the humerus is fractured at its epiphysis; and this, although it may appear to be a much more troublesome accident, is in fact a much milder one than the other injuries at the joint.³

47. The treatment especially befitting each particular dislocation has been described; and it has been laid down as a rule, that immediate reduction is of the utmost advantage, owing to

¹ This seems to be lateral displacement of the radius. See the Argument.

² These are evidently fractures of the olecranon, near its extremity, and at its base, that is to say, at its connexion with the coronoid process. See Sir Astley Cooper's Lectures, and Cooper's Surgical Dictionary.

³ This, beyond all doubt, is abruption of the epiphysis *or* trochlea of the humerus. See the Argument

the rapid manner in which inflammation of the tendons supervenes. For even when the luxated parts are immediately reduced, the tendons usually become stiffened, and for a considerable time prevent extension and flexion from being performed to the ordinary extent. All these cases are to be treated in a similar way, whether the extremity of the articulating bone be snapped off, whether the bones be separated, or whether they be dislocated; for they are all to be treated with plenty of bandages, compresses, and cerate, like other fractures. The position of the joint in all these cases should be the same, as when a fractured arm or fore-arm has been bound up. For this is the most common position in all dislocations, displacements, and fractures; and it is the most convenient for the subsequent movements, whether of extension or flexion, as being the intermediate stage between both. And this is the position in which the patient can most conveniently carry or suspend his arm in a sling. And besides, if the joint is to be stiffened by callus, it were better that this should not take place when the arm is extended, for this position will be a great impediment and little advantage; if the arm be wholly bent, it will be more useful; but it will be much more convenient to have the joint in the intermediate position when it becomes ankylosed. So much with regard to position.¹

48. In bandaging, the head of the first bandage should be placed at the seat of the injury, whether it be a case of fracture, of dislocation, or of diastasis (*separation?*), and the first turns should be made there, and the bandages should be applied most firmly at that place, and less so on either side. The bandaging should comprehend both the arm and the fore-arm, and on both should be to a much greater extent than most physicians apply it, so that the swelling may be expelled from the seat of the injury to either side. And the point of the fore-arm should be comprehended in the bandaging,² whether the injury be in that place or not, in order that the swelling may not collect there.

¹ These rules for the adjustment of the parts in injuries of the elbow-joint are most important and apposite. Whether in dislocation, subluxation, abrasion of the epiphysis of the humerus, fracture of the olecranon, and, in fact, I believe in all injuries at the elbow-joint, the half-bent position at first will be found the best. See Sir Astley Cooper's Lectures, and all the best modern authorities.

² Meaning, no doubt, the olecranon.

In applying bandages, we must avoid as much as possible accumulating many turns of the bandage at the bend of the arm. For the principal compression should be at the seat of the injury, and the same rules are to be observed, and at the same periods, with regard to compression and relaxation, as formerly described respecting the treatment of broken bones; and the bandages should be renewed every third day; and they should appear loose on the third day, as in the other case. And splints should be applied at the proper time (for there is nothing unsuitable in them, whether the bones be fractured or not, provided there is no fever); they should be particularly loose, whether applied to the arm or the fore-arm,¹ but they must not be thick. It is necessary that they should be of unequal size, and that the one should ride over the other, whenever from the flexion it is judged proper. And the application of the compresses should be regulated in the same manner as has been stated with regard to the splints; and they should be put on in a somewhat more bulky form at the seat of the injury. The periods are to be estimated from the inflammation, and from what has been written on them above.

¹ The meaning in this passage is very doubtful, owing to the uncertainty about the proper reading. See Foës and Littré.

ON THE ARTICULATIONS.

ON THE ARTICULATIONS.

THE ARGUMENT.

THE author commences the work with an elaborate dissertation on dislocations at the shoulder-joint, of which he decidedly recognises only one form, namely, dislocation downwards, or into the armpit, but he does not positively deny the possibility of dislocations upwards, outwards, and forwards, only he states that he had never met with any instance of them. He concludes § 1 with some general remarks on this accident. He then describes various modes of reduction:—with the hand, § 2;—with the heel, § 3;—with the shoulder introduced into the patient's armpit, § 4;—with a pestle or pole introduced into the armpit, § 5;—with a ladder, § 6;—or with the machine called the ambe, § 7. In § 8 are contained some remarks on the general subject of luxations, in which place mention is made of the occurrence of this accident in cattle when in a lean condition. In § 8 the after-treatment is accurately laid down. In § 10 some very important and acute remarks are made on the method of avoiding mistakes in treating these dislocations; and in § 11 the surgical treatment in cases which show a great tendency to relapse is minutely treated of. The consequent effects on the limb when the reduction is not accomplished are circumstantially described in § 12.

In § 13 is given a description of abruption of the acromion, by which is probably meant dislocation of the clavicle from the acromion, complicated, perhaps, with fracture of the latter.

The subject of fracture of the clavicle is next taken up, and it is treated of through §§ 14, 15, 16, where everything relating to the symptoms and treatment of this accident is given with remarkable precision.

The subject of luxations and subluxations at the elbow,

which had been treated of in the work 'On Fractures,' is here resumed, and is fully discussed in §§ 17, 18, 19, 20, 21, 22, 23, 24, 25.

Luxations at the wrist, and their consequences, are given in §§ 26, 27, 28.

Luxations of the fingers are briefly treated of in § 29.

Luxations of the lower jaw, with all their varieties and consequences, are described in §§ 30, 31.

Fracture of the same, without displacement, is given in § 32, and with displacement, in § 33. Fracture of the lower jaw, at its symphysis, is treated of in § 34.

Fractures and contusions of the nose are elaborately treated of in §§ 35, 36, 37, 38, 39.

Fractures of the ear are treated of in § 40.

Incurvation of the spine is treated of in § 41, and the application of the process of succussion by means of a ladder, for the cure of it, is minutely described in §§ 42, 43, 44. In § 45, the spinal vertebræ, ligaments, and nerves are minutely described. Inferences from their anatomical structure are given at considerable length in § 46. The methods of treating incurvations of the spine by a mechanical process are minutely described in § 47. Curvature forwards is described in § 48.

Fracture of the ribs is treated of in § 49, and contusion of them in § 50. It is worthy of remark that contusions are held to be more dangerous than fractures.

The symptoms of dislocations at the hip-joint, whether congenital or otherwise, and whether occasioned by external violence or disease, are described with extraordinary minuteness and accuracy of detail in §§ 51, 52, 53, 54, 55, 56, 57, 58, 59, 60. In § 61 are given some general reflections on the subject of luxations.

In § 62, congenital displacement of the bones of the ankle-joint, that is to say, congenital club-foot, is treated of with great precision.

Luxation of the bones of the ankle-joint, with protrusion of them through the skin, that is to say, compound luxation, is treated of in § 63.

Compound luxations at the wrist are described in § 64.

Compound luxations at the knee are treated of in § 65.

Compound luxations at the elbow are treated of in § 66.

Compound luxations of the bones of the fingers are accurately treated of in § 67.

Resection of the bones of a joint in compound luxations is the subject treated of in § 68.

The subject of gangrene supervening in cases of fracture and other severe accidents is treated of in § 69.

Reduction of dislocations at the hip-joint is minutely described in §§ 70, 71, 72, 73, 74, 75, 76, 77, 78.

In § 79 are given some general observations on the articulations and their dislocations.

Simple dislocations of the joints of the fingers are treated of in § 80.

Some general rules for the management of luxations are given in § 81; after which our author proceeds to the consideration of luxations at the knee, in § 82.

Luxations at the ankle-joint are briefly described in § 83.

Luxations of the bones of the foot are noticed in a succinct style in § 84.

Luxations, as it would appear, of the tarsal bones are obscurely noticed in § 85.

Displacement of the os calcis, followed by gangrene, with the treatment of the same when connected with other causes, is given in § 86.

The work concludes with a paragraph on the treatment of dislocations at the ankle-joint, § 87.

From this statement of its contents it will be readily seen that this work, like the preceding one, treats both of luxations and fractures; but with this difference, that as fractures constitute the groundwork of the other, so luxations form the principal subject of this treatise, the matter relating to fractures being introduced most probably for the sake of diagnosis. Altogether, there is not in all antiquity a medical treatise which contains more interesting materials than the present one, or that deserves to be more carefully studied.

Several sections of the work are perfect masterpieces, such, for example, as the parts which relate to dislocations at the shoulder and the hip-joint, and more especially the latter, in which, as it appears to me, he has given a fuller and more complete history of everything relating to the subject than is to be found in any single work, even at the present day. Thus, not

only does he describe the four ordinary forms of dislocation now recognised, namely, dislocation upwards, downwards, forwards, and backwards, but he gives what is omitted by all our modern authorities, a very minute description of the appearances which the limb presents when the luxated bone has been left unreduced. And, moreover, he describes congenital luxations and luxations from disease. Now, I repeat, no systematic writer on surgery has given so comprehensive a view of the subject of dislocations in all its bearings as what is here given by Hippocrates. The reader, however, will find it very interesting to compare the excellent account of this subject given in the recent publication of Chelius, illustrated by the valuable notes of Mr. South. Among the older of our modern authorities on surgery, Paré is the one who approaches the nearest to Hippocrates in the fulness with which he treats of luxations at the hip-joint, but even he is much less complete in regard to congenital dislocations, and those connected with disease.¹ On one statistical point alone do modern authorities controvert his opinion, and even in this case Hippocrates has a high modern authority on his side—I mean the comparative frequency of the different forms of dislocation; he, and all the ancient authorities after him, having stated that dislocation inwards is the most frequent, whereas Sir Astley Cooper and all our late authorities hold that dislocation upwards is the most frequent. It is deserving of remark, however, that if Cooper be against Hippocrates, Paré is upon his side, and I need scarcely remark that he is not one who bows servilely to ancient authority, but was an original observer, and thought for himself; and, moreover, his experience was on a very large scale.

¹ Chelius ranks Paré, along with Hippocrates and Avicenna, among the authorities on congenital dislocation at the hip-joint; but if Paré really treats of congenital dislocations, it is not in the place where luxations in general are treated of. Although somewhat out of place, I may here be excused in saying a few words on the nature of congenital dislocations. Some of our modern authorities look upon them as being connected with arrested development of the bones, but I must say that, judging of them from what I know of congenital club-foot, I am rather inclined to consider them as being originally produced by retraction of the muscles. This is the theory of Guerin (*Gazette Médicale*, 1841), and it appears to me most probable. I should state, however, that, although I have seen cases of congenital impediment at the hip-joint at a very early age, I never had an opportunity of ascertaining their nature by actual dissection.

On another point connected with this class of accidents, it is worthy of remark, that it was only the other day that an eminent anatomist in London decided that Hippocrates was right, and that all our modern authorities were wrong; I mean with respect to the situation of the head of the femur in the fourth form of dislocation. Sir Astley Cooper, Mr. Liston, Sir Charles Bell, Mr. Samuel Cooper, and, in a word, all our best authorities of late years, maintained that the head of the bone in this form is lodged in the ischiatic notch; but Mr. Richard Quain has lately determined, by actual dissection, that the bone is lodged where it is described to be by Hippocrates, namely, behind the acetabulum in the nates.—See the note on *Articulations*, § 57.

The methods of reduction, too, which our author describes, are all based on the most correct principles, and some of them might, perhaps, be held preferable to those now in use. He does not appear, indeed, to have been acquainted with the use of pulleys in the treatment of this accident, but the axles which he describes as being attached to the bench which bears his name (*Scamnum Hippocratis*) must have been quite capable of exercising a degree of force fully adequate to effect the desired purpose.¹ The method, too, according to which the patient was placed astride upon a cross-beam, and with a weight attached to the injured limb, would seem to be one admirably adapted to wear out the strength of the contracted muscles, and in this way facilitate the adjustment of the bone.

But in all the works on ancient surgery, I verily believe there is not a more wonderful chapter than the one which relates to *Club-foot*, § 62. In it he has not only stated correctly the true nature of this malformation, but he has also given very sensible directions for rectifying the deformity in early life. Now it appears to me a lamentable reflection, as proving that valuable knowledge after being discovered may be lost again to the world for many ages, that not only did subsequent authorities, down to a very recent period, not add any thing to the stock of valuable information which he had given on the subject, but the important knowledge which he had revealed to the pro-

¹ The reader will see the machine and the process of reduction figured in the *Armamentarium Chirurgicum* of Scultet, Tab. xxv; in the edition of Galen's Works by the Juntas; and in Littré's edition of Hippocrates. I have given the last two; and the first is scarcely at all different from the second.

fession came to be disregarded and lost sight of, so that, until within these last few years, *talipes* was regarded as one of the "opprobria medicinæ." I cannot omit this opportunity of mentioning, however, that some centuries ago certain individuals would appear to have practised successfully the treatment of club-foot on the principles laid down by Hippocrates. To give an instance in point, Arcæus, who, in his work 'De Curandis Vulneribus,' (Amstel. 1658,) has given a chapter on the treatment of club-foot, not only describes the process correctly, but actually gives the form of two mechanical contrivances for reducing the derangement of the foot, and keeping it *in situ*. The former of these contrivances is evidently the original of Scarpa's apparatus, now very generally used in the adjustment of club-foot; and the other is as evidently the very same as the boot delineated in Syme's 'System of Surgery,' and which I myself have often used in the treatment of club-foot. As a matter of curiosity, I shall give drawings of them. That the author (I mean Arcæus) was very successful in the treatment of congenital club-foot appears obvious, from the terms in which he speaks of the results of his experience in this way: "Sæpe accidit, ut infans nascatur aut altero aut utroque pede distorto, aut incurvo, aut repando, ita ut ægrè admodum possit incedere. Eâ de causâ hoc loco *rolui methodum tradere, qua plurimos valde claudos liberari, inter quos unus curatu difficillimus,*" &c. The whole process of cure is most circumstantially described, and the author concludes with the very proper advice, that the patient should be made to wear the boot for six months after the parts have been restored. All this shows, that although our author's excellent instructions for the management of this deformity were long lost to the profession at large, there were not wanting individuals who knew how to appreciate their value.

With regard to the description of the mode of bandaging a distorted limb in club-foot, as given by our author, I have little to add to what is stated in my annotations on the passage. Though there be certain obscurities in some of the expressions which occur in it, its general meaning is sufficiently obvious; and I can attest from ample experience recently acquired in the treatment of this surgical case, that the rules of treatment here laid down by our author are very judicious, and I have no

doubt would be found amply sufficient for restoring a recent case of talipes. The reader will remark, that our author concludes his account of club-foot with the declaration, that treated in this way it may be cured sooner than one would have thought, "without burning or cutting, or any other complicated method." And here I cannot deny myself the pleasure of quoting the very candid reflections which Dr. Little, in his work 'On Club-foot' makes on the account of talipes given by Hippocrates. He says, "Hippocrates describes the bandages to which he resorted for the cure of varus, and his success may be estimated from the encomiums he bestows on them,—'citius enim talia medicinæ obtemperant, quam quis putarit.' The candour displayed throughout the writings of the Father of Medicine leaves little doubt that he has not exaggerated the success which he experienced; and we may conclude that, by commencing the treatment at the earliest period of life, aided by his unremitting perseverance, many of these distortions were remedied. An observation, which would have passed unheeded prior to the introduction of the division of the tendo Achillis, follows the last quotation: 'atque hæc quidem est curatio, et neque sectione, neque ustione, neque aliâ varietate quicquam opus habet,'—of the import of which, doubts may now be entertained. Whether Hippocrates, or any of his contemporaries, had discovered the means of curing this distortion by section of tendons, but preferring the application of bandages, nevertheless rejected it, or whether he employed this observation with a different meaning, cannot at the present day be decided. It is possible that Hippocrates, being accustomed to cure external disorders by the knife or cauterly, may have adduced his treatment of this disease as an exception to the more severe methods so frequently resorted to in other affections; whilst it would not be surprising if, by his great ingenuity and skill, he had detected the possibility of removing the obstacles to a cure by a division of the tendons. He may have apprehended suppurations and other unfavorable symptoms from the section of so important a tendon as that of Achilles; or, having been unsuccessful in his first attempts, he may have been deterred from a repetition." (Introduction, p. 48.)

The description which our author gives of luxations at the wrist, *Articulations* §§ 26, 27, 28, and *Mochlicus* §§ 16, 17, 18, is

attended with peculiar difficulties, and hence it has given rise to a good deal of confusion and misapprehension from the time of Paré¹ down to Malgaigne and Littré. His usage of the terms "inwards" and "outwards" is somewhat vague; but it appears to me that we need have little hesitation in deciding them to apply to the modern acceptation of "forwards" and "backwards." But the great puzzle is, does he mean that the bones of the carpus are displaced from those of the fore-arm? or does he recognise the carpus as the fixed point? His language would certainly apply most naturally to the interpretation that the bones of the hand were the parts which he understood to be displaced; but yet M. Malgaigne holds, that our author understood the bones of the fore-arm to be the moveable part. We shall examine the question somewhat more narrowly. One of the best of our recent authorities on dislocations lays it down as a rule, that in dislocation of the carpus *backwards* there is permanent *flexion* of the hand, and in dislocation *forwards*, that there is permanent *extension*. (See Mr. B. Cooper's Lectures, Med. Gaz. 1065.) Now, according to Hippocrates, in luxation *inwards* (meaning, as stated above, *forwards*), the patient cannot *bend* his fingers (this, then, agrees with the character of dislocation of the carpus *forwards*), and in luxation *outwards* (meaning, in modern language, *backwards*), that he cannot extend them; this case, then, would seem to agree with the characters of dislocation *backwards*, agreeably to modern views. All this would lead us to the conclusion, that Hippocrates agreed with our recent authorities in regarding the bones of the hand as the part which is displaced. Moreover, it is difficult to understand Celsus, who, it is probable, translated the words of Hippocrates, in any other sense: he says, "Manus quoque in omnes quatuor partes prolabitur. Si in posteriorem partem excidit, porrigi digiti non possunt" (Mr. B. Cooper's description of dislocation of the carpus *backwards* is, "permanent *flexion* of the hand")—"si in priorem non inclinatur" (Mr. Cooper's description of dislocation forwards is, "it is characterised by permanent *extension* of the hand") viii. 17. Still, however, I believe, that not only is the

¹ The disagreement between Paré and the ancient authorities (especially Hippocrates and Galen) in the use of the terms which he applies to the parts in describing dislocations at the wrist, is adverted to in the marginal notes to all the old editions. See Book XV.

literature of this subject perplexed by an ill-defined nomenclature, but that the nature of the accidents which befall the bones of the wrist is far from being satisfactorily determined even at the present day. For my own part, after full thirty years' experience in treating these and other surgical cases, I must say that I never saw a distinct and decided case of dislocation at the wrist, and that I incline with Baron Dupuytren¹ and Professor Syme in regarding most of the accidents which have been set down for luxations as having been in reality fractures of the bones of the fore-arm in the vicinity of the joint. And in conclusion, I beg leave to state it as my decided opinion, that with regard to the accidents which befall the elbow, the wrist, and the ankle-joints, much misapprehension still prevails. While a certain creed is established on any given professional subject, most people are disposed to see the phenomena connected with it as they fancy that they should see them, and independent thought and original observation are talents rarely vouchsafed to any one. Professional men of late have been impressed with the idea, that by entirely renouncing the authority of the ancients, they show themselves to be original observers; but such persons are more the slaves of established modes of thought and conventional opinions, than if they were familiarly acquainted with all the authorities in medicine from the earliest time down to the present day; for it is only when possessed of this knowledge, that a man of a well-constituted mind feels that he is fully warranted to exercise an independent judgment of his own. In literature, as in warfare, it is knowledge which confers true self-reliance.

A very interesting subject handled by our author in this work is the treatment of compound luxations. One can readily perceive, that he had correctly estimated the dangers of this very grave class of accidents; and accordingly, in one place, he makes it a consideration, whether or not the surgeon should incur the

¹ See the Syd. Soc. edition of his works. I perceive, from the note given on Chelius's chapter "On Dislocations at the Wrist," that the opinions of Dupuytren have been controverted by Voillemier, who thinks he has shown the existence of such dislocations by the most careful examination of a complete displacement of the wrist backwards, and of the bones of the fore-arm forwards. Now I do not pretend to deny the actual possibility of such an occurrence; but I must say that my own experience leads me to the conclusion that a case of dislocation without fracture must be extremely rare indeed.

responsibility of undertaking the charge of them. As a general rule, he forbids reduction, unless in the case of the smaller joints, such as those of the hands and feet. Now it is curious to remark, that in the time of Celsus and Galen, this rule of practice was still adhered to, but Paulus Ægineta ventures for once to rebel against the authority of the Coan sage. In the section "On dislocations with a wound," he says, "Wherefore Hippocrates, by all means, forbids us to apply reduction and strong bandaging to them, and directs us to use only anti-inflammatory and soothing applications to them at the commencement; for that, by this treatment, life may be sometimes preserved. But what he recommends for the fingers alone, we would attempt to do for all the other joints: at first, and while the part remains free from inflammation, we would reduce the dislocated joint by moderate extension; and, if we succeed in our object, we may persist in using the anti-inflammatory treatment only." (vi. 121.) All the Arabian authorities follow the rule of practice here laid down by Paulus Ægineta. See the Commentary, l. c. Syd. Soc. ed. I need scarcely remark, that this mode of treatment is that now followed by the profession. It will further be remarked, that at § 68, our author treats of resection of the bones in compound luxation of the bones of the hands, feet, ankle, and wrist; and that, upon the whole, he approves of the practice. In the annotations on that section, I have briefly adverted to modern experience in the application of this method of treatment; and in this place I shall merely add the rule of practice as laid down by Chelius, which the reader will find it interesting to remark, is very little different from that recommended by Hippocrates, except that Chelius, in all cases, approves of attempts at reduction: "If the reduction of the head of the bone, protruded through the soft parts, be in no way possible, even after proper enlargement of the wound in the skin, nothing remains but to saw off the protruding bone, by which the stretching and tearing of the muscles are relieved, and the joint can be brought to its natural position; after which the symptoms, in general, soon and considerably diminish. When the reduction of a bone protruding through the soft parts is not immediately possible, it is still less so when the inflammation runs into suppuration; the symptoms continue increasing, and amputation may be rendered necessary by gangrene, and by

progressive destruction, if the head of the bone have not been removed at the proper time." (Vol. i, p. 769, Engl. edition.)

In the brief annotations which I have given on the first paragraph, I have brought forward certain passages in this and the other works of our author, which seem to prove beyond all doubt, that he must have had more or less acquaintance with Human Anatomy from actual dissection. On this point I have long been confident, and the more I become familiar with his admired works, the stronger my impression is that his anatomical knowledge must have been far from contemptible; in fact, I do not at present recollect a single instance of mistake committed by him in any of his anatomical descriptions, if we except that with regard to the sutures of the head, and even in that case I have endeavoured to show that the meaning of the passage is very equivocal. His descriptions of the vertebræ, with all their processes and ligaments, and his general characters of the internal viscera, would not have been so free from error as they are, if his knowledge had been all derived from the dissection of the inferior animals. Indeed, I am of opinion that Hippocrates and the other medical authorities of antiquity had practised *inspectiones cadaverum* more frequently than they durst publicly acknowledge, for fear of suffering from popular prejudice; but even that would appear to have been overrated, for, as it is proved beyond all possibility of doubt, that the human body was openly dissected in the anatomical schools of Alexandria, considerably less than 100 years after the death of Hippocrates,¹ it is highly probable that the practice had prevailed before that time, although to an inferior extent. Such a taste was not likely to have sprung up all at once under the Ptolemics. Indeed, that Aristotle, who was almost contemporary with Hippocrates, and who was dead before the distinguished Alexandrian period, had seen the human body dissected, will not be questioned by any one who has read his admirable works 'On the Parts of Animals,' and 'The History of Animals.' See, in particular, the last chapter of the First Book of the latter work; also, *ibid.* i, 11; ii, 5; de Respiratione, 15; de Partibus Animalium, iii, 4. In fact, he does not hesitate to declare, that certain things must be learned from dissection. (H. A. i, 11, and vi, 10.)

¹ See the authorities quoted in Marx's Life of Herophilus.

In addition to the observations on this interesting subject, which will be found at the place above indicated, I now beg leave to quote from M. Littré's notes on § 37 of the work 'On Fractures,' the very ingenious remarks of M. Bécларd on the description of the parts connected with the elbow-joint, both because they appear to me very interesting, as illustrating the meaning of our author, and further as proving irrefragably, that Hippocrates must have had considerable acquaintance with human anatomy.

“Le passage d'Hippocrate est très bref, et à cause de cela il peut paraître obscur à ceux qui n'auraient pas présente à l'esprit la disposition anatomique. La description suivante de l'articulation du coude, donnée par Bécларd, servira de complément, et montrera que la phrase d'Hippocrate suppose une connaissance très précise de la disposition de cette articulation: 'L'articulation du coude est maintenue par quatre ligaments, un antérieur, un postérieur, un externe, et un interne. Les ligaments, quoique très distincts par leur disposition les uns des autres, se confondent par leurs bords voisins, de manière à entourer l'articulation circulairement. L'antérieur et le postérieur sont membranueux et minces, surtout le second; les latéraux sont beaucoup plus forts. Le ligament antérieur s'attache, en haut, au-dessus des enfoncements qui surmontent la petite tête et la poulie, et au devant des tubérosités de l'humérus; en bas, à l'apophyse coronoïde du cubitus et au ligament annulaire du radius; ses fibres latérales sont obliques, les moyennes verticales et séparées en haut, par des intervalles cellulaires qui les rendent très apparentes. Le ligament postérieur fixé, en haut, au bord de la cavité olécrânienne de l'humérus et à la partie supérieure des tubérosités s'attache, en bas, au sommet et au bord externe de l'olécrâne; ses fibres forment deux bandes obliques qui se confondent et se croisent en partie en descendant l'une vers l'autre. Le ligament externe est attaché, par son extrémité supérieure, au bas de la tubérosité externe de l'humérus; ses fibres descendent de là en divergeant: les moyennes et les antérieures s'unissent au ligament annulaire du radius tandis que les postérieures passent sur ce ligament, et parviennent au côté externe du cubitus, où elles se fixent: ces dernières sont confondues par en haut avec le ligament postérieur. Le ligament interne est plus large que le précédent,

auquel il ressemble d'ailleurs assez bien ; il naît de la tubérosité interne, dont il embrasse toute la partie inférieure, et se termine, d'une part, au côté interne de l'apophyse coronoïde du cubitus, de l'autre, au bord interne de l'olécrâne, en sorte que les fibres forment deux faisceaux distincts par leur situation et leur direction.¹ On voit qu'en effet la plus grande partie des fibres ligamenteuses s'attache au cubitus. La connaissance d'un détail aussi précis dans les rapports qu'ont les ligaments avec les os de l'avant bras ne peut pas avoir été, chez Hippocrate, le résultat de l'anatomie des animaux. *On est en droit de lui citer comme une présomption qui, jointe à plusieurs autres, porte à croire que les Hippocratiques ont disséqué des corps humains.*²

I shall only add further in conclusion, that Ruffus Ephesius and Galen, whose works that are still extant bear undoubted marks of their having possessed a very considerable acquaintance with human anatomy, uniformly refer to Hippocrates with great deference as one of the best of the ancient authorities on this subject. See Ruffus Ephesius (de Part. Hom., pluries), and Galen (de Dissect. Vulvæ, 9).

¹ Dictionnaire de Médecine, 2^e édit., tom. ix, p. 207 ; Paris. 1835.

² Voyez tom. i, p. 236.

ON THE ARTICULATIONS.

1. I am acquainted with one form in which the shoulder-joint is dislocated, namely, that into the armpit; I have never seen it take place upwards nor outwards; and yet I do not positively affirm whether it might be dislocated in these directions or not, although I have something which I might say on this subject. But neither have I ever seen what I considered to be a dislocation forwards.¹ Physicians, indeed, fancy that dislocation is very apt to occur forwards, and they are more particularly deceived in those persons who have the fleshy parts about the joint and arm much emaciated; for, in all such cases, the head of the arm appears to protrude forwards. And I in one case of this kind having said that there was no dislocation, exposed myself to censure from certain physicians and common people on that account, for they fancied that I alone was ignorant of what everybody else was acquainted with, and I could not convince them but with difficulty, that the matter was so. But if one will strip the point of the shoulder of the fleshy parts, and where the muscle (*deltoid*?) extends, and also lay bare the

¹ Our author, it will be remarked, states modestly the results of his own experience regarding the modes of dislocation at the shoulder; he had never seen any other dislocation than that downwards, but he does not positively say that dislocations upwards, forwards, and outwards may not occur, although he had never met with them. May I be allowed to remark, that thirty years' practice of the art of surgery in my locality has brought me to the same conclusions as Hippocrates; I have seen many, very many dislocations downwards, but I never saw what could, strictly speaking, be called a dislocation either forwards or backwards. I suppose, however, there can be no reason to question the occurrence of such displacements, after the statements of Galen and so many other surgical authorities, both ancient and modern. Galen relates that in the course of his life he had met with five instances of the two uncommon forms of dislocation, and accounts for the different results of his experience and that of Hippocrates from having exercised his profession in a populous city like Rome, which Polemo the Rhetorician had pronounced to be "the compendium, as it were, of the inhabited world," and from his having been frequently called in by his brethren to see rare cases in surgery. Most of the ancient authorities after Galen admit the reality of these rarer forms of luxation. See PAULUS ÆGINETA, B. VI, 114. Celsus describes the dislocation forwards, but does not seem to have admitted the reality of dislocation backwards. (viii, 15.) I may mention that, in the course of thirty-eight years' practice of his profession, Sir Astley Cooper states that he had met with only two dislocations backwards, but that he had seen several cases of dislocation forwards. (On Dislocations, p. 416.)

tendon that goes from the armpit and clavicle to the breast (*pectoral muscle* ?), the head of the humerus will appear to protrude strongly forwards, although not dislocated, for the head of the humerus naturally inclines forwards, but the rest of the bone is turned outwards.¹ The humerus is connected obliquely with the cavity of the scapula, when the arm is stretched along the sides; but when the whole arm is stretched forwards, then the head of the humerus is in a line with the cavity of the humerus, and no longer appears to protrude forwards. And with regard to the variety we are now treating of, I have never seen a case of dislocation forwards; and yet I do not speak decidedly respecting it, whether such a dislocation may take place or not. When, then, a dislocation into the armpit takes place, seeing it is of frequent occurrence, many persons know how to reduce it, for it is an easy thing to teach all the methods by which physicians effect the reductions, and the best manner of

¹ The language of our author in this place puts it beyond all doubt that human dissection was practised in his age. It may be interesting to see Galen's Commentary on this important passage. After giving an accurate description of the bones connected with the shoulder-joint, he goes on to say that Hippocrates, in this place, illustrates his views from anatomy, directing us to lay the acromion bare of its flesh, *that is to say, to dissect with a scalpel down to the bones which form the articulation, and to lay bare the tendon which is situated there, and to lay bare the tendon in the armpit.* He adds, there are three muscles situated there: first, that which derives its origin from the scapula and clavicle, called the deltoid, the fleshy part of which covers the whole joint, and the tendon of which is inserted down the arm; then the pectoral, inserted near the situation of the humeral vein; and, last, the biceps, which arises by two heads, the one from the anchor-shaped apophysis of the scapula (the coracoid?), and the other from the high margin of the neck of the scapula (the glenoid cavity?). Our author's description of the brain in the treatise, *On the Sacred Disease*, is such as could not have been given by a person wholly unacquainted with human dissection. It is to this effect: the brain in man, as in all other animals, is double, and is separated in the middle by a thin membrane (the falx?).—Vol. i, p. 595, ed. Kühn. The construction of the human heart is also briefly adverted to in the small treatise, *On the Heart*. Obscure allusions to the internal structure of the human body are also to be met with in other of the Hippocratic treatises, such as *De Venis*, tom. i, p. 276, ed. Lind.; *de Ossibus*, *ibid.*; *de Carnibus*, tom. i, p. 123. Now, even if it were denied that these works are genuine, it cannot be questioned that they are the productions of the age immediately succeeding Hippocrates, and preceding the brilliant epoch of the famous Alexandrian anatomists; so that it appears to me impossible to avoid the conclusion that human dissection had been practised in the age of Hippocrates; and if in his age, we are sure it was not neglected by him, who was the greatest ornament of the profession in his own days. On this subject see further the Argument.

applying them. The strongest of those methods should be used when the difficulty of reduction is particularly great. The strongest is the method to be last described.

2. Those who are subject to frequent dislocations at the shoulder-joint, are for the most part competent to effect the reduction themselves; for, having introduced the knuckles of the other hand into the armpit, they force the joint upwards, and bring the elbow towards the breast. The physician might reduce it in the same manner, if having introduced his fingers into the armpit on the inside of the dislocated joint, he would force it from the ribs, pushing his own head against the acromion, in order to make counter-pressure, and with his knees applied to the patient's elbow pushing the arm to the sides. It will be of advantage if the operator has strong hands, or the physician may do as directed with his head and hands, while another person brings the elbow towards the breast. Reduction of the shoulder may also be effected by carrying the fore-arm backwards to the spine, and then with the one hand grasping it at the elbow, to bend the arm upwards, and with the other to support it behind at the articulation. This mode of reduction, and the one formerly described, are not natural, and yet by rotating the bone of the joint, they force it to return.¹

3. Those who attempt to perform reduction with the heel,

¹ The methods of reducing dislocations at the shoulder-joint are, in general, described by Hippocrates so clearly and fully, that no one who reads the text carefully can have much difficulty in understanding the descriptions; or if he has, he need only refer to the drawings which accompany the Latin translation of Galen's works by Vidus Vidius. They are also illustrated by the very full and sensible Commentary of Apollonius Citiensis, published by the late Dr. Dietz, Königsburg, 1834. I shall only make a few remarks occasionally in explanation of any passage which may appear somewhat obscure, or in order to call attention to any subject of peculiar interest. Galen and Apollonius explain the reason why our author calls the method described in this paragraph not natural, to be, because the extension is rotatory and not direct. I may further mention in this place, that if the modern reader have any difficulty in comprehending the application of the different modes of reduction described by our author, he will find much illustration of the subject given by Desault in his *Surgical Journal*, vol. ii, p. 134, English edition. He gives a very interesting history of all the known methods of reduction, from Hippocrates down to his own time. The use of the pulleys, in this surgical case, would appear to be a modern invention; Ambrose Paré, according to Desault, was the first to use them. The application of them is certainly distinctly described and delineated in his works. Petit joined the pulley to the ambe, and in this way formed a very powerful machine for reducing dislocations.

operate in a manner which is an approach to the natural. The patient must lie on the ground upon his back, while the person who is to effect the reduction is seated on the ground upon the side of the dislocation; then the operator, seizing with his hand the affected arm, is to pull it, while with his heel in the armpit he pushes in the contrary direction, the right heel being placed in the right armpit, and the left heel in the left armpit. But a round ball of a suitable size must be placed in the hollow of the armpit; the most convenient are very small and hard balls, formed from several pieces of leather sewed together. For without something of the kind the heel cannot reach to the head of the humerus, since, when the arm is stretched, the armpit becomes hollow, the tendons on both sides of the armpit making counter-contraction so as to oppose the reduction. But another person should be seated on the other side of the patient to hold the sound shoulder, so that the body may not be dragged along when the arm of the affected side is pulled; and then, when the ball is placed in the armpit, a supple piece of thong sufficiently broad is to be placed round it, and some person taking hold of its two ends is to seat himself above the patient's head to make counter-extension, while at the same time he pushes with his foot against the bone at the top of the shoulder. The ball should be placed as much on the inside as possible, upon the ribs, and not upon the head of the humerus.¹

4. There is another method of reduction performed by the shoulder of a person standing. The person operating in this way, who should be taller than the patient, is to take hold of his arm and place the sharp point of his own shoulder in the patient's armpit, and push it in so that it may lodge there, and having for his object that the patient may be suspended at his back by the armpit, he must raise himself higher on this shoulder than the other; and he must bring the arm of the suspended

¹ The method of reduction here described is much commended by Sir Astley Cooper. He, however, generally tied a handkerchief immediately above the elbow, by which he made extension, and thereby found he could effect his purpose with less exertion than when he pulled by the arm. The advantage of pulling by something attached above the elbow is, that it allows the biceps to be relaxed by bending the fore-arm to a right angle with the os humeri. Verduc calls this method emphatically "very good." (A Treatise on Fractures, &c.) Some modern authorities who practise this method still prefer pulling by the hand.

patient as quickly as possible to his own breast. In this position he should shake the patient when he raises him up, in order that the rest of the body may be a counterpoise to the arm which is thus held. But if the patient be very light, a light child should be suspended behind along with him. These methods of reduction are all of easy application in the palestra, as they can all be performed without instruments, but they may also be used elsewhere.¹

5. Those who accomplish the reduction by forcibly bending it round a pestle, operate in a manner which is nearly natural. But the pestle should be wrapped in a soft shawl (for thus it will be less slippery), and it should be forced between the ribs and the head of the humerus. And if the pestle be short, the patient should be seated upon something, so that his arm can with difficulty pass above the pestle. But for the most part the pestle should be longer, so that the patient when standing may be almost suspended upon the piece of wood. And then the arm and fore-arm should be stretched along the pestle, whilst some person secures the opposite side of the body by throwing his arms round the neck, near the clavicle.²

6. But the method with a ladder is another of the same kind, and still better, since by it the body can be more safely counterpoised on this side; and that, while in the method with the piece of wood resembling a pestle, there is danger of the body tumbling to either side. But some round thing should be tied upon the step of the ladder which may be fitted to the armpit, whereby the head of the bone may be forced into its natural place.³

¹ This method is simple, but cannot have been very efficacious. It is not mentioned in our late works on surgery. It is described by Verduc, however, in nearly the same terms as those of our author, and therefore I need not quote his description of it. (A Treatise on Fractures, &c., p. 344.)

² This method consists in fixing a strong pole, here called a pestle (*ἰππερον*), in the ground, and having wrapped its upper extremity with some soft substance, to apply it to the armpit of the patient and pull the affected arm along it. It should be so long as that the patient's armpit can barely get into it, and the arm is to be pulled along the pole. The pole or pestle, in this case, performs the same office as the heel of the surgeon in the other case. In a well-known line of Hesiod's Works and Days, the pestle of the domestic mortar is described as being three cubits in length (l. 421).

³ This is evidently a very simple and ingenious method of accomplishing the reduction. Desault thus describes the methods with the pestle and the ladder: "The

7. The following, however, is the strongest of all the methods of reduction. We must get a piece of wood, five, or at least four inches broad, two inches in thickness, or still thinner, and two cubits in length, or a little less; and its extremity at one end should be rounded, and made very narrow and very slender there, and it should have a slightly projecting edge (*ambe*) on its round extremity, not on the part that is to be applied to the side, but to the head of the humerus, so that it may be adjusted in the armpit at the sides under the head of the humerus; and a piece of soft shawl or cloth should be glued to the end of the piece of wood, so as to give the less pain upon pressure. Then having pushed the head of this piece of wood as far inwards as possible between the ribs and the head of the humerus, the whole arm is to be stretched along this piece of wood, and is to be bound round at the arm, the fore-arm, and the wrist, so that it may be particularly well secured; but great pains should be taken that the extremity of this piece of wood should be introduced as far as possible into the armpit, and that it is carried past the head of the humerus. Then a cross-beam is to be securely fastened between two pillars, and afterwards the arm with the piece of wood attached to it is to be brought over this cross-beam, so that the arm may be on the one side of it and the body on the other, and the cross-beam in the armpit; and then the arm with the piece of wood is to be forced down on the one side of the cross-beam, and the rest of the body on the other. The cross-beam is to be bound so high that the rest of the body may be raised upon tip-toes. This is by far the most powerful method of effecting reduction of the shoulder; for one thus operates with the lever upon the most correct principles, provided only the piece of wood be placed as much as possible within the head of the humerus, and thus also the counterbalancing weights will be most properly adjusted, and safely applied to the bone of the arm. Wherefore recent cases in this way may be reduced more quickly than could be believed, before pestle was nothing else but the instrument of that name, or simply a stick, one end of which rested on the ground, or on a table; whilst the other, well guarded with linen, was placed in the cavity of the axilla, and served to push up the head of the bone; an extension was made on the arm, while an assistant kept the trunk fixed, pushing the shoulder down at the same time. The ladder was employed on the same plan, after an eminence was formed, and sufficiently guarded to be adapted to the cavity of the axilla." (Surgical Journal, vol. ii, p. 134, English edition.)

even extension would appear to be applied; and this is the only mode of reduction capable of replacing old dislocations, and this it will effect, unless flesh has already filled up the (glenoid) cavity, and the head of the humerus has formed a socket for itself in the place to which it has been displaced; and even in such an old case of dislocation, it appears to me that we could effect reduction (for what object would a lever power properly applied not move?), but it would not remain in its place, but would be again displaced as formerly.¹ The same thing may be effected by means of the ladder, by preparing it in the same manner. If the dislocation be recent, a large Thessalian chair may be sufficient to accomplish this purpose; the wood, however, should be dressed up as described before; but the patient should be seated sideways on the chair, and then the arm, with the piece of wood attached to it, is to be brought over the back of the chair, and force is to be applied to the arm, with the wood on the one side, and to the body on the other side. The same means may be applied with a double door.² One should always use what happens to be at hand.³

¹ This description, to any person who understands the construction of the ambe, must be so plain, that it would be superfluous to attempt any further explanation of it. Of late years the ambe has fallen completely into disuse, and none of the various modifications of it are now to be seen but in the cabinets of the curious.

² On the nature of the double doors of the ancients, the curious reader may find it interesting to consult the annotations of the editors of Erotian, under *ἰακείδεις*. See the edition of Frantzius; also Galen's Glossary.

³ These methods by a chair or a door are very simple, and from a late trial of the former I can declare it to be the most easy and effectual plan of reduction which I have ever tried. It would appear that this method of reduction, with a slight modification, is still practised at the Bristol Infirmary, the surgeons of which declare that they have found it almost uniformly successful, as I can well believe, from my own experience of the method as recommended by Hippocrates. It is thus described in a late number of the Provincial Medical and Surgical Journal, July 26, 1848: "Without any preliminary treatment, the patient is seated sideways on a firm chair, with his arm hanging over the back, which is well padded; one end of a double or reel-towel is passed through the other end, so as to form a noose, which is applied to the arm above the elbow. The loose depending part of the towel forms a stirrup, into which the surgeon places his foot, and gradually brings his whole weight to bear on the towel, as an extending power. One or two assistants are useful to press back the acromion, and keep the patient firmly in his seat. The reduction is effected almost immediately, and if due precaution be observed in properly padding the chair and the arm when the towel is applied, little or no pain is felt, nor any subsequent inconvenience from the pressure."

8. Wherefore it should be known that one constitution differs much from another as to the facility with which dislocations in them may be reduced, and one articular cavity differs much from another, the one being so constructed that the bone readily leaps out of it, and another less so; but the greatest difference regards the binding together of the parts by the nerves (*ligaments*?) which are slack in some and tight in others. For the humidity in the joints of men is connected with the state of the ligaments, when they are slack and yielding; for you may see many people who are so humid (*flabby*?) that when they choose they can disarticulate their joints without pain, and reduce them in like manner. The habit of the body also occasions a certain difference, for in those who are in a state of embonpoint and fleshy the joint is rarely dislocated, but is more difficult to reduce; but when they are more attenuated and leaner than usual, then they are more subject to dislocations which are more easily reduced. And the following observation is a proof that matters are so; for in cattle the thighs are most apt to be dislocated at the hip-joint, when they are most particularly lean, which they are at the end of winter, at which time then they are particularly subject to dislocations,¹

¹ Upon making inquiry, I find that it is still a popular belief, in the rural districts of Scotland, that cattle are very subject to dislocations at the hip-joint when first turned out to graze in spring. I have been told by old farmers, who certainly would not intentionally have deceived me, that they have known such cases frequently occur. I have reason to think, however, that what they took for dislocations were most probably diseases of the joint; for an experienced farrier informs me that actual dislocation at the hip-joint is very rarely met with in cattle. When cattle are very lean and feeble, the bones at the hip-joint protrude very much, so as to give them the appearance of having slipped out of the joint. M. Littré's inquiries have led him to nearly the same conclusions; having addressed a letter on the subject to Dr. Bixio, the publisher of the *Journal d'Agriculture Pratique*, he received from him the following answer: "Il arrive souvent que les animaux de l'espèce bovine sont atteints d'une claudication des membres postérieurs, qui simule, à tromper parfaitement les yeux, une luxation de l'articulation coxo-fémorale. Cette claudication est due au déplacement d'un muscle; on rétablit instantanément la liberté des mouvements par la section de la branche musculaire déplacée. C'est sans doute cet accident fréquent qu'Hippocrate aura observé et confondu avec la luxation. Je ne sais rien dans les membres antérieurs qui soit semblable; la luxation de l'articulation scapulo-humérale est très-rare et n'est simulée par rien. Maintenant la claudication du membre postérieur est-elle plus piquante chez les bœufs maigres que chez les bœufs gras? Je ne sais, mais je suis porté à le croire: l'état de vacuité des interstices musculaires devant nécessairement permettre un déplacement plus facile de leurs faisceaux." (Œuvr. d'Hippocrat., tom. iv, p. 11.)

(if I may be allowed to make such an observation while treating of a medical subject); and therefore Homer has well remarked, that of all beasts oxen suffer the most at that season, and especially those employed at the plough, as being worked in the winter season. In them, therefore, dislocations happen most frequently, as being at that time most particularly reduced in flesh. And other cattle can crop the grass when it is short, but the ox cannot do so until it becomes long; for, in the others, the projection of the lip is slender, and so is the upper lip, but in the ox the projection of the lip is thick, and the upper jaw is thick and obtuse, and therefore they are incapable of seizing short herbs. But the *solidungula* as having prominent teeth in both their front jaws, can crop the grass and grasp it with their teeth while short, and delight more in short grass than in rank; for, in general, short grass is better and more substantial than rank, as having not yet given out its fructification. Wherefore the poet has the following line:

“As when to horned cattle dear the vernal season comes,”¹

because rank grass appears to be most sought after by them. But otherwise in the ox, this joint is slacker than in other animals, and, therefore, this animal drags his foot in walking more than any other, and especially when lank and old. For all these reasons the ox is most particularly subject to dislocations; and I have made the more observations respecting him, as they confirm all that was said before on this subject. With regard, then, to the matter on hand, I say that dislocations occur more readily, and are more speedily reduced in those who are lean than in those who are fleshy; and in those who are humid and lank there is less inflammation than in such as are dry and fleshy, and they are less compactly knit hereafter, and there is more mucosity than usual in cases not attended with inflammation, and hence the joints are more liable to luxations; for, in the main, the articulations are more subject to mucosities in those who are lean than in those who are fleshy; and the flesh of lean persons who have not been reduced by a proper course of discipline abounds more with

¹ It is certain that there is no such line in the works of Homer as they have come down to us, and it is singular that Galen takes no notice of it, so that it is impossible to explain how our author came to use it.

mucosity than that of fat persons. But in those cases in which the mucosity is accompanied with inflammation, the inflammation binds (*braces*?) the joint, and hence those who have small collections of mucosities are not very subject to dislocations, which they would be if the mucosity had not been accompanied with more or less inflammation.

9. In cases of dislocation those persons who are not attacked with inflammation of the surrounding parts, can use the shoulder immediately without pain, and do not think it necessary to take any precautions with themselves; it is therefore the business of the physician to warn them beforehand that dislocation is more likely to return in such cases than when the tendons have been inflamed. This remark applies to all the articulations, but particularly to those of the shoulder and knee, for these are the joints most subject to luxations. But those who have inflammation of the ligaments cannot use the shoulder, for the pain and the tension induced by the inflammation prevent them. Such cases are to be treated with cerate, compresses, and plenty of bandages; but a ball of soft clean wool is to be introduced into the armpit, to fill up the hollow of it, that it may be a support to the bandaging, and maintain the joint *in situ*. The arm, in general, should be inclined upwards as much as possible, for thus it will be kept at the greatest possible distance from the place at which the head of the humerus escaped. And when you bandage the shoulder you must fasten the arms to the sides with a band, which is to be carried round the body. The shoulder should be rubbed gently and softly. The physician ought to be acquainted with many things, and among others with friction; for from the same name the same results are not always obtained; for friction could brace a joint when unseasonably relaxed, and relax it when unseasonably hard; but we will define what we know respecting friction in another place. The shoulder, then, in such a state, should be rubbed with soft hands; and, moreover, in a gentle manner, and the joint should be moved about, but not roughly, so as to excite pain. Things get restored sometimes in a greater space of time, and sometimes in a smaller.

10. A dislocation may be recognised by the following symptoms:—Since the parts of a man's body are proportionate

to one another, as the arms and the legs, the sound should always be compared with the unsound, and the unsound with the sound, not paying regard to the joints of other individuals (for one person's joints are more prominent than another's), but looking to those of the patient, to ascertain whether the sound joint be unlike the unsound. This is a proper rule, and yet it may lead to much error; and on this account it is not sufficient to know this art in theory, but also by actual practice; for many persons from pain, or from any other cause, when their joints are not dislocated, cannot put the parts into the same positions as the sound body can be put into; one ought therefore to know and be acquainted beforehand with such an attitude.¹ But in a dislocated joint the head of the humerus appears lying much more in the armpit than it is in the sound joint; and also, above, at the top of the shoulder, the part appears hollow, and the acromion is prominent, owing to the bone of the joint having sunk into the part below; there is a source of error in this case also, as will be described afterwards, for it deserves to be described; and also, the elbow of the dislocated arm is farther removed from the ribs than that of the other; but by using force it may be approximated, though with considerable pain; and also they cannot, with the elbow extended, raise the arm to the ear, as they can the sound arm, nor move it about as formerly in this direction and that. These, then, are the symptoms of dislocation at the shoulder. The methods of reduction and the treatment are as described.

11. It deserves to be known how a shoulder which is subject to frequent dislocations should be treated. For many persons owing to this accident have been obliged to abandon gymnastic exercises, though otherwise well qualified for them; and from the same misfortune have become inept in warlike practices, and have thus perished.² And this subject deserves to be noticed,

¹ As Galen remarks in his Commentary, our author adverts to this subject in his work *On Fractures*. It is, no doubt, a very important practical observation that, although inability to place the limb in its accustomed attitudes be an inseparable symptom of dislocations, it sometimes happens that patients, from pains or other causes, lose this faculty without there being any displacement of the bone. The symptoms of dislocation at the shoulder-joint, as given in the remainder of the paragraph, are remarkably accurate.

² Our author, it will be recollected, applies this remark to the Nomadic Scythians, in his work *On Airs, Waters, &c.*

because I have never known any physician treat the case properly; some abandon the attempt altogether, and others hold opinions and practise the very reverse of what is proper. For many physicians have burned the shoulders subject to dislocation, at the top of the shoulder, at the anterior part where the head of the humerus protrudes, and a little behind the top of the shoulder; these burnings, if the dislocation of the arm were upwards, or forwards, or backwards, would have been properly performed; but now, when the dislocation is downwards, they rather promote than prevent dislocations, for they shut out the head of the humerus from the free space above. The cautery should be applied thus: taking hold with the hands of the skin at the armpit, it is to be drawn into the line, in which the head of the humerus is dislocated; and then the skin thus drawn aside is to be burnt to the opposite side. The burnings should be performed with irons, which are not thick nor much rounded, but of an oblong form, (for thus they pass the more readily through,) and they are to be pushed forwards with the hand; the cauterics should be red-hot, that they may pass through as quickly as possible; for such as are thick pass through slowly, and occasion eschars of a greater breadth than convenient, and there is danger that the cicatrices may break into one another; which, although nothing very bad, is most unseemly, or awkward. When you have burnt through, it will be sufficient, in most cases, to make eschars only in the lower part; but if there is no danger of the ulcers passing into one another, and there is a considerable piece of skin between them, a thin spatula is to be pushed through these holes which have been burned, while, at the same time, the skin is stretched, for otherwise the instrument could not pass through; but when you have passed it through you must let go the skin, and then between the two eschars you should form another eschar with a slender iron, and burn through until you come in contact with the spatula. The following directions will enable you to determine how much of the skin of the armpit should be grasped; all men have glands in the armpit greater or smaller, and also in many other parts of the body. But I will treat in another work of the whole constitution of the glands, and explain what they are, what they signify, and what are

their offices.¹ The glands, then, are not to be taken hold of, nor the parts internal to the glands; for this would be attended with great danger, as they are adjacent to the most important nerves. But the greater part of the substances external to the glands are to be grasped, for there is no danger from them. And this, also, it is proper to know, that if you raise the arm much, you will not be able to grasp any quantity of skin worth mentioning, for it is all taken up with the stretching; and also the nerves, which by all means you must avoid wounding, become exposed and stretched in this position; but if you only raise the arm a little, you can grasp a large quantity of skin, and the nerves which you ought to guard against are left within, and at a distance from the operation. Should not, then, the utmost pains be taken in the whole practice of the art to find out the proper attitude in every case? So much regarding the armpit, and these contractions will be sufficient, provided the eschars be properly placed. Without the armpit there are only two places where one might place the eschars to obviate this affection; the one before and between the head of the humerus and the tendon at the armpit; and then the skin may be fairly burnt through, but not to any great depth, for there is a large vein adjacent, and also nerves, neither of which must be touched with the heat. But externally, one may form another eschar considerably above the tendon at the armpit, but a little below the head of the humerus; and the skin must be burnt fairly through, but it must not be made very deep, for fire is inimical to the nerves. Through the whole treatment the sores are to be so treated, as to avoid all strong extension of the arm, and this is to be done moderately, and only as far as the dressing requires; for thus they will be less cooled (for it is of importance to cover up all sorts of

¹ I need scarcely remark here that the work, *On the Glands*, which we now possess, is not the promised work of our author. See an analysis of the other work in the second section of the Preliminary Discourse. Galen, in his Commentary on this passage, states distinctly that the work which is contained in the Hippocratic Collection is supposititious, and unworthy of our author. Those, he adds, who made out the Tables (of the Hippocratic treatises) do not recognise it. I may be allowed to remark again in this place, that if our author had not practised human dissection he could not have been so well acquainted, as he here shows him to be, with the situation of the blood-vessels, nerves, and glands, situated in the axillary region.

burns if one would treat them mildly), and then the lips of them will be less turned aside; there will be less hemorrhage and fear of convulsions. But when the sores have become clean, and are going on to cicatrization, then by all means the arm is to be bound to the side night and day; and even when the ulcers are completely healed, the arm must still be bound to the side for a long time; for thus more especially will cicatrization take place, and the wide space into which the humerus used to escape will become contracted.¹

12. When attempts to reduce a dislocated shoulder have failed, if the patient be still growing, the bone of the affected arm will not increase like the sound one, for although it does increase in so far it becomes shorter than the other; and those persons called *weasel-armed*,² become so from two accidents, either from having met with this dislocation *in utero*,³ or from

¹ For the other ancient authorities on this operation, see PAULUS ÆGINETA, B. VI, 42.

² Galen professes not to think it worth his while to determine whether or not the term which is here translated *weasel-armed* (γαλιόκωντες) be derived from γαλιή, (*mustela vulgaris*?) He adds there can be no doubt that it signifies "short-armed."

³ Our author here evidently alludes to congenital dislocation at the shoulder-joint, a malformation which we know does occur, although I never met with a case of it. I have seen cases, however, of congenital dislocation at the hip-joint, and several such have been described of late years. Dr. Heine, of Stuttgart, has observed nine cases in female, and two in male children. See Forbes's British and Foreign Medical Review, No. xxxii, p. 489. Baron Dupuytren has also treated of this subject with his usual ability, in his work, On Fractures and Dislocations, lately reprinted by the Sydenham Society. In this work, he gives an interesting case of congenital dislocation of the upper extremity of the radius on the humerus (p. 117). He makes no mention, however, of congenital dislocation at the shoulder-joint. By far the most interesting and instructive account of this subject which we possess, is that given by Dr. R. W. Smith, in the Dublin Journal, Vol. xv, p. 236. He notices two kinds of congenital dislocation, viz. the *subcoracoid* and the *subacromial* dislocation. A few extracts from his description of the former of these, will show how well it agrees with that given by Hippocrates. "In the *congenital subcoracoid* dislocation, the head of the upper-arm bone, when the arm hangs down on the side, is situated beneath the coracoid process, and the outer part of the glenoid cavity can be felt beneath the projecting *acromion*; if the elbow be drawn forward over the chest, the head of the upper-arm bone slips backwards over the *acromion*, and completely leaves the unnatural part of the articular surface, which can now be distinctly felt; the shoulder has not its natural rounded form, but is flattened. *The muscles of the shoulder and arm are much shrunk*, and also the muscles passing from the chest to the blade-bone and upper-arm, only the *m. trapezius* shows the least of this, and seems to be almost the only muscle, which still acts upon and moves the blade-bone, *the diseased arm is nearly half an inch shorter. The motions of the arm are very much reduced;*

another accident, which will be described afterwards. But those who while they were children have had deep-seated suppurations about the head of the bone, all become weasel-armed; and this, it should be well known, will be the issue, whether the abscess be opened by an incision or cauterly, or whether it break spontaneously. Those who are thus affected from birth are quite able to use the arm, yet neither can they raise the arm to the ear, by extending the elbow, but they do this much less efficiently than with the sound arm. But in those who have had the shoulder dislocated after they were grown up, and when it has not been reduced, the top of the shoulder becomes much less fleshy, and the habit of body at that part is attenuated; but when they cease to have pain, whatever they attempt to perform by raising the elbow from the sides obliquely, they can no longer accomplish as formerly; but whatever acts are performed by carrying the arm around by the sides, either backwards or forwards, all those they can perform; for they can work with an auger or a saw, or with a hatchet, and can dig, by not raising the elbow too much, and do all other kinds of work which are done in similar attitudes.

13. In those cases where the acromion has been torn off, the bone which is thus separated appears prominent. The bone is the bond of connexion between the clavicle and scapula, for in this respect the constitution of man is different from that of other animals; physicians are particularly liable to be deceived in this accident (for as the separated bone protrudes, the top of the shoulder appears low and hollow), so that they make preparations as if for dislocation of the shoulder; for I have known many physicians, otherwise not inexpert at the art, who have done much mischief by attempting to reduce such shoulders, thus supposing it a case of dislocation; and they did not desist until they gave over hopes of succeeding,

“Elevation and abduction are not possible, and even the forward and backward motions cannot be performed without a correspondent movement of the blade-bone.” See, further, Chelius’s *System of Surgery*, (Vol. I, p. 786.) The same subject is treated of in a very ingenious and interesting manner by Dr. R. M. Smith, in his recent publication ‘*A Treatise of Fractures in the Vicinity of Joints*,’ Dublin, 1847. He gives the histories of several cases of congenital luxation at the shoulder-joint, which, in the main, agree very well with the characters of this abnormal conformation as given by Hippocrates. M. Guerin has also recently written on this interesting subject. (*Recherches sur les Luxations Congénitales*.)

or committed the mistake of supposing that they had reduced the shoulder. The treatment, in these cases, is similar to that which is applicable in others of a like kind, namely, cerate, compresses, and suitable bandaging with linen cloths. The projecting part must be pushed down, and the greater number of compresses are to be placed on it, and most compression is to be applied at that part, and the arm being fastened to the side is to be kept elevated; for thus the parts which had been torn asunder are brought into closest proximity with one another. All this should be well known, and if you choose you may prognosticate safely that no impediment, small or great, will result from such an injury at the shoulder, only there will be a deformity in the place, for the bone cannot be properly restored to its natural situation, but there must necessarily be more or less tumefaction in the upper part. For neither can any other bone be made exactly as it was, which having become incorporated with another bone, and having grown to it as an apophysis, has been torn from its natural situation. If properly bandaged, the acromion becomes free of pain in a few days.¹

¹ This subject has been so fully treated of in the Commentary on PAULUS ÆGINETA (B. VI, 113), that I need not say much upon it in this place. See, further, Eustachius (Oss. Exam. p. 175); Riolanus (Comment. de Oss. p. 503). Apparently the case must have been dislocation of the scapular end of the clavicle from the acromion, which all our best authorities on surgery describe as being an accident of occasional occurrence. See Sir Astley Cooper and Liston's works. It is marked by a projection of the end of the clavicle, under the skin covering the acromion, and a depression of the shoulder. All our modern authorities confirm Galen's statement, and our author's, as to the difficulty of treating this case without leaving some deformity. Mr. Liston says "the cure is slow and imperfect. The bone, however, in time, contracts adhesions, and the limb regains its power and mobility." See, also, Cooper's Surgical Dictionary (p. 382), fifth edition. Galen, who met with this accident in his own person while wrestling in the palestra, made a complete recovery without deformity; but he says he had rarely found this to be the case except in young persons. (t. v, p. 594, ed. Basil.) While upon this subject, I shall quote what is said on this accident which befel Galen, by Verdus, who may be called the *Sinia Hippocratis*, and therefore his views are interesting, as they tend to confirm those which I had adopted before meeting with his work. "Though the channel-bones are articulated with the acromion-process of the shoulder-blade and the sternum by very close and tight cartilages and ligaments, yet Galen says that he underwent a dislocation of the clavicle, which created insufferable pain; that he bore such a tight bandage as no man else could have borne; and after having the bandage upon him for a long while, was cured at last." (A Treatise on Fractures,

14. When a fractured clavicle is fairly broken across it is more easily treated, but when broken obliquely it is more difficult to manage. Matters are different in these cases from what one would have supposed ; for a bone fairly broken across can be more easily restored to its natural state, and with proper care the upper part may be brought down by means of suitable position and proper bandaging, and even, if not properly set, the projecting part of the bone is not very sharp. But in oblique fractures the case is similar to that of bones which have been torn away, as formerly described ; for they do not admit of being restored to their place, and the prominence of the bone is very sharp. For the most part, then, it should be known, no harm results to the shoulder or to the rest of the body from fracture of the clavicle, unless it sphacelate, and this rarely happens. A deformity, however, may arise from fracture of the clavicle, and in these cases it is very great at first, but by and by it becomes less.¹ A fractured clavicle, like all other spongy bones, gets speedily united ; for all such bones form callus in a short time. When, then, a fracture has recently taken place, the patients attach much importance to it, as supposing the mischief greater than it really is, and the physicians bestow great pains in order that it may be properly bandaged ; but in a little time the patients, having no pain, nor finding any impediment to their walking or eating, become negligent ; and the physicians finding they cannot make the parts look well, take themselves off, and are not sorry at the neglect of the patients, and in the mean time the callus is quickly formed.² The method of dressing which is

p. 339.) It remains to be mentioned, as further tending to illustrate the case now under consideration, that dislocation of the clavicle, at its outer extremity, is sometimes complicated with the fracture of the acromion. This variety is described by Sir Charles Bell, Sir Astley Cooper, and by Chelius, in his late publication (Vol. i, p. 518). All agree that it has a great resemblance to dislocation of the humerus.

¹ As stated by Galen, in his Commentary, this is no doubt an important remark, as a person unacquainted with this fact would be liable to overrate the deformity on its first appearance. How often have I benefited by the knowledge thus derived from Hippocrates, more especially in the case of children, in being able to assure parents, and others interested in the matter, that a deformity, which at the time was creating great uneasiness, would disappear in the course of a few months !

² What our author here says regarding neglected cases of fractured clavicle, is entirely consonant to my own experience. I have known persons who, having met with the accident, gave themselves no trouble, applied no bandages, and even con-

most appropriate, is similar to that used in ordinary cases, consisting of cerate, compresses, and bandages; and it should be most especially known in this operation, that most compresses should be placed on the projecting bone, and that the greatest pressure should be made there. There are certain physicians who make a show of superior skill by binding a heavy piece of lead on the part in order to depress the projecting bone; but this mode of treatment does not apply to the clavicle, for it is impossible to depress the projecting part to any extent worth mentioning. There are others who, knowing the fact that the bandages are apt to slip off, and that they do not keep the projecting parts in their place, apply compresses and bandages like the others, and then having girt the patient with a girdle, where it is usually applied with most effect, they make a heap of the compresses upon the projecting bone when they apply them, and having fastened the head of the bandage to the girdle in front, they apply it so as to bring the turns of it into the line of the clavicle, carrying them to the back, and then bringing them around the girdle they carry them to the fore part and again backwards. There are others who do not apply the bandage round the girdle, but carry the rounds of it by the perineum and anus, and along the spine, so as to compress the fracture. To an inexperienced person these methods will appear not far from natural, but when tried, they will be found of no service; for they do not remain firm any length of time, even if the patient keep his bed, although in this position they answer best; and yet even when lying in bed, should he bend his leg, or should his trunk be bent, all the bandages will be displaced; and, moreover, the bandaging is inconvenient, inasmuch as the

tinued their work as agricultural labourers, and yet it was surprising how well they got round. Having stated this to the late Mr. Liston, he confirmed what I said, by mentioning similar cases which he had known. M. Velpeau, in like manner, holds that the fears generally entertained of the pieces of bone not uniting regularly, are quite unfounded. Our author's account of the symptoms and treatment of fractured clavicle bespeak an intimate acquaintance with the subject. The lapse of more than twenty centuries has added nothing to our knowledge of it. If the reader will compare the account of this accident given by Chelius, and his English editor, South, with what our author has written on the subject, he will admit the truth of this remark. Yet it is lamentable, even at the present day, to see how some *fashionable* doctors torment their patients, in cases of fractured clavicle, with tight bandages, which, after all, have little or no power in keeping the bones *in situ*.

anus is comprehended by it, and many turns of the bandage are crowded there in a narrow space. And in the method with the girdle, the girdle cannot be so firmly girt around, but that the turns of the bandage force the girdle to ascend, and hence of necessity all the other bandages must be slackened. He would seem to me to come nearest his purpose, although after all he effects but little, who would take a few turns round the girdle, but would use the bandage principally to secure the former bandaging; for in this manner the bandages would be most secure, and would mutually assist one another. Everything now almost has been said which applies to fracture of the clavicle. But this also should be known, that in fractures of the clavicle, it is the part attached to the breast which is uppermost, and that the piece attached to the acromion is the lowermost. The cause of this is, that for the most part the breast can neither be depressed nor raised, there being but a slight movement of the joint at the breast, for the sternum is connected together on both sides with the spine. The clavicle admits of most motion at the joint of the shoulder, and this arises from its connexion with the acromion. And, moreover, when broken, the part which is connected with the sternum flies upwards, and is not easily forced downwards; for it is naturally light, and there is more room for it above than below. But the shoulder, the arm, and the parts connected with them, are easily moved from the sides and breast, and, on that account, they admit of being considerably elevated and depressed. When, therefore, the clavicle is broken, the fragment attached to the shoulder inclines downwards, for it inclines much more readily with the shoulder and arm downwards than upwards. Matters being as I have stated, they act imprudently who think to depress the projecting end of the bone. But it is clear that the under part ought to be brought to the upper, for the former is the moveable part, and that which has been displaced from its natural position. It is obvious, therefore, that there is no other way of applying force to it (for the bandages no more force it to than they force it from); but if one will push the arm when at the sides as much as possible upwards, so that the shoulder may appear as sharp as possible, it is clear that in this way it will be adjusted to the fragment of the bone connected with the breast from which it was torn. If one

then will apply a bandage, *secundum artem*, for the purpose of promoting a speedy cure, and will reckon everything else of no value, except the position as described, he will form a correct opinion of the case, and will effect a cure in the speediest and most appropriate manner. It is of great importance, however, that the patient should lie in a recumbent posture. Fourteen days will be sufficient if he keep quiet, and twenty at most.

15. But if the clavicle be fractured in the opposite manner (which does not readily happen), so that the fragment of bone connected with the breast is depressed, while the piece connected with the acromion is raised up and rides over the other, this case does not require much management, for if the shoulder and arm be let go, the fragments of the bone will be adjusted to one another, and an ordinary bandage will suffice, and the callus will be formed in the course of a few days.

16. If the fracture be not thus, but if it incline either forwards or backwards, it may be restored to its natural position, by raising the shoulder with the arm as formerly described, and brought back to its natural place, when the cure will be speedily accomplished. Most of the varieties of displacement may be rectified by raising the arm upwards. When the upper bone is displaced laterally or downwards, it would favour the adaptation of the parts if the patient would lie on his back, and if some elevated substance were placed between the shoulder-blades, so that the breast may be depressed as much as possible upon the two sides; and if, while another person raised the arm extended along the sides, the physician, applying the palm of the one hand to the head of the bone, would push it away, and with the other would adjust the broken bones, he would thus reduce the parts most readily to their natural position. But, as formerly stated, the upper bone (*sternal fragment?*) is rarely depressed downwards. In most cases, after the bandages have been applied, that position is beneficial in which the elbow is fixed to the same side, and the shoulder is kept elevated; but in certain cases, the shoulder is to be raised, as has been directed, and the elbow is to be brought forward to the breast, and the hand laid on the acromion of the sound side. If the patient has the resolution to lie in bed, something should be placed so as to support the shoulder, and keep it as much elevated as possible. But if he walk about, the arm should be slung

in a shawl, which embraces the point of the elbow, and is passed round the neck.

17. When the elbow-joint is displaced or dislocated to the side or outwards, while its sharp point (*olecranon*?) remains in the cavity of the humerus, extension is to be made in a straight line, and the projecting part is to be pushed backwards and to the side.¹

18. In complete dislocations towards either side, extension is to be made as in bandaging fracture of the arm; for thus the rounded part of the elbow will not form an obstacle to it. Dislocation, for the most part, takes place towards the sides (*inwardly*?). Reduction is to be effected by separating (the bones) as much as possible, so that the end (of the humerus) may not come in contact with the olecranon, and it is to be carried up, and turned round, and not forced in a straight line, and, at the same time, the opposite sides are to be pushed together, and propelled into their proper place. It will further assist if rotation of the fore-arm be made at the elbow, sometimes turning it into a supine position, and sometimes into a prone. The position for the treatment consists in keeping the hand a little higher than the elbow, and the arm at the sides; then it may either be suspended or laid at rest, for either position will answer; and nature and the usage of common means will accomplish the cure, if the callus does not form improperly: it is formed quickly. The treatment is to be conducted with bandages according to the rule for bandaging articulations, and the point of the elbow is to be included in the bandage.²

19. Dislocations at the elbow give rise to the most serious

¹ This would seem to be partial dislocation of the elbow-joint, with displacement of the radius either to the side or behind. It is to be borne in mind, that our author always supposes the arm in a state intermediate between pronation and supination. Outwards, then, with him, has the same sense as backwards in the modern interpretation, where the arm is supposed to be in a state of supination. The description of the method of reduction is obscure, and the Commentaries of Apollonius Citicensis and Galen throw little or no light on it. There is a considerable difference between M. Littré's mode of interpreting this passage and my own, as I have stated in my Notes, § 39 Of Fractures.

² This is evidently complete lateral luxation of the fore-arm. The same subject is resumed in the § 22. Though there are some obscurities in particular expressions which occur in this paragraph, the directions, in the main, must be quite intel-

consequences, such as fevers, pain, nausea, vomitings of pure bile, and more especially when the humerus is displaced backwards from pressure on the nerve, which occasions numbness; next to it is the dislocation forwards; the treatment is the same; reduction in dislocation backwards is by extension and adaptation; the symptom of this variety—loss of the power of extension; of dislocation forwards—loss of the power of flexion, and in this case reduction is to be accomplished by placing a hard ball [in the bend of the elbow], and bending the forearm about it, along with sudden extension.¹

20. Diastasis of the bones may be recognised by examining the part where the vein that runs along the arm divides.²

21. In those cases callus is quickly formed. In congenital dislocations the bones below the seat of the injury are shorter than natural, and, mostly, those nearest to the place; namely, the bones of the fore-arm, next those of the hand; and, third, those of the fingers. The arm and shoulder are stronger, owing to the nourishment which they receive, and the other arm, from the additional work which it has to perform, is still more strong. Wasting of the flesh takes place on the inside if the dislocation be on the outside; or otherwise, on the side opposite the dislocation.³

22. When the elbow is dislocated either inwards or outwards, extension is to be made with the fore-arm at a right angle to the arm; the arm, suspended by means of a shawl passed through the armpit, and a weight attached to the extremity of the elbow; or force may be applied with the hands; when the articular extremity has been cleared, the displaced

ligible to any person who is acquainted with the construction of parts concerned in the dislocation. The principal object which the surgeon must keep in view while attempting to effect the reduction, evidently is to prevent the end of the ulna from getting entangled in the condyle of the humerus while passing over to its place. See below, § 22, where the same directions are repeated.

¹ This would seem to be complete luxation of the fore-arm, forwards and backwards. The symptoms and treatment, though apparently laid down correctly, are given with such brevity as to create considerable obscurity. See On Fractures, § 39, 40, 41.

² This is evidently an abridgment of § 44 of the work On Fractures, and applies principally to the separate luxation of the radius. Apollonius Citiensis mentions the separate dislocation of the radius, but throws no light on it.

³ In the note on § 12 reference is made to an interesting case of congenital luxation of the radius, related by Dupuytren. See p. 117 of the Syd. Soc. edition of his works.

parts are to be rectified with the palms of the hand, as in dislocations of the hands. It is to be bandaged, suspended in a sling, and placed while in this attitude.¹

23. Dislocations backwards are to be rectified by the palms of the hands, along with sudden extension; the two acts are to be performed together, as in other cases of the kind. But in dislocation forwards the arm is to be bent around a ball of cloth of proper size, and at the same time replaced.²

24. But if the displacement be on the other side, both these operations are to be performed in effecting the adjustment. For conducting the treatment, the position and bandaging are the same as in the other cases. But all these cases may be reduced by ordinary distension.³

25. Of the methods of reduction, some operate by raising up the part, some by extension, and some by rotation: the last consists in rapidly turning the fore-arm to this side and that.⁴

26. The joint of the hand is dislocated either inwards or outwards, most frequently inwards. The symptoms are easily recognised: if inwards, the patient cannot at all bend his fingers; and if outwards, he cannot extend them. With regard to the reduction,—by placing the fingers above a table, extension and counter-extension are to be made by other persons, while with the palm or heel of the hand on the projecting bone one pushes forward, and another from behind on the other bone; some soft substance is to be applied to it, and the arm is to be turned to the prone position if the dislocation was forwards, but to the supine, if backwards. The treatment is to be conducted with bandages.⁵

¹ Compare § 18.

² This is much the same as § 19.

³ This is the same as the accident described in § 17. This passage is very obscure, and may be referred either to sub-luxations of the fore-arm backwards, or luxation of the radius persisting after dislocation of the whole arm backwards, or luxation of the radius forwards or backwards. The last appears to me the most plausible conjecture.

⁴ This enumeration of the methods of reduction is evidently incomplete. By raising up the part, he would appear to allude to the process of raising up the end of the ulna, so that the olecranon may not get entangled with the extremity of the humerus. This process is particularly alluded to in § 19.

⁵ M. Littre inclines, after mature consideration of the subject, to refer the case here described to sub-luxations of the carpal bones. Now, although such accidents have been described, even in recent times, I must say that I look upon them as being, in a great measure, ideal. Unless by sub-luxation is meant the lateral sublaxations, I can scarcely conceive how such an accident can occur at all.

27. The whole hand is dislocated either inwards or outwards, or to this side or that, but more especially inwards; and sometimes the epiphysis is displaced, and sometimes the other of these bones is separated.¹ In these cases strong extension is to be applied, and pressure is to be made on the projecting bone, and counter-pressure on the opposite side, both at the same time, behind and at the sides, with the hands upon a table, or with the heel. These accidents give rise to serious consequences and deformities; but in the course of time the part gets strong, and admits of being used. The cure is with bandages, which ought to embrace both the hand and fore-arm; and splints are to be applied as far as the fingers; and when they are used they should be more frequently unloosed than in fractures, and more copious affusions of water should be used.²

28. In congenital dislocations (at the wrist) the hand becomes shortened, and the atrophy of the flesh occurs, for the most part, on the side opposite to the dislocation. In an adult the bones remain of their natural size.³

29. Dislocation at the joint of a finger is easily recognised. Reduction is to be effected by making extension in a straight line, and applying pressure on the projecting bone, and counter-pressure on the opposite side of the other. The treatment is

¹ The case here treated of, in the latter clause of this sentence, would appear to me to be dislocations of the radius, and of the ulna forwards and backwards. See Oribasius, de Machin. (xiv). The dislocation forwards is distinctly described by Sir Astley Cooper, but he was unacquainted with the other. (On Dislocations, p. 503.) Dislocation backwards is described by Desault (t. i). I do not mean to dispute the reality of this accident; but I must say, that judging from what I have observed in my own practice, I am much inclined to agree with Dupuytren in thinking that many of the cases which have been taken for dislocation of the radius, or of the hand, have been fractures of the lower extremity of the radius. Nothing is more common than fracture, and nothing more rare than dislocation, in that part of the body.

² That complete dislocations of the hand at the wrist are here meant to be described seems quite evident. Most of the other ancient authorities only admitted the reality of dislocations forwards and backwards. See the authorities quoted at PAULUS ÆGINETA B. VI, 116, Syd. Soc. edition. All the four varieties here described by our author are recognised by our latest authorities, but those to the side are held to be partial. See Mr. Bransby Cooper's Lectures and the Argument.

³ The most interesting account which I have met with of congenital dislocation at the wrist-joint, is that given by Dr. R. Smith. The drawings which he gives of this monstrosity are very curious. (On Fractures, &c., p. 239.) Nothing can show more remarkably the attention which our author must have paid to this subject, than his being acquainted with a case of such rarity as the present one.

with bandages. When not reduced, callus is formed outside of the joint. When the dislocation takes place at birth, during adolescence the bones below the dislocation are shortened, and the flesh is wasted rather on the opposite than on the same side with the dislocation. When it occurs in an adult the bones remain of their proper size.¹

30. The jaw-bone, in few cases, is completely dislocated, for the zygomatic process formed from the upper jaw-bone (*malar*?) and the bone behind the ear (*temporal*?) shuts up the heads of the under jaw, being above the one (*condyloid process*?), and below the other (*coronoid process*?). Of these extremities of the lower jaw, the one, from its length, is not much exposed to accidents, while the other, the coronoid, is more prominent than the zygoma, and from both these heads nervous tendons arise, with which the muscles called temporal and masseter are connected; they have got these names from their actions and connexions; for in eating, speaking, and the other functional uses of the mouth, the upper jaw is at rest, as being connected with the head by synarthrosis, and not by diarthrosis (*enarthrosis*?): but the lower jaw has motion, for it is connected with the upper jaw and the head by enarthrosis. Wherefore, in convulsions and tetanus, the first symptom manifested is rigidity of the lower jaw; and the reason why wounds in the temporal region are fatal and induce coma, will be stated in another place.² These are the reasons why complete dislocation does not readily take place, and this is another reason, because there is seldom a necessity for swallowing so large pieces of food as would make a man gape more than he easily can, and dislocation could not take place in any other position than in great gaping, by which the jaw is displaced to either side. This circumstance, however, contributes to dislocation there; of nerves (*ligaments*?) and muscles around joints, or connected with joints, such as are frequently moved in using the member are the most yielding to extension, in the same manner as

¹ This is only an abridgment of the fuller exposition of the subject given in § 80. Apollonius, in his Commentary on this passage, mentions that Diocles, in commenting upon it, describes four varieties of dislocation at the joints of a finger, and directs them to be reduced by wrapping a cord or string round the ends of the fingers, and making counter-extension with the hand.

² He seems to allude here to the work, On Injuries of the Head, § 13.

well-dressed hides yield the most. With regard, then, to the matter on hand, the jaw-bone is rarely dislocated, but is frequently slackened (*partially displaced?*) in gaping, in the same manner as many other derangements of muscles and tendons arise.¹ Dislocation is particularly recognised by these symptoms: the lower jaw protrudes forwards, there is displacement to the opposite side, the coronoid process appears more prominent than natural on the upper jaw, and the patient cannot shut his lower jaw but with difficulty. The mode of reduction which will apply in such cases is obvious: one person must secure the patient's head, and another, taking hold of the lower jaw with his fingers within and without at the chin, while the patient gapes as much as he can, first moves the lower jaw

¹ Galen, in his Commentary on this passage, explains it as applying to displacement of the muscles. It would seem to be the species of incomplete displacement described by Sir Astley Cooper. M. Bérard, however, as quoted by M. Littré, gives a somewhat different explanation of the case, as follows: "L'expression de luxation incomplète ne peut jamais s'appliquer aux déplacements de la mâchoire. Il ne semble pas possible, en effet, que le condyle de la mâchoire s'arrête sur le rebord de la cavité glénoïde, c'est-à-dire sur la racine transverse de l'arcade zygomatique; il doit ou retomber dans la cavité, ou passer au-devant de cette saillie. Cependant A. Cooper (*Œuvres Chirurgicales*, traduction de MM. Chassaignac et Michelot, p. 127) admet une luxation incomplète, due au transport du condyle au-dessous de la racine transverse, tandis que le ménisque inter-articulaire reste au fond de la cavité glénoïde. Ce genre de luxation reconnaît pour cause le relâchement des ligaments; les symptômes en sont: un écartement léger des mâchoires, l'impossibilité de fermer la bouche, qui survient brusquement et s'accompagne d'une légère douleur du côté luxé. D'ordinaire, de simples efforts musculaires suffisent pour en amener la réduction; néanmoins A. Cooper l'a vue persister très-longtemps; et cependant, dit-il, la mobilité de la mâchoire, ainsi que la faculté de fermer la bouche, ont été recouvrées. Cette description est trop peu détaillée pour qu'on puisse se former une bonne idée du genre d'accident dont parle A. Cooper. Mais, comme aucun fait anatomique n'est invoqué en faveur de la manière de voir du célèbre chirurgien anglais, nous conservons de très-grands doutes sur la cause que A. Cooper assigne aux désordres fonctionnels dont il parle. Le relâchement des ligaments est une chose bien rare, et qui ne se comprend guère à l'articulation temporo-maxillaire; quant au glissement du condyle sur le ménisque inter-articulaire, la chose nous paraît tout-à-fait impossible. On sait que le tendon du muscle ptérygoïdien externe se fixe à la fois sur le col du condyle et sur le cartilage inter-articulaire, de telle sorte que ces deux parties se meuvent toujours simultanément lors des glissements du condyle de la mâchoire sur l'os temporal. (A. Bérard, *Dict. de Médecine*, art. *Mâchoire*, 2^e éd. t. 18, p. 409.) Both Chelius and his English editor, South, admit a case "of subluxation of the lower-jaw, when, from great laxity of the ligaments, the condyles escape over the edge of the inter-articular cartilages in the sockets of the temporal bones, and fix the jaw with the mouth somewhat open." (Vol. i, p. 772.)

about for a time, pushing it to this side and that with the hand, and directing the patient himself to relax the jaw, to move it about, and yield as much as possible; then all of a sudden the operator must open the mouth, while he attends at the same time to three positions: for the lower jaw is to be moved from the place to which it is dislocated to its natural position; it is to be pushed backwards, and along with these the jaws are to be brought together and kept shut. This is the method of reduction, and it cannot be performed in any other way. A short treatment suffices, a waxed compress is to be laid on, and bound with a loose bandage. It is safer to operate with the patient laid on his back, and his head supported on a leather cushion well filled, so that it may yield as little as possible, but some person must hold the patient's head.

31. When the jaw is dislocated on both sides, the treatment is the same. The patients are less able to shut the mouth than in the former variety; and the jaw protrudes farther in this case, but is not distorted; the absence of distortion may be recognised by comparing the corresponding rows of the teeth in the upper and lower jaws. In such cases reduction should be performed as quickly as possible; the method of reduction has been described above. If not reduced, the patient's life will be in danger from continual fevers, coma attended with stupor (for these muscles, when disordered and stretched preternaturally, induce coma); and there is usually diarrhœa attended with bilious, unmixed, and scanty dejections; and the vomitings, if any, consist of pure bile, and the patients commonly die on the tenth day.¹

32. In fracture of the lower jaw, when the bone is not fairly broken across, and is still partially retained, but displaced, it should be adjusted by introducing the fingers at the side of the tongue, and making suitable counter-pressure on the outside; and if the teeth at the wound be distorted and loosened, when the bone is adjusted, they should be connected together, not only two, but more of them, with a gold thread, if possible, but otherwise, with a linen thread, until the bone be consoli-

¹ Our author's description of dislocation of the lower jaw is copied by all the subsequent authorities in ancient times. See the Commentary on PAULUS ÆGINETA, B. VI. 112, where I mention a case which proved fatal in consequence of reduction not being performed in time.

dated,¹ and then the part is to be dressed with cerate, a few compresses, and a few bandages, which should not be very tight, but rather loose. For it should be well known that in fracture of the jaw, dressing with bandages, if properly performed, is of little advantage, but occasions great mischief if improperly done. Frequent examinations should be made about the tongue, and prolonged pressure should be applied with the fingers, in order to rectify the displaced bone.² It would be best if one could do so constantly, but that is impossible.

33. But if the bone be fairly broken across (this, however, rarely happens), it is to be set in the manner now described. When adjusted, the teeth are to be fastened together as formerly described, for this will contribute much towards keeping the parts at rest, especially if properly fastened, and the ends of the thread secured with knots. But it is not easy to describe exactly in writing the whole manipulation of the case; but the reader must figure the thing to himself from the description given. Then one must take a piece of Carthaginian leather; if the patient be a younger person, it will be sufficient to use the outer skin, but if an adult, the whole thickness of the hide will be required; it is to be cut to the breadth of about three inches, or as much as will be required, and having smeared the jaw with a little gum (for thus it sticks more pleasantly), the end of the skin is to be fastened with the glue near the fractured part of the jaw, at the distance of an inch or a little more, from the wound. This piece is to be applied below the jaw; but the thong should have a cut in it, in the direction of the chin, so that it may go over the sharp point of the chin. Another piece of thong like this, or somewhat broader, is to be glued to the upper part of the jaw, at about the same distance from the wound, as the other thong; this thong should be so cut as to

¹ Chelius says, respecting this practice: "Wallner applies (as did previously Hippocrates, Ryff, and others), in fracture of the lower jaw, instead of the usual apparatus, a silver thread around the front teeth, which, without inconveniencing the patient, may be continued for three weeks, till the divided parts are perfectly united." (Vol. i, p. 530.) I once used a strong silk thread in a case of severe fracture of the lower jaw, in which it was found difficult to keep the parts *in situ*. In general, however, these accidents are very easily managed without the ligature or any complex bandaging. Professor Syme's observations on the treatment of this accident are very much to the purpose.

² Galen, in his Commentary, explains that our author means all this is to be done by the patient, and not by the physician.

encircle the ear. The thongs should be sharp-pointed at the part where they unite, and in glueing them, the flesh of the thong should be turned to the patient's skin, for in this way it will be more tenacious; then we must stretch this thong, but still more so the one at the chin, in order to prevent the fragments of the jaw from riding over each other, and the thongs are to be fastened at the vertex, and then a bandage is to be bound round the forehead, and a proper apparatus is to be put over all, to prevent the bandages from being displaced. The patient should lie upon the sound side of the jaw, not resting upon the jaw, but upon the head. He is to be kept on a spare diet for ten days, and then nourished without delay. If there be no inflammation during the first days, the jaw is consolidated in twenty days; for callus quickly forms in this, as in all the other porous bones, provided there be no sphacelus (*exfoliation?*). But much remains to be said on the sphacelus of bones in another place. This method of distension with glued substances is mild, of easy application, and is useful for many dislocations in many parts of the body. Those physicians who have not judgment combined with their dexterity, expose themselves in fractures of the jaws, as in other cases, for they apply a variety of bandages to a fractured jaw-bone, sometimes properly, and sometimes improperly. For all such bandaging of a fractured jaw-bone has a tendency rather to derange the bones connected with the fracture, than to bring them into their natural position.

31. But if the lower jaw be disjoined at its symphysis in the chin (there is but one symphysis in the lower jaw, but there are several in the upper; but I am unwilling to digress from the subject, as these matters will have to be touched upon in other kinds of disease)—if, then, the symphysis be separated at the chin, it is the work which anybody can perform, to rectify it; for the part which protrudes is to be pushed inwards by pressure with the fingers, and the part that inclines inwards is to be forced outwards by pushing with the fingers from within. It is after having applied extension to separate the fragments that this is to be done, for they will thus be more easily restored to their natural position, than if one should bring them together by using force. This is proper to be known as applying to all such cases. When you have set the parts, you must fasten the teeth on both sides to one another, as formerly directed. The treatment

is to be accomplished with cerate, a few compresses, and bandages. This part, in particular, requires a short but complex (?) bandaging, for it is nearly cylindrical, though not exactly so; but the turn of the bandage is to be made, if the right jaw was dislocated, to the right hand (that is said to be to the right hand when the right hand conducts the bandaging); but if the other jaw be the seat of the dislocation, the bandaging is to be made in the other direction. And if matters be properly adjusted, and the patient keep quiet, there will be a speedy recovery, and the teeth will be uninjured; but if not, the recovery will be more protracted, the teeth will be distorted, will give trouble, and become useless.

35. Of fractures of the nose there are more than one variety, but those who, without judgment, delight in fine bandagings,¹ do much mischief, most especially in injuries about the nose. For this is the most complex of all the forms of bandaging, having most of the turns of the bandage called "ascia," and rhomboidal intervals and uncovered spaces of the skin.² As has been said, those who practise manipulation without judgment are fond of meeting with a case of fractured nose, that they may apply the bandage. For a day or two, then, the physician glories in his performance, and the patient who has been bandaged is well pleased, but speedily the patient complains of the incumbrance of the bandage, and the physician is satisfied, because he has had an opportunity of showing his skill in applying a complex bandage to the nose. Such a bandaging does everything the very reverse of what is proper; for, in the first place, those who have their nose flattened by

¹ Galen properly remarks, that our author here speaks ironically. The forms of bandaging here noticed are briefly described in the work, *On the Surgery*. The terms are further explained in the *Commentary of Galen*. I need scarcely remark that, in the account which our author gives of fracture of the nose, he surpasses all the medical authorities ancient and modern. He had, no doubt, ample opportunities of seeing cases of injuries of the nose and ears in the persons of the *athletæ*, who boxed with the *cestus*. But why this account of fractures of the bones of the nose is inserted here, and not in the treatise *On Fractures*, I am at a loss to explain. Indeed why the subject-matters of these two works are so mixed up together has always been reckoned a puzzle. See the *Argument*.

² On the meaning of the terms which occur in this passage, the reader may find it advantageous to consult the note of *Frantzius*, in his edition of *Erotian*, under *ῥαποχάς*.

the fracture, will clearly have the part rendered still more flat, if pressure above be applied to it; and further, those cases in which the nose is distorted to either side, whether at the cartilage or higher up, will evidently derive no benefit from bandaging above it, but will rather be injured; for it will not admit of having compresses properly arranged on either side of the nose, and indeed, persons applying this bandage do not seek to do this.

36. This bandaging would appear to me to answer best when the skin surrounding the bone is contused on its ridge near the middle, or if the bone itself have sustained some injury, but not a great one, in such cases, redundant callus forms in the nose, and the part becomes a little too prominent; and yet, even in these cases, the bandaging need not require much trouble, if, indeed, any bandage be applied at all; for it is enough if one lay a waxed compress on the contusion, and then apply the double-headed bandage, thus taking one turn with it. The best application to such accidents is a small cataplasm of wheaten flour, washed, and mixed up into a viscid mass. If the flour be made from good wheat, and if it be glutinous, it should be used alone for all such cases, but if it be not very glutinous, a little of the manna of frankincense, well pulverised, is to be moistened with water, and the flour is to be mixed up with it, or a very little gum may be mixed in like manner.¹

37. In those cases in which the fractured portions are depressed and flattened, if it is depressed in front at the cartilage, something may be introduced into the nostrils to rectify the parts. If not, all such deformities may be restored by introducing the fingers into the nostrils, if this can be managed, but if not, a thick spatula² is to be introduced with the fingers,

¹ Galen gives an interesting account of the grain here recommended as an ingredient in the paste to be applied to a fractured nose, and of the mode of preparing it here described by our author. For all practical purposes, it is sufficient to know that the preparation was a sort of glutinous paste made of flour, with the addition of some fine frankincense and gum.

² Galen, in his Commentary, informs us that these spatulae were of all shapes and sizes, to suit for a variety of purposes. I need scarcely remark that a female catheter is the instrument recommended in modern works for this purpose. As explained by Galen, any instrument used on the occasion is for the purpose of acting as a lever in raising a depressed part of bone.

not to the fore part of the nose, but to the depressed portion, and the physician is to take hold of the nose externally on both sides, and at the same time raise it up. And if the fracture be much in the fore part one may introduce into the nostrils as already stated, either caddis scraped from a linen towel, or something such wrapped up in a piece of cloth, or rather stitched in Carthaginian leather, and moulded into a shape suitable to the place into which it is to be introduced. But if the fracture be at a greater distance, it is not possible to introduce anything within, for if it was irksome to bear anything of the kind in the fore part, how is it not to be so when introduced farther in?¹ At first, then, by rectifying the parts from within, and sparing no pains upon them from without, they are to be brought to their natural position, and set. A fractured nose may be readily restored to shape, especially on the day of the accident, or even a little later, but the physicians act irresolutely, and touch it more delicately at first than they should; for the fingers should be applied on both sides along the natural line of the nose, and it is to be pushed downwards, and thus, with pressure from within, the displacement is to be rectified. But for these purposes no physician is equal to the index-fingers of the patient himself, if he will pay attention and has resolution, for they are the most natural means. Either of the fingers is to be placed firmly along the whole nose, and thus it is to be gently held, and steadily, if possible, until it become firm, but if not, he himself is to hold it for as long a time as possible, in the manner described; or if he cannot, a child or woman should do it, for the hands ought to be soft. Thus may a fracture of the nose, attended with depression, and not with displacement to the side, but in a straight line, be most properly treated. I have never seen a case of fractured nose which could not be rectified when attempted, before callus is formed, provided the treatment be properly applied. But although men would give a great price

¹ I may mention that most modern authorities disapprove of introducing any substances into the nostrils to support the broken bone, as fancying that they are a source of irritation, and that they are not required. See Bell's Operative Surgery, vol. ii, p. 222. Chelius admits them only in cases in which the broken ends are again displaced. (Surgery, vol. i, p. 527.) Like our author, he disapproves of bandages. On the caddis, see the note on the Moehlicus.

to escape being deformed, yet at the same time they do not know how to take care, nor have resolution, if they do not experience pain, nor fear death, although the formation of callus in the nose speedily takes place, for the part is consolidated in ten days, provided sphacelus do not take place.

38. When the fractured bone is displaced laterally, the treatment is the same, but it is obvious that the reduction is to be made, not by applying equal force on both sides, but by pushing the displaced portion into its natural position, and pressing on it from without, and introducing something into the nostrils, and boldly rectifying the fragments which incline inwards, until the whole be properly adjusted, well knowing that if you do not restore the parts at once, it is impossible but that the nose must be distorted. But when you restore the parts to their natural position, either the patient himself, or some other person, is to apply one finger or more to the part which protrudes, and keep it in position until the fracture be consolidated; but the little finger is, from time to time, to be pushed into the nostril, to rectify the parts which incline inwards. When any inflammation supervenes, dough must be used, but attention must still be equally paid to the application of the fingers, although the dough be on the part. But if the fracture be in the cartilage, with lateral displacement, the end of the nose must necessarily be distorted. In such cases some of the aforementioned means of reduction, or whatever suits, is to be introduced into the nostril; but there are many convenient things to be found which have no smell, and are appropriate in other respects; thus, on one occasion, I introduced a slice of sheep's lung, as it happened to be at hand; for sponges, if introduced, imbibed humidities. Then the outer skin of Carthaginian leather is to be taken, and a piece of the size of the thumb, or what will answer, is to be cut off and glued to the outside of the nostril which is turned aside, and then this piece of thong is to be stretched to the proper degree, or rather a little more than what will be sufficient to make the nose straight and regular.¹ Then (for the thong

¹ The use of the piece of skin in bandaging a fractured nose is adverted to by Paulus Ægineta; but, he says, it was not much approved of by recent authorities in his time. (B. VI, 92, Syd. Soc. edit.) See the authorities there quoted. Celsus describes the mode of treatment recommended by Hippocrates in the following terms:—

must be long) it is to be brought below the ear and round the head, and the end of the thong may either be glued to the forehead, or a still longer one may be carried all round the head, and secured. This is a natural mode of setting the nose, is of easy application, and is calculated to enable the counter-extension on the nose to be made greater or less, as you may incline. In a case where the fractured nose is turned to the side, the treatment is to be conducted otherwise, as already described; and in most of them the thong ought to be glued to the end of the nose, in order to make extension in the opposite direction.

39. When the fracture is complicated with a wound, one need not be troubled on that account, but pitch-cerate or any of the applications for fresh wounds is to be applied to the sores; for, in general, they admit of easy cure, even when there is reason to apprehend that pieces of bone will come out. The parts, at first, are to be adjusted fearlessly, taking care that nothing is omitted, and, subsequently, they are also to be adjusted with the fingers; more softly, indeed, but still it must be done; and of all parts of the body the nose is modelled with the greatest ease. And there is nothing to prevent us from having recourse to the practice of gluing on the thongs, and drawing the nose to the opposite side, even if there be a wound or the parts be inflamed, for these thongs give no pain.

40. In fractures of the ear all sorts of bandages do harm.¹ For one would not think of applying it quite loose, and if applied more tightly, it only does the more harm, for even the sound ear, when confined with a bandage, becomes painful,

“Extrinsecus autem circumdanda habena est mollis, medio illita mistis inter se similia et thuris fuligine, eaque ultra aures ducenda, et fronti duobus capitibus agglutinanda est. Id enim corpori quasi gluten inhaerescit, et cum induruit, nares commode continet.” viii, 5.

¹ I have stated under a former head, that fractures of the nose and ears were very common in ancient times, as the necessary results of the boxing-matches with the formidable cestus. It consisted of thongs of leather studded with large iron nails, with which the hands of the boxers were firmly bound. That the combat with the cestus was a favorite *amusement* of the ancients, is obvious from its being described by their greatest and most popular poets; for example, by Homer, Apollonius Rhodius, Theocritus, Virgil, and Valerius Flaccus. Indeed this may be said to have been one of the *loci communes* of the ancient poets. That a blow about the ears was reckoned

throbs, and gets into a febrile state. With regard to cataplasms, the heaviest, on the whole, are the worst; but almost all kinds are bad, form abscesses, occasion an increase of humours, and afterwards troublesome suppurations; and a fractured ear stands in less need of such applications than any other part; the most ready, if required, is the paste of meal, but neither should it have weight. It should touch as little as possible; for it is a good remedy sometimes to apply nothing at all, both to the ear and to many other cases. Attention must be paid to the patient's position during sleep. And the body must be reduced, more especially if there be danger lest the ear suppurate; it will also be better to open the bowels, and if the patient can be readily made to vomit, this may be accomplished by means of the *syrmaïsm*.¹ If the part come to suppuration, it should not be hastily opened; for often when matter appears to be formed it is absorbed again, even when no cataplasm is applied. But if forced to open it, the part will get soonest well if transfixed with a cautery, and yet it should be well understood that the ear gets maimed, and is less than the other if burned through. If not burnt through, an incision, and not a very small one, should be made on the upper side; for the pus is found to be surrounded with a thicker covering than one would have supposed; and it may be said, in general, that all parts of a mucous nature and which form mucus, as being all viscid, when touched, slip from below the fingers to either side; and a master-stroke is evident from Theocritus's description, who represents Amycus, when he appears in the *ring* with Pollux, as being

Δεινὸς ἰδεῖν, σκληραῖσι τεθλασμένος ὄνατα πρυγαῖς. (Idyll. 22.)

And Apollonius Rhodius describes Amycus as having received the fatal stroke at last in the same region :

Κόψε μετάγδην ὑπὲρ ὄνατος ὅσπερ ἔ' ἔισω
 'Ρῆξεν ὁ ἔ' ἄμ' ἐλόντῃ γυνῆξ ἤριπεν' οἱ δ' ἰάχισαν
 "Ἡρώες Μινύαι' τοῦ ἔ' ἀθρόος ἔκχρητο Σερμός. (Argonaut. ii, 95.)

Plato makes allusion in his *Gorgias* to persons with fractured ears, from the *sports* of the palestra.

¹ By *syrmaïsm* was meant the process of producing vomiting by loading the stomach with heavy things, such as honey and strong hydromel, along with radishes and the bulbous roots of the narcissus, when these were found necessary. The subject is fully discussed in the *Commentary on PAULUS ÆGINETA*, B. 1, 42. One may further consult the editors of *Erotian*, as given in the edition of his works by *Frantzius*, under ἀπὸ σπρυγαῖσμοῦ. All their learned discussions, however, amount to no more than what we have given above in few words.

on that account the physician, in such cases, finds that he has to pass his instrument through a thicker substance than he supposed; and in certain ganglionic cases, when the skin is flabby and mucous, many physicians open them, expecting to find a collection in them; here the physician forms a wrong judgment, but by such a procedure no great harm results to the patient from having had the part opened. But with regard to watery parts, and such as are filled with mucus, and which are situated in regions where every one of the parts, if opened, will occasion death or some other injury, these will be treated of in another work. When, therefore, incision is made in the ear, all sorts of cataplasms and pledgets should be avoided, and it is to be treated either with applications for recent wounds, or anything else which is neither heavy nor will occasion pain, for if the cartilage be laid bare and abscesses form, the case will be troublesome;¹ this happens from such modes of treatment. In all aggravated cases, the most effectual remedy is the transfixing of the part with a hot iron.

41.² The vertebræ of the spine when contracted into a hump behind from disease, for the most part cannot be remedied, more especially when the gibbosity is above the attachment of the diaphragm to the spine. Certain of those below the diaphragm are carried off by varices in the legs, more especially by such as occur in the vein at the ham; and in those cases where the gibbosities are removed, the varices take place also in the groin; and some have been carried off by a dysentery when it becomes chronic.³ And when the gibbosity occurs in youth before the

¹ M. Littré certainly improves the text in this place. See the *Lectiones variantes*.

² In addition to his Commentary, Galen gives many important remarks on the paragraph relating to curvatures of the spine in his work, *De Locis Affectis* (iv, 6). As he remarks, Hippocrates divides curvatures of the spine into gibbosity or the posterior projection, the anterior projection, and the lateral curvature. His terms *cyphosis*, *lordosis*, and *scoliosis*, are adopted by modern authorities, as, for example, Chelius. It is proper to remark that our author, however, does not restrict *scoliosis* to lateral curvature, but sometimes applies it indiscriminately to the others.

³ It does not appear clear what has led our author to consider varices in the lower extremities as being a natural cure of curvature of the spine. Perhaps his opinion had originated in observing that the compression of the veins at the top of the thigh had given rise to enlargement of the veins below. Those cases in which the disease is said to be carried off by dysentery were, no doubt, of a rheumatic nature, and not connected with organic disease of the vertebræ. Galen, in his Commentary, refers the cure to metastasis of the morbid humours to the veins, in the one case, and to the intestinal canal in the other.

body has attained its full growth, in these cases the body does not usually grow along the spine, but the legs and the arms are fully developed, whilst the parts (about the back) are arrested in their development. And in those cases where the gibbosity is above the diaphragm, the ribs do not usually expand properly in width, but forwards, and the chest becomes sharp-pointed and not broad, and they become affected with difficulty of breathing and hoarseness; for the cavities which inspire and expire the breath do not attain their proper capacity. And they are under the necessity of keeping the neck bent forwards at the great vertebra,¹ in order that their head may not hang downwards; this, therefore, occasions great contraction of the pharynx by its inclination inwards; for, even in those who are erect in stature, dyspnœa is induced by this bone inclining inwards, until it be restored to its place. From this frame of body, such persons appear to have more prominent necks than persons in good health, and they generally have hard and unconcocted tubercles in the lungs,² for the gibbosity and the distension are produced mostly by such tubercles, with which the neighbouring nerves communicate. When the gibbosity is below the diaphragm, in some of these cases nephritic diseases and affections of the bladder supervene, but abscesses of a chronic nature, and difficult to cure, occur in the loins and groins, and neither of these carries off the gibbosity;³ and in these cases the hips are more emaciated than when the gibbosity is seated higher up; but the whole spine is more elongated in them than in those who have the gibbosity seated higher up, the hair of the pubes and chin is of slower growth and less developed, and they are less capable of generation than those who have the gibbosity higher up.⁴ When the gibbosity seizes persons who have already attained their full growth, it usually occasions a

¹ By the great vertebra, in this place, our author appears to mean the second, or *vertebra dentata*. See Galen's Commentary.

² Galen shrewdly remarks, that when the curvature is high up in the spine, the evacuation of matter usually takes place in the lungs.

³ The reader will readily remark that psoas and lumbar abscesses are here described. It is well known that, as represented by our author, these cases are of a very intractable nature.

⁴ Galen ascribes these symptoms to sympathy with the spine. This may naturally be supposed to vary according to the seat of the disease in the vertebral column.

crisis of the then existing disease, but in the course of time some of them attack, as in the case of younger persons, to a greater or less degree; but, for the most part, all these diseases are less malignant. And yet many have borne the affection well, and have enjoyed good health until old age, more especially those persons whose body is inclined to be plump and fat; and a few of them have lived to beyond sixty years of age, but the most of them are more short-lived. In some cases the curvature of the spine is lateral, that is to say, either to the one side or the other; the most of such cases are connected with tubercles (*abscesses*?) within the spine; and in some, the positions in which they have been accustomed to lie co-operate with the disease.¹ But these will be treated of among the chronic affections of the lungs;² for these the most suitable prognostics of what will happen in these cases are given.

42. When the spine protrudes backwards, in consequence of a fall, it seldom happens that one succeeds in straightening it. Wherefore succussion on a ladder has never straightened anybody, as far as I know, but it is principally practised by those physicians who seek to astonish the mob—for to such persons these things appear wonderful, for example, if they see a man suspended or thrown down, or the like; and they always extol such practices, and never give themselves any concern whatever may result from the experiment, whether bad or good. But the physicians who follow such practices, as far as I have known them, are all stupid. The device, however, is an old one, and I give great praise to him who first invented this, and any other mechanical contrivance which is according to nature. For neither would I despair, but that if succussion were properly gone about, the spine, in certain cases, might be thereby rectified. But, indeed, for my own part, I have been ashamed to treat all such cases in this way,

¹ It is now well ascertained that position and habit have much to do with the formation of lateral curvature of the spine. See Hare on Spinal Disease (c. iv), and Chelius (vol. ii, p. 160). Zint, in particular, maintains strongly that position in bed is the main cause of lateral curvature of the spine. See British and Foreign Medical Review, vol. xix, p. 370.

² Galen, in his Commentary, states that this portion of the work, if ever written, had not been preserved; but that this disease is treated of in the work, On the Affections, and in the work, On Diseases. He does not add whether he regards these as genuine or not.

because such modes of procedure are generally practised by charlatans.

43. Those cases in which the gibbosity is near the neck, are less likely to be benefited by these succussions with the head downwards, for the weight of the head, and tops of the shoulders, when allowed to hang down, is but small; and such cases are more likely to be made straight by succussion applied with the feet hanging down, since the inclination downwards is greater in this way. When the hump is lower down, it is more likely in this case that succussion with the head downwards should do good. If one, then, should think of trying succussion, it may be applied in the following manner:—The ladder is to be padded with leather or lincn cushions, laid across, and well secured to one another, to a somewhat greater extent, both in length and breadth, than the space which the man's body will occupy; he is then to be laid on the ladder upon his back, and the feet, at the ankles, are to be fastened, at no great distance from one another, to the ladder, with some firm but soft band; and he is further to be secured, in like manner, both above and below the knee, and also at the nates; and at the groins and chest loose shawls are to be put round in such a fashion as not to interfere with the effect of the succussion; and his arms are to be fastened along his sides to his own body, and not to the ladder. When you have arranged these matters thus, you must hoist up the ladder, either to a high tower or to the gable-end of a house; but the place where you make the succussion should be firm, and those who perform the extension should be well instructed, so that they may let go their hold equally to the same extent, and suddenly, and that the ladder may neither tumble to the ground on either side, nor they themselves fall forwards. But, if the ladder be let go from a tower, or the mast of a ship, fastened into the ground with its cordage, it will be still better, so that the ropes run upon a pulley or axle-tree. But it is disagreeable even to enlarge upon these matters; and yet, by the contrivances now described, the proper succussion may be made.¹

¹ The description of succussion upon a ladder, here given, is remarkably lucid, especially when compared with a proper drawing, as given by Vidus Vidius in the Venet edition of the works of Galen. A copy of V. Vidius's drawing is given among Plates at the end of this volume.

44. But if the hump be situated very high up, and if succussion be by all means to be used, it will be better to do it with the feet downwards, as has been said, for the force downwards will be the greater in this case. The patient is to be well fastened to the ladder by cords at the breast, at the neck by means of a very loose shawl so as merely to keep the part properly on the ladder, and the head is to be fastened to the ladder at the forehead, the arms are to be stretched along and attached to the patient's body, and not to the ladder, and the rest of the body is not to be bound, except so as to keep it in place by means of a loose shawl wrapped round it and the ladder; attention, moreover, should be paid that these ligatures do not interfere with the force of the succussion, and the legs are not to be fastened to the ladder, but should be placed near one another, so as to be in line with the spine. These matters should be thus arranged, if recourse is to be had at all to succussion on a ladder; for it is disgraceful in every art, and more especially in medicine, after much trouble, much display, and much talk, to do no good after all.

45. In the first place, the structure of the spine should be known, for this knowledge is requisite in many diseases.¹ Wherefore, on the side turned to the belly (*the anterior?*) the vertebræ are in a regular line, and are united together by a pulpy and nervous band of connexion, originating from the cartilages, and extending to the spinal marrow.² There are certain other nervous cords which decussate, are attached (*to the vertebræ?*), and are extended from both sides of them.³ But we will describe in another work the connexions of the veins and arteries, their numbers, their qualities, their origins, their functional offices in particular parts, in what sort of sheaths the spinal marrow is inclosed, where they arise, where they

¹ Galen, in his Commentary on this passage, inveighs against the Empirics, who claimed Hippocrates as belonging to their sect, while in truth he avails himself on all proper occasions of logic, and, as in the present occasion, of anatomy, to the study of which he was much devoted.

² By this description is meant, apparently, the intervertebral substance, which is of a fibro-cartilaginous nature, and retains all the vertebræ together.

³ Galen, in his Commentary, understands by "nervous cords" the spinal nerves. M. Littré, however, understands by them the anterior common ligament and the posterior common ligament.

terminate, how they communicate, and what their uses.¹ On the opposite side (*behind?*) the vertebræ are connected together by a ginglymoid articulation. Common cords (*nerves?*) are extended to all parts, both those within and without.² There is an osseous process from the posterior part of all and each of the vertebræ, whether greater or smaller; and upon these processes there are cartilaginous epiphyses, and from them arise nervous productions (*ligaments?*), akin to the external nerves (*τόνοι*).³ The ribs are united to them, having their heads inclining rather to the inside than the out, and every one of them is articulated with the vertebræ; and the ribs in man are very curved, and, as it were, arched.⁴ The space between the ribs and the processes of the vertebra is filled on both sides by muscles, which arise from the neck and extend to the loins. (?)⁵ The spine, longitudinally, is a straight line slightly curved; from the os sacrum to the great vertebra which is connected with the articulation of the femur, the spine inclines backward, for the bladder, the organs of generation, and the loose portion of the rectum, are situated there.⁶ From this, to the attachment of the diaphragm, the spine inclines inwards, and this portion alone, from the internal parts, gives origin to muscles, which are called *ψυα*.

¹ It will be remarked, from this passage, that our author had devoted an especial work to anatomy. How singular, after all this, that he should have been represented as being both ignorant and regardless of anatomical science!

² Rufius Ephesius divides the nerves into classes, as follows: *Νεῖρα μὲν, τὰ μὲν ἀπ' ἐγκεφάλου καὶ ῥωτιαίου, πρακτικὰ καὶ ἀσθητικὰ, καὶ προαιρετικὰ, καὶ τόνοι.* (De Part. Homin.) He makes a distinction, then, between the nerves of election (*voluntary motion?*) and the *τόνοι*. Galen, however, in his Commentary, rather inclines to the opinion that they are the same.

³ Some parts of this description are obscure, and unfortunately the Commentary of Galen is imperfect.

⁴ According to Galen, the ribs in man are more curved than in any other animal, and next to man those of the monkey. The reading in the latter clause of this sentence is in a very unsettled state. See Galen, Littré, and Foës.

⁵ Galen finds considerable difficulty in reconciling this description with the actual appearances on dissection. As far as I can see, after weighing the remarks of Galen and Littré, the description applies to the muscles of the back, which run along the spine.

⁶ By the great vertebra would seem to be meant the fifth lumbar vertebra. See Galen's Commentary, and Littré's note on this passage. Mention is made of it also in the Moellicus. On other matters connected with this sentence, the philological reader may find it interesting to consult Erotian, under *γωνή*, in the edition of Frantzius.

From this to the great vertebra (*seventh cervical?*) which is above the tops of the shoulders, it is convex behind lengthways; but it is more in appearance than it really is, for the spinous processes are highest in the middle, and less so above and below.¹ The region of the neck is convex before.

46. In cases of displacement backward along the vertebrae, it does not often happen, in fact, it is very rare, that one or more vertebrae are torn from one another and displaced. For such injuries do not readily occur, as the spine could not easily be displaced backwards but by a severe injury on the fore part through the belly² (which would prove fatal), or if a person falling from a height should pitch on the nates, or shoulders (and even in this case he would die, but not immediately); and it also would not readily happen that such a displacement could take place forwards, unless some very heavy weight should fall upon it behind; for each of the posterior spinal processes is so constructed, that it would sooner be broken than undergo any great inclination forwards from a force which would have to overcome the ligaments and the articulations mutually connecting them. And the spinal marrow would suffer, if from the displacement of a vertebra it were to be bent even to a small extent; for the displaced vertebra would compress the spinal marrow, if it did not break it; and if compressed and strangled, it would induce insensibility of many great and important parts, so that the physician need not give himself any concern about rectifying the displacement of the vertebra, accompanied, as it is, by many other ill consequences of a serious nature. It is evident, then, that such a case could not be reduced either by succussion or by any other method, unless one were to cut open the patient, and then, having introduced the hand into one of the great cavities, were to push outwards from within, which one might do on the dead body, but not at all on the living.³ Wherefore, then, do I write all this? Because certain persons fancy that they have cured patients in

¹ The great vertebra above the tops of the shoulders can mean only the seventh cervical vertebra.

² The term *belly* (*κοιλίη*) is applied by our author both to the thoracic and abdominal cavity. See Erotian, *in voce κοιλίη*; and Th. Bartholinus, *Anatom. ii.*

³ From the manner in which our author here expresses himself, it must be pretty obvious that he had no repugnance to human dissection.

whom the vertebra had undergone complete dislocation forwards. Some, indeed, suppose that this is the easiest of all these dislocations to be recovered from, and that such cases do not stand in need of reduction, but get well spontaneously. Many are ignorant, and profit by their ignorance, for they obtain credit from those about them. These are deceived in this way, for they suppose the spinous processes to be the vertebræ themselves, because every one of them appears round to the touch, not knowing that these bones are processes from the vertebræ, as formerly stated; but the vertebræ are at a considerable distance before them; for of all animals, man, in proportion to his bulk, has the belly (*internal cavity?*) the narrowest from behind to before, especially at the breast. When, therefore, any of these processes are severely fractured, whether one or more, the part there appears lower than on either side, and for that reason they are deceived, supposing that the vertebræ are displaced inwards. And the attitudes of the patient contribute also to deceive them; for if they attempt to put themselves into a bent position, they are pained, from the skin being stretched at the seat of the injury, and at the same time the fragments of the bones wound the skin still more; but if they bend forwards, they feel easier, for the skin at the wound is thus relaxed, and the bones are less disposed to hurt them; and if touched, they shrink and bend forwards, and the part which is touched appears empty and soft. All the circumstances now mentioned contribute to deceive the physician. Such patients speedily get well without any bad effects, for callus readily forms in all such bones as are porous.¹

17. There are many varieties of curvature of the spine even in persons who are in good health; for it takes place from natural conformation and from habit, and the spine is liable to be bent from old age, and from pains. Gibbosities (*or* projections backwards) from falls generally take place when one

¹ It is singular that recent authorities are divided in opinion respecting the comparative frequency of fracture of the spinous processes, and of the body of the vertebræ. Thus Chelius, like Hippocrates, holds that the spinous processes are most subject to fracture; while his English editor, Mr. South, maintains, on the other hand, that fracture of the processes alone is of much less frequency than fracture of the body of the vertebræ. I have seen both, but cannot pretend to decide as to their comparative frequency.

itches on the nates, or falls on the shoulders. In this case some one of the vertebræ must necessarily appear higher than natural, and those on either side to a less degree; but yet no one generally has started out of the line of the others, but every one has yielded a little, so that a considerable extent of them is curved. On this account the spinal marrow easily bears such distortions, because they are of a circular shape, and not angular. The apparatus for the reduction in this case must be managed in the following manner:¹ a strong and broad board, having an oblong furrow in it, is to be fastened in the ground, or, in place of the board, we may scoop out an oblong furrow in the wall, about a cubit above the floor, or at any suitable height, and then something like an oaken bench, of a quadrangular shape, is to be laid along (the wall?) at a distance from the wall, which will admit of persons to pass round if necessary, and the bench is to be covered with robes, or anything else which is soft, but does not yield much; and the patient is to be stoved with vapour, if necessary, or bathed with much hot water, and then he is to be stretched along the board on his face, with his arms laid along and bound to his body; the middle, then, of a thong which is soft, sufficiently broad and long, and composed of two cross straps of leather, is to be twice carried along the middle of the patient's breast, as near the armpits as possible, then what is over of the thongs at the armpits is to be carried round the shoulders, and afterwards the ends of the thong are to be fastened to a piece of wood resembling a pestle; they are to be adapted to the length of the bench laid below the patient, and so that the pestle-like piece of wood resting against this bench may make extension. Another such band is to be applied above the knees and the ankles, and the ends of the thongs fastened to a similar piece of wood; and another thong, broad, soft, and strong, in the form of a swathe, having breadth and length sufficient, is to be bound tightly round the loins, as near the hips as possible; and then what remains of this swathe-like thong, with the ends of the thongs, must be fastened to the piece of wood placed at the patient's feet, and extension in this fashion is to be made upwards and downwards, equally and

¹ The description here given of the process of applying extension and counter-extension to the spine is remarkably clear, and easily understood when illustrated by a proper drawing. See Vidus Viduus and Littre; also PAULUS ÆGINETA, B. VI, 117.

at the same time, in a straight line. For extension thus made could do no harm, if properly performed, unless one sought to do mischief purposely. But the physician, or some person who is strong, and not uninstructed, should apply the palm of one hand to the hump, and then, having laid the other hand upon the former, he should make pressure, attending whether this force should be applied directly downwards, or towards the head, or towards the hips. This method of applying force is particularly safe; and it is also safe for a person to sit upon the hump while extension is made, and raising himself up, to let himself fall down again upon the patient. And there is nothing to prevent a person from placing a foot on the hump, and supporting his weight on it, and making gentle pressure; one of the men who is practised in the palestra would be a proper person for doing this in a suitable manner. But the most powerful of the mechanical means is this: if the hole in the wall, or in the piece of wood fastened into the ground, be made as much below the man's back as may be judged proper, and if a board, made of lime-tree, or any other wood, and not too narrow, be put into the hole, then a rag, folded several times or a small leather cushion, should be laid on the hump; nothing large, however, should be laid on the back, but just as much as may prevent the board from giving unnecessary pain by its hardness; but the hump should be as much as possible on a line with the hole made in the wall, so that the board introduced into it may make pressure more especially at that spot. When matters are thus adjusted, one person, or two if necessary, must press down the end of the board, whilst others at the same time make extension and counter-extension along the body, as formerly described. Extension may also be made with axles, which may either be fastened in the ground beside the bench, or the post of the axles may be attached to the bench itself, if you will make them perpendicular and overtopping (*the bench?*) a little at both ends, or at either end of the bench. These powers are easily regulated, so as to be made stronger or weaker, and they are of such force, that if one were to have recourse to them for a mischievous purpose, and not as a remedy, they would operate strongly in this way also; for by making merely extension and counter-extension longitudinally, without any additional force, one might make sufficient extension; and if, without making

extension at all, one were only to press down properly with the board, sufficient force might be applied in this way. Such powers, then, are excellent which admit of being so regulated, that they can be made weaker and stronger as required. And the forces are applied in the natural way; for the pressure above forces the displaced parts into their place. Natural extension restores parts which have come too near one another to their natural position. I, then, am acquainted with no powers which are better or more appropriate than these; for extension along the spine downwards has no proper hold at the bone called the os sacrum; and extension upwards, along the neck and head, has indeed a hold; but extension thus made is unseemly to behold, and, besides, if increased, may occasion much mischief otherwise. I once made trial of the following plan. Having placed the patient on his back, I put below the hump a bladder, not inflated, and afterwards introduced air into the bladder by means of a brass pipe connected with it. But the experiment did not succeed; for, when the man was fairly extended, the bladder yielded, and the air could not be forced into it; and, besides, the hump of the patient was apt to slip off the distended bladder when they were pressed together. But when I did not extend the man strongly, the bladder was swelled up by the air, and the man became more bent forward than proper. I have written this expressly; for it is a valuable piece of knowledge to learn what things have been tried and have proved ineffectual, and wherefore they did not succeed.¹

48. In curvatures forwards of the vertebræ from a fall, or from some heavy body falling upon them, in general no one of them is displaced far beyond the others, but if one or more be so displaced, the case proves fatal; but, as formerly stated, the displacement is circular, and not angular. In such cases, then, the urine and fæces are more apt to be retained than in displacement outwards, the feet and the whole inferior extremities are colder, and the symptoms are more fatal than in the former

¹ This is another example of our author's great candour in proclaiming his own mistakes for the benefit of posterity. It puts one in mind of our Sydenham's *naive* admission in his treatise on Dropsy, that he, on one occasion, fairly committed himself by adhering too exclusively to the *Rhamnus catharticus* in the cure of that disease.

case; and if they do survive, they are more subject to retention of the urine, and to loss of strength, and to torpor in their legs. But if the displacement be in the upper part, they experience loss of strength and torpor of the whole body. I know no mechanical contrivance by which such a displacement could be reduced, unless that one might be benefited by succussion on a ladder, or any other similar plan of treatment, such as extension, as formerly described. I am not aware of any mode of pressure which might be applied along with the extension, like that of the board in displacement backwards; for how could one apply pressure from before through the belly? (*internal cavity?*) The thing is impossible. But neither coughing nor sneezing has any power so as to cooperate with the extension, nor would the injection of air into the bowels have any effect. And to apply large cupping-instruments, with the view of drawing back the vertebræ which have protruded forwards, shows a great error of judgment; for they rather propel than attract, and those who apply them are not aware even of this fact, for the greater will be the inclination forwards the greater the instrument applied, the skin being forcibly drawn into the cupping-instrument. I could tell of other modes of succussion than those formerly described, which one might fancy would be more applicable in such an affection; but I have no great confidence in them, and therefore I do not describe them. On the main, it should be known, respecting the accidents which I have briefly described, that displacements forwards are of a fatal and injurious nature; but that displacements backwards, for the most part, do not prove fatal, nor occasion retention of urine nor torpor of the limbs, for they do not stretch the ducts leading towards the intestines, nor occasion obstruction of the same; but displacements forwards produce both these bad effects, and many others in addition. And truly they are more apt to lose the power of their legs and arms, to have torpor of the body, and retention of urine, who experience no displacement either forwards or backwards, but merely a violent concussion along the spine, while those who have displacement backwards are least subject to these symptoms.¹

¹ The subject of dislocations of the vertebræ is still obscure, notwithstanding the labours of recent authorities in illustration of it. See in particular the surgical works

49.¹ And one might observe many other instances in medicine, of considerable injuries not proving serious, but producing a crisis in some affection, while less considerable injuries prove more serious, give rise to chronic diseases, and extend their effects to the whole system. Now something similar may happen in fracture of the ribs; for in fracture of one or more ribs, in general, if the fractured bones are not driven inwards, nor are laid bare, fever rarely supervenes, neither does it often happen that there is hæmoptysis, empyema, any suppurating sores, which require treatment with pledgets, nor necrosis of the bones; and in these cases the ordinary regimen is sufficient. For, unless they be seized with continual fever, a strict diet does more harm than good, by inducing inanition, and increasing the pain, fever, and cough; for moderate fulness of the intestines has a tendency to replace the ribs, while evacuation leads to suspension of the ribs, and suspension induces pain. Ordinary bandaging, externally, is sufficient in such cases; the bandages should be applied moderately tight, along with cerate and compresses, or a pad of wool may be applied. The rib is consolidated in twenty days, for callus soon forms in such bones.

50. But when there is contusion of the flesh about the ribs, either from a blow, or a fall, or a bruise, or any like cause, there is often copious vomiting of blood, for there are canals stretched along the vacuity of each rib (*intercostal space*?), and nerves proceeding from the most important parts of the body have their origin there.² Many of these, therefore, are troubled with coughs, tubercles, empyema, external suppurations, and sphacelus of the ribs. And even when no such symptoms

of Mr. Samuel Cooper, Sir Charles Bell, and Chelius. It will be remarked that our author still sticks to his favorite opinion, that fractures of bones in all parts of the body are less formidable than contusions.

¹ Our author now enters upon the treatment of injuries of the chest; and here again the professional reader will be struck with the similarity of his views respecting them to those laid down by him on the subject of injuries of the head. Thus severe contusions of the chest are held to be more dangerous than fractures attended with displacement of the fractured portions of bone.

² By canals (*or passages*), Galen says our author meant arteries and veins. These, he adds, have their origin from "a most important part," namely, the heart; while the nerves (*τόνοι*) are derived from the corresponding part of the spinal marrow, and are further connected with another class of nerves derived from the brain.

supervene from contusion of the skin about the ribs, still in such cases there is, generally, more continued pain than in fractures of the ribs, and relapses of pain in the seat of the injury are more apt to occur. Wherefore some physicians pay much less attention to such injuries, than where the rib is fractured, whereas, if they were wise, they would treat such cases with far greater care than the other; for it is proper that the diet should be restricted, that the patients should remain at rest as much as possible, and abstain from venery, from fat articles of food, from such as excite cough, and from everything strong; they should be bled in the arm, speak as little as possible, should have the contused part bound round with folded compresses, plenty of bandages, broader than the contusion, and which should be smeared with cerate; in applying the bandages, broad and soft shawls should be used, and they should be put on moderately firm, so that the patient will say that they are neither too tight nor loose, and the bandaging should commence at the seat of the injury, and be made more particularly tight there, and the bandaging should be conducted as is done with a double-headed roller, so that the skin about the ribs may not be ruffled, but may lie smooth, and the bandaging should be renewed every day, or every alternate day. It is better also to open the bowels with some gentle medicine, so as just to produce an evacuation of the food, and the diet is to be restricted for ten days, and then the body is to be recruited and filled up; while you are upon the reducing system, the bandaging should be tighter, but when you are making him up again, it must be looser; and, if he spit blood from the commencement, the treatment and bandaging should be continued for forty days; but if there be no hæmoptysis, treatment for twenty days will generally be sufficient; but the length of time must be regulated by the magnitude of the injury. When such contusions are neglected, if no greater mischief result therefrom, at all events the bruised part has its flesh more pulpy than it had formerly.¹ When, therefore, any such thing is left behind, and is not properly dissipated by the treatment,

¹ The description here given of the swellings, both in the fleshy and solid parts of the chest, which are the usual consequences of a neglected injury, is so clear as not to require any elucidation. The treatment, I need scarcely add, is founded on most rational principles.

it will be worse if the mucosity be lodged near the bone, for the flesh no longer adheres to the bone as formerly, the bone becomes diseased, and chronic sloughings of the bone in many cases arise from such causes. But if the mischief be not upon the bone, but it is the flesh itself which is pulpy, relapses and pains will return from time to time, if there happen to be any disorder in the body; wherefore proper bandaging, and for a considerable time, must be had recourse to, until the extravasated blood forming in the bruise be dried up and absorbed, and the part be made up with sound flesh, and the flesh adhere to the bone. The best cure is the cautery in those cases which, from neglect, have become chronic, and the place turns painful, and the flesh is pulpy. And when the flesh itself is pulpy, the burning should be carried as far as the bone, but the bone itself should not be heated; but if it be in the intercostal space, you need not make the burning so superficial, only you must take care not to burn quite through. But if the contusion appear to be at the bone, if it be still recent, and the bone has not yet become necrosed, if it be very small, it is to be burnt as has been described; but if the rising along the bone be oblong, several eschars are to be burnt over it. Necrosis of the rib will be described along with the treatment of suppurating sores.

51. There are four modes of dislocation at the hip-joint: of which modes, dislocation inwards takes place most frequently, outwards, the most frequently of all the other modes;¹ and it sometimes takes place backwards and forwards, but seldom. When, therefore, dislocation takes place inwards, the leg appears longer than natural, when compared with the other leg, for two reasons truly; for the bone which articulates with the hip-joint

¹ It will be remarked that our author states that dislocation inwards is more frequent than any of the other modes of displacement, in which statement he is supported by Celsus, Paulus Ægineta, and most of the ancient authorities. This is at variance with the experience of Sir Astley Cooper, who found dislocation *upwards*, that is to say, upon the dorsum of the ilium, the most frequent of all. And here I must take an opportunity of correcting a mistake into which I perceive that I have fallen, in my Commentary on PAULUS ÆGINETA, B. VI, 118, where, through an oversight, I represent Hippocrates as holding that dislocation *outwards* is the most common of all. His language is so laconic, that I might be excused for having committed this mistake; but if I had read the commentaries of Galen and Apollonius carefully at the time, I should have seen my error. *Veram opere in longo fas est obrepere somnum!*

is carried from above down to the ischium where it rises up to the pubes, upon it, then, the head of the femur rests, and the neck of the femur is lodged in the cotyloid foramen (*foramen thyroideum*?).¹ The buttock appears hollow externally, from the head of the thigh-bone having shifted inwards, and the extremity of the femur at the knee is turned outwards, and the leg and foot in like manner. The foot then being turned outwards, physicians, from ignorance, bring the sound leg to it, and not it to the sound leg; on this account, the injured limb appears to be much longer than the sound one, and in many other cases similar circumstances lead to error in judgment. Neither does the limb at the groin admit of flexion as in the sound limb, and the head of the bone is felt at the perineum too prominent. These, then, are the symptoms attending dislocation of the thigh inwards.

52. When, then, a dislocation has not been reduced, but has been misunderstood or neglected, the leg, in walking, is rolled about as is the case with oxen, and the weight of the body is mostly supported on the sound leg,² and the limb at the flank, and the joint where the dislocation has occurred is necessarily hollow and bent, while on the sound side the buttock is necessarily rounded.³ For if one should walk with the foot of the

¹ Galen admits that, at first sight, there is a slight obscurity in this description; but he maintains that if any one will read the passage two or three times, he will not fail to apprehend the meaning. The two reasons for the lengthening of the limb resolve themselves very much into one, namely, that the head of the femur descends from a higher situation, and is lodged below on a bone. Perhaps, however, it may be held rather arbitrary to apply the term *κοτύλη* to the thyroid foramen. I know not, however, how to make sense of the passage otherwise, unless by a conjectural emendation. If instead of *ἐπὶ τῆς κοτύλης* we were permitted to read *ἀπὸ*, the meaning would obviously be, that "the neck of the femur is carried downward *from* the acetabulum." The interpretation which M. Littré gives does not at all satisfy me. It is as follows: "*ὁ ἀυχὴν ἐπὶ τῆς κοτύλης ὀχέεται*, e'est-à-dire, que le col est appuyé sur le rebord de la cavité cotyloïde, est retenu par ce rebord, et de la sorte maintient la tête dans la nouvelle position et l'empêche de remonter." But this interpretation does not appear to me consistent with the facts of the case; for the head of the femur is not fixed at the border of the acetabulum, nor, if it were, could the lengthening of the limb be thereby accounted for.

² I can state, from familiar acquaintance with a case of unreduced dislocation on the thyroid foramen, that this is a most correct description of the appearances which it presents. The increased length of the limb and the inflexibility of the limb at the groin are the strongly marked symptoms.

³ The meaning here is somewhat obscure, but I take it to be this: that in the

sound leg turned outwards, the weight of the body would be thrown upon the injured limb, but the injured limb could not carry it, for how could it? One, then, is forced in walking to turn the leg inwards, and not outwards, for thus the sound leg best supports its own half of the body, and also that of the injured side. But being hollow at the flank and the hip-joint, they appear small in stature, and are forced to rest on a staff at the side of the sound leg. For they require the support of a staff there, since the nates inclines to this side, and the weight of the body is carried to it. They are forced also to stoop, for they are obliged to rest the hand on the side of the thigh against the affected limb; for the limb which is injured cannot support the body in changing the legs, unless it be held when it is applied to the ground. They who have got an unreduced dislocation inwards are forced to put themselves into these attitudes, and this from no premeditation on their part how they should assume the easiest position, but the impediment itself teaches them to choose that which is most conformable to their present circumstances. For persons who have a sore on the foot or leg, and cannot rest upon the limb, all, even children, walk in this way; for they turn the injured limb outwards in walking, and they derive two advantages therefrom, to supply two wants; the weight of the body is not equally thrown upon the limb turned outwards, as upon the one turned inwards, for neither is the weight in a line with it, but is much more thrown upon the one under the body; for the weight is in a straight line with it, both in walking and in the shifting of the legs. In this position one can most quickly turn the sound limb under the body, by walking with the unsound limb outwards, and the sound inwards. In the case we are now treating of, it is well that the body finds out the attitudes which are the easiest for itself. Those persons, then, who have not attained their growth at the time when they met with a dislocation which is not reduced, become maimed in the thigh, the leg, and the foot, for neither do the bones grow properly, but become shortened, and especially the bone of the thigh; and the whole

lumbar region, and the region of the hip-joint, the parts are atrophied from want of the usual exercise (agreeably to a law which Hippocrates has frequently inculcated); whereas the same parts on the opposite side are unusually plump, as being subjected to extra work. Hippocrates frequently states this as a law in the animal economy.

limb is emaciated, loses its muscularity, and becomes enervated and thinner, both from the impediment at the joint, and because the patient cannot use the limb, as it does not lie in its natural position, for a certain amount of exercise will relieve excessive enervation, and it will remedy in so far the deficiency of growth in length. Those persons, then, are most maimed who have experienced the dislocation *in utero*, next those who have met with it in infancy, and least of all, those who are full grown.¹ The mode of walking adopted by adults has been already described; but those who are children when this accident befalls them, generally lose the erect position of the body, and crawl about miserably on the sound leg, supporting themselves with the hand of the sound side resting on the ground. Some, also, who had attained manhood before they met with this accident, have also lost the faculty of walking erect. Those who were children when they met with the accident, and have been properly instructed, stand erect upon the sound leg, but carry about a staff, which they apply under the armpit of the sound side, and some use a staff in both arms; the unsound limb they bear up, and the smaller the unsound limb, the greater facility have they in walking, and their sound leg is no less strong than when both are sound. The fleshy parts of the limb are enervated in all such cases, but those who have dislocation inwards are more subject to this loss of strength than, for the most part, those who have it outwards.

53. Some tell a story how the Amazonian women dislocate the joints of their male children while mere infants, some at the knee, and others at the hip-joint, that they may

¹ I cannot refrain from calling the attention of the reader to the fulness and completeness of our author's description in this place. Where else shall we find so much interesting and important information on this subject? Sir Astley Cooper was fond of exalting his discoveries in practical surgery by representing the profession as having been totally ignorant of dislocations at the hip-joint before his time; but it may be much doubted if even he was so well acquainted with the subject in all its bearings as Hippocrates in this place shows himself to have been. A good deal of interesting information on the subject of congenital dislocation at the hip-joint has been collected, however, since the death of Sir Astley Cooper, more especially by Poupuytren, R. Smith, and Chelius. The first of these has given a very circumstantial description of the appearances which the limbs present in a case of congenital dislocation. See his work, *On Injuries of the Bones*, lately reprinted by the Sydenham Society.

be maimed, and that the male sex may not conspire against the female, and that they use them as artisans to perform any sedentary work, such as that of a shoemaker or brazier.¹ Whether these things be true or not I do not know, but this I know, that matters would be such as is represented, provided their children, while infants, were to have their joints dislocated. The consequences of dislocation inwards at the hip-joint are much greater than of dislocation outwards at the hip-joint, but at the knee, although there be some difference, it is less; but the mode of either impediment is peculiar, their legs are more bandied when the dislocation is outwards, but those who have dislocation inwards stand erect on their feet with less freedom. In like manner, when the dislocation is at the ankle-joint, if outwards they become *vari* (*their toes are turned inwards?*), but they can stand; but if the dislocation be inwards they become *valgi* (*their toes are turned outwards?*), but they have less freedom of standing. The proportional growth of their bones is as follows: in those cases in which the bone of the leg is dislocated, the bones of the feet grow very little, as being very near the injury, but the bones of the leg increase in size, and with very little defect, but the fleshy parts (*muscles?*) are wasted. But when the ankle-joint is in its natural state, but the knee is dislocated, in these cases the bones of the leg do not grow in like manner, but become shortened, as being nearest the seat of the injury, and the bones of the feet also are atrophied, but not in the same proportion; because, as was said a little while ago, the ankle-joint is safe, and if they could use it, as in the case of club-foot, the bones of the foot would be still less atrophied. When the dislocation takes place at the hip-joint, the bone of the thigh, in this case, does not generally grow in like manner, as being the one nearest the seat of the injury, but becomes shorter than the sound one; but the growth of the bones of the leg is not arrested in like manner; nor of those of the feet, for this

¹ The myth of the Amazons is fully treated of in the Argument to the treatise On Airs, &c. In this place it will be remarked that our author declines giving an opinion whether he regarded the vulgar belief as being well founded or not. There seems no good reason, then, for holding, with Gruner, that the views maintained regarding this myth in these two treatises are totally different, and indicate a distinct authorship.

reason, that there is no displacement between the bones of the thigh and leg, nor between those of the leg and foot ; in those cases, however, the fleshy parts of the whole limb are atrophied ; but if they could make use of the limb, the growth of the bones would be still more developed, as formerly stated, only the thigh, although its flesh would be much less wasted, would still be by no means so fleshy as the sound limb. The following observations are a proof of this : those persons who are weasel-armed (*galiancones*) from birth, owing to dislocation of the humerus, or when the accident has happened to them before they have attained their full growth, such persons have the bone of the arm shortened, but those of the fore-arm and hand are little inferior in size to the sound, for the reasons which have been stated, because the humerus is the bone nearest to the joint affected, and, on that account, it is shorter than natural ; but the fore-arm is not equally affected by the accident, because the joint at which the bones of the arm and fore-arm are articulated remains in its natural condition, and the hand is still further distant than the fore-arm from the seat of the injury. Such are the reasons why certain of the bones in this case increase in growth, and certain do not. The laborious office of the hand contributes much to the development of the flesh in the fore-arm and hand, for whatever work is done by the hand, these weasel-armed persons strive to do no less effectually with the other hand than with the sound ; for the arms do not support the weight of the body like the legs, and the work performed by them is light. From exercise, then, the fleshy parts on the hand and fore-arm are not atrophied in weasel-armed persons, and by these means the arm, too, gains flesh. But in dislocation inwards at the hip-joint, whether from birth or from childhood, the fleshy parts, on that account, are much more atrophied than those of the hand, because the patients cannot exercise the leg. Another proof will be given in the observations which will be presently stated, that these things are such as I have represented.¹

54. When the head of the femur is dislocated outwards, the limb in these cases, when compared with the other, appears shortened, and this is natural, for the head of the femur no longer rests on a bone as in dislocation inwards, but along the

¹ See § 55.

side of a bone which naturally inclines to the side, and it is lodged in flesh of a pulpy and yielding nature, and on that account it appears more shortened. Inwardly, the thigh about the perineum appears more hollow and flabby, but externally the buttock is more rounded, from the head of the thigh having slipped outwards, but the nates appear to be raised up, owing to the flesh there having yielded to the head of the thigh-bone; but the extremity of the thigh-bone, at the knee, appears to be turned inwards, and the leg and foot in like manner, neither does it admit of flexion like the sound limb. These, then, are the symptoms of dislocation outwards.¹

55. When such a dislocation is not reduced in adults, the whole limb appears to be shortened, and in walking they cannot reach the ground with the heel, but they walk with the ball of the foot on the ground, and the points of their toes incline a little inwards. But the injured limb, in this case, can support the body much better than in dislocation inwards, both because the head of the femur and the neck of its articular extremity, being naturally oblique, have formed a bed under a considerable portion of the hip, and because the extremity of the foot is not forcibly turned outwards, but is nearly in a line with the body, and is even inclined more inwardly. When, then, the articular extremity of the femur has worn out a socket for itself in the flesh where it was lodged, and the flesh is lubricated, it ceases to be painful in the course of time, and when it becomes free from pain, they can walk without a staff, if so inclined, and they can support the body on the injured limb. From usage then, in such cases, the fleshy parts are less enervated than in those which have been mentioned a little before, still, however, they lose their strength more or less; but in general there is more enervation when the dislocation is inwards than when it is outwards. Some of them, then, cannot wear their shoes, owing to the unbending state of their leg, and some of them can. But when this dislocation takes place *in utero*, and when the dislocation having occurred at any time before manhood,

¹ The symptoms in this case are reported with a remarkable degree of accuracy. Celsus gives a very elegant version of this passage: "Si in exteriorem, brevius, varumque fit, et pes intus inclinatur; calx ingressu terram non contingit, sed planta ima; meliusque id erus superius corpus, quam in priore casu, fert, minusque baculo eget." (viii, 20.)

from violence, has not been replaced, or when from disease the articular extremity has started from its socket, and is displaced (for many such cases occur, and from some of them, if the femur become necrosed, obstinate suppurations requiring the use of tents are formed, and in certain of them the bone is laid bare), whether the bone become necrosed or not, the bone of the thigh is much shortened, and does not usually grow like the sound one, the bones, too, of the leg, become shorter than those of the other, but in a small degree, for the same reasons that were formerly stated; such persons can walk, some of them in the same fashion as adults having an unreduced dislocation, and some of them walk with the whole foot on the ground, but limp in walking, being obliged to do so by the shortness of the limb. Such is the result, even though they be carefully and properly trained in the attitudes before they have strength for walking, and in like manner also, after they have acquired the necessary strength; but those persons require the most care who were very young when they met with the accident, for, if neglected while children, the limb becomes entirely useless and atrophied. The fleshy parts of the entire limb are more wasted than those of the sound limb, but this is much less apt to happen in their case than in dislocations inwards, owing to usage and exercise, as they are speedily able to make use of the limb, as was stated a little before with regard to the weasel-armed (*galiancones*).¹

56. There are persons who, from birth or from disease, have dislocations outwards of both the thighs; in them, then, the bones are affected in like manner, but the fleshy parts in their case lose their strength less; the legs, too, are plump and fleshy, except that there is some little deficiency at the inside, and

¹ I would merely call the attention of the reader to this admirable account of the consequences resulting from an unreduced dislocation of the thigh backwards. Congenital dislocation, dislocation from disease, and dislocation from violence, all these modes are described, and their after-consequences most faithfully recorded. I may add, that none of the ancient commentators or authorities supply any additional information on this interesting subject. Indeed, after the lapse of twenty-four centuries, there is little to add to the observations of the Coan sage. The labours of Heine and Guerin have supplied, it is true, some new facts respecting the nature of congenital dislocation at the hip-joint; but, upon the whole, no one author of the present day, as far as I am aware, has given so complete a history of the displacements at the hip-joint as Hippocrates.

they are plump because they have the equal use of both their legs, for in walking they totter equally to this side and that.¹ Their nates appear very prominent, from the displacement of the bones of the joint. But if in their case the bones do not sphacelate (*become carious?*)² and if they do not become bent above the hip-joint, if nothing of this kind happen to them, they become otherwise sufficiently healthy, but the growth of all the rest of the body, with the exception of the head, is arrested.³

57. In dislocations of the head of the femur backwards, which rarely occur, the patient cannot extend the leg, either at the dislocated joint, or at the ham, to any extent, and of all the dislocations, this is the variety in which the patients have the least power of making extension at the groin and the ham. But, moreover, this also should be known (for it is a valuable piece of knowledge, and of much importance, and yet most people are ignorant of it), that persons in health cannot extend the joint at the ham, if they do not extend the joint at the groin at the same time, unless they raise the foot very high, for in this way they could do it; neither also could they bend the joint at the ham, but with much greater difficulty, if they do not bend the joint at the groin at the same time. There are many other things in the body which have similar connexions, both with regard to the contractions of nerves (*ligaments?*), and the positions of muscles, and many of them more worthy of being known than is generally supposed, and with regard to the nature of the intestine and that of the whole internal cavity, and with regard to the displacements and contractions of the uterus; but all these things will be treated of

¹ It is now well ascertained, that in a case of dislocation on both sides, the walking in the course of time improves very much. See Chelius, vol. i, p. 804.

² It will of course be readily understood, that our author here alludes to *morbus coxarius* in infancy and early life. Galen, in his Commentary, refers the disease to inflammation of the ligaments of the joint, and mentions that the disease occurs also at other joints, such as the elbow, knee, and fingers, and is followed by ankylosis in these parts.

³ The atrophy of all the rest of the body, with the exception of the head, is ascribed by Galen to sympathy of the spinal column with the inflammation at the hip-joint. He strongly calls attention to the remark, that when the spine is in anywise affected, the whole of the body, with the exception of the head, is less developed than it naturally is.

elsewhere, in a work akin to the present one. But with regard to the matter on hand, they cannot make extension, as has been already stated; and the limb appears shortened, for two reasons—first, because it cannot be extended, and also because the bone has slipped into the flesh of the nates; for the head and neck of the femur, in this dislocation, are carried downwards from their natural situation, to the outside of the nates.¹ But yet they can bend the limb, unless prevented by pain, and the leg and foot appear pretty straight, and not much inclined towards either side, but at the groin the flesh, when felt, appears looser, from the bone of the joint having slipped to the other side, but at the nates the head of the femur may be felt to be more prominent than natural. Such are the symptoms accompanying dislocation of the thigh backwards.²

¹ Notwithstanding the elaborate Commentary of Galen, there is some obscurity in this description. The natural meaning I take to be as expressed in the text. See the following note.

² This mode of dislocation is so rarely met with, that I am happy to have it in my power to give a satisfactory description of it, upon the authority of an eminent anatomist in London. See History of a Case of Dislocation of Head of the Femur backwards; with some Observations on that Form of Dislocation. By Richard Quain. Medical Gazette, No. 1077.

“The subject of the injury, a man aged 60, was killed by a fall from a ladder, the cause of death being extensive fracture through the base of the skull. Considerable deformity being observed in the right lower limb, the author was induced to make a careful examination of the extremity, with a view to detect the nature of the injury it had sustained. It was apparently, but not really, much shortened; it was also inverted, and separated from the sound leg. The trochanter major was altered in its relation to the iliac spine, and the depression behind it was wanting; the head of the femur could be felt towards the back of the pelvis. The limb could be flexed, but not rotated outwards. On removing the glutæus maximus, the head of the dislocated bone was exposed below the pyriform muscle, and immediately behind the acetabulum. . . . The practical inferences drawn by the author from the foregoing observations may be summed up as follows:—1st. In the ordinary form of dislocation backwards, the femur does not reach the sciatic notch. 2d. The head of the bone is lodged immediately behind the acetabulum, over the base of the ischiatic spine, and opposite to a small part of the sciatic foramina. 3d. The injury would be correctly named the dislocation of the head of the femur backwards. 4th. During the extension made to reduce this dislocation, the thigh is most advantageously directed across the pelvis, so that it shall form a right angle with the abdomen. At the same time the limb is to be in a state of abduction; the femur will thus be drawn away from the pelvis, forwards and outwards. The knee is to be bent, the extending force being fixed above the joint.” From the above description it will be remarked, that the following account of this form of dislocation given by Sir Astley Cooper, is

58. When this dislocation occurs in an adult, and is not reduced, he can walk, indeed, after a time, and when the pain has abated, and when he has been accustomed to rotate the articular bone in the flesh; he finds it necessary, however, to make strong flexion at the groin in walking, for two reasons, both because the limb, for the causes already stated, becomes much shorter, and he is far from touching the ground with his heel, and he can barely reach it with the ball of his foot, and not even thus, unless he bend himself at the groins, and also bend with the other leg at the ham. And in this case, he is under the necessity of supporting the upper part of the thigh with his hand at each step: this also contributes, in a certain degree, to make him bend the body at the groins; for, during the shifting of the feet in walking, the body cannot be supported on the unsound limb, unless it be pressed to the ground by the hand,—the end of the femur not being placed properly under the body, but having slipped backward to the nates; and if he should try to rest the weight of his body for a little, upon the foot, without any other support, he would fall backwards, for there would be a great inclination in this direction, from the hips having protruded backwards far beyond the line of the foot, and the spine inclining towards the hips. Such persons can walk, indeed, without a staff, if so accustomed, for because the sole of the foot is in its old line, and is not inclined outwards, they do not require anything to balance them. Such, however, as, instead of grasping the thigh, prefer resting their weight upon a staff introduced into the armpit of the affected side, these, if they use a longer staff, will walk, indeed, more erect, but will not be able to reach the ground with the foot,

not correct on all points; indeed, it is less accurate than the description given by Hippocrates:—"In this accident there is scarcely any difference in length between the one leg and the other; if any, about half an inch shorter. The knee and foot are turned inwards, but different in appearance to that of the dislocation upwards; the foot is turned over the other, the toe resting against the upper part of the other foot. When any attempt is made to move it, there is scarcely any motion. The situation of the bone is thus:—the head of the os femoris is thrown into the ischiatic notch, the trochanter resting upon the side, or a little behind the acetabulum." (Surgical Lectures, 27.) It appears from Mr. Quain's dissection, that modern authorities have been mistaken in supposing that, in this dislocation, the head of the femur is lodged in the ischiatic notch. The fact is, that, as represented by Hippocrates, the head of the femur is displaced backwards.

or if they wish to rest upon the foot, they must take a shorter staff, and will require to bend the body at the groins. The wasting of the fleshy parts is analogous to what happens in the cases formerly described, for the wasting is greatest in those cases in which the patients keep the limb up, and do not exercise it, whilst those who practise walking, have the least atrophy. The sound leg, however, is not benefited, but is rather rendered more deformed, if the injured limb be applied to the ground, for it is forced to cooperate with the other, being protruded at the hip, and bent at the ham. But if the patient does not use the injured limb by applying it to the ground, but carries it up, and rests upon a staff, the sound leg thereby gains strength, for it is employed in its natural position, and further, the exercise gives it strength. But it may be said, these things are foreign to medicine; for what is the use of enlarging upon cases which are already past remedy? This is far from being the case, for it belongs to the knowledge of medicine to be acquainted also with these, and they cannot possibly be separated from one another; for to such as are curable, means are to be used to prevent them from becoming incurable, studying how they may best be prevented from getting into an incurable state. And incurable cases should be known, that they may not be aggravated by useless applications, and splendid and creditable prognostics are made by knowing where, how, and when every case will terminate, and whether it will be converted into a curable or into an incurable disease.¹ When then, from birth, or during one's youth, this dislocation backwards occurs, and is not reduced, whether it be connected with violence or disease (for many such dislocations occur in diseases, but the nature of the diseases in which dislocations take place, will be described afterwards); if, then, the dislocated limb be not reduced, the bone of the thigh becomes shortened, the whole limb is impaired, is arrested in its growth, and loses its flesh from want of use; the articulation at the ham is also impaired, for the nerves (*ligaments*?) become stretched, from the causes formerly stated, wherefore those who have this

¹ I need scarcely remark, that nowadays it will not be questioned that a minute acquaintance with incurable diseases constitutes a most important part of the physician's knowledge, without which he can neither form an accurate *diagnosis* nor *prognosis*. Our author's remarkable partiality for the latter is very apparent in this passage.

dislocation, cannot make extension at the knee-joint. In a word, all parts of the body which were made for active use, if moderately used and exercised at the labour to which they are habituated, become healthy, increase in bulk, and bear their age well, but when not used, and when left without exercise, they become diseased, their growth is arrested, and they soon become old. Among these parts the joints and nerves (*ligaments?*), if not used, are not the least liable to be so affected; they are impaired, then, for the reasons we have stated, more in this variety of dislocation than in the others, for the whole limb is wasted, both in its bones and in its fleshy parts. Such persons, then, when they attain their full growth, keep the limb raised and flexed, rest the weight of the body on the other leg, and support themselves with a staff, some with one, and others with two.

59. In dislocations of the head of the thigh-bone forwards (they are of rare occurrence), the patients cannot extend the leg completely, but least of all can they bend it at the groin; they are pained, also, if forced to bend the limb at the ham. The length of the leg, if compared at the heel, is the same as that of the other; but the extremity of the foot inclines less to project forwards. But the whole limb has its natural direction, and inclines neither to this side nor to that. These cases are particularly attended with severe pain, and they are more apt to be accompanied with retention of urine at first than any of the other dislocations; for the head of the thigh-bone is lodged very near to important nerves. And the region of the groin appears swelled out and stretched, while that of the nates is more wrinkled and flabby. The symptoms now stated are those which attend this dislocation of the thigh-bone.¹

¹ Upon reference to Sir Astley Cooper's work, *On Dislocations*, p. 95, it will be found that there is but little disagreement between his description of this form of dislocation and that here given by our author. To be sure, Sir Astley says, the limb is shortened by an inch; but probably, as stated in Mr. Quain's description of the state of the limb in dislocation backwards, this shortening is more apparent than real; for, considering the situation in which the head of the femur is lodged, it is difficult to see how there can be any real shortening. The turning outwards which Sir Astley remarks, must also be very slight, seeing it is altogether denied by Boyer. All the modern authorities agree with Hippocrates as to the effects produced by the pressure of the head of the bone upon the anterior crural nerve. See, in particular, *Chelius*, vol. i, p. 797. Galen's Commentary is merely explanatory of the text, which, however, is sufficiently clear for all practical purposes.

60. When persons have attained their full growth before meeting with this dislocation, and when it has not been reduced, upon the subsidence of the pain, and when the bone of the joint has been accustomed to be rotated in the place where it is lodged, these persons can walk almost erect without a staff, and with the injured leg almost quite straight, as it does not admit of easy flexion at the groin and the ham; owing, then, to this want of flexion at the groin, they keep the limb more straight in walking than they do the sound one. And sometimes they drag the foot along the ground, as not being able to bend the upper part of the limb, and they walk with the whole foot on the ground; for in walking they rest no less on the heel than on the fore part of the foot; and if they could take great steps, they would rest entirely on the heel in walking; for persons whose limbs are sound, the greater the steps they take in walking, rest so much the more on the heel, while they are putting down the one foot and raising the opposite. In this form of dislocation, persons rest their weight more on the heel than on the anterior part of the foot, for the fore part of the foot cannot be bent forwards equally well when the rest of the limb is extended as when it is in a state of flexion; neither, again, can the foot be arched to the same degree when the limb is bent as when it is extended.¹ The natural state of matters is such as has been now described; and in an unreduced dislocation, persons walk in the manner described, for the reasons which have been stated. The limb, moreover, is less fleshy than the other, at the nates, the calf of the leg, and the whole of its posterior part. When this dislocation occurs in infancy, and is not reduced, or when it is congenital, in these cases the bone of the thigh is more atrophied than those of the leg and foot; but the atrophy of the thigh-bone is least of all in this form of dislocation. The fleshy parts, however, are everywhere attenuated, more especially behind, as has been stated above. If properly trained, such persons, when they grow up, can use the limb, which is only a little shorter than the other, and yet they support themselves on a staff at the affected side. For,

¹ The meaning of this passage would appear to be as given in the text; but it must be admitted to be somewhat obscure, owing to the use of certain unusual terms in it (such as *καρπυλίεσθαι* and *σμοῦσθαι*), the exact meaning of which is not very clearly explained either by Erotian or Galen.

not being able to use properly the ball of the foot without the heel, nor to put it down as some can in the other varieties of dislocation (the cause of which has been just now stated), on this account they require a staff. But those who are neglected, and are not in the practice of putting their foot to the ground, but keep the limb up, have the bones more atrophied than those who use the limb; and, at the articulations, the limb is more maimed in the direct line than in the other forms of dislocation.¹

61. In a word, luxations and subluxations take place in different degrees, being sometimes greater and sometimes less; and those cases in which the bone has slipped or been displaced to a much greater extent, are in general more difficult to rectify than otherwise; and if not reduced, such cases have greater and more striking impairment and lesion of the bones, fleshy parts, and attitudes; but when the bone has slipped, or been displaced to a less extent, it is easier to reduce such cases than the other; and if the attempts at reduction have failed, or have been neglected, the impairment in such cases is less, and proves less injurious than in the cases just mentioned. The other joints present great differences as to the extent of the displacements which they are subject to. But the heads of the femur and humerus are very similar to one another as to their dislocations. For the heads of the bones are rounded and smooth, and the sockets which receive the heads are also circular, and adapted to the heads; they do not admit then of being dislocated in any intermediate degree, but, from their rounded shape, the bones slip either outwards or inwards. In the case we are now treating of, then, there is either a complete dislocation or none at all, and yet these bones admit of being displaced to a

¹ The last sentence is obscure to *me*, but neither Foës nor Littré states any difficulty which they find about it. The latter translates it thus: "Mais chez ceux qui, ayant été négligés, n'appuient pas la jambe sur le sol et la tiennent en l'air, les os croissent beaucoup moins que chez ceux qui se servent de leur jambe; de la même façon, les chairs s'atrophient bien davantage; dans cette luxation les articulations de la jambe ont subi une lésion qui les tient plus droites que dans les autres luxations de la cuisse." The sense here would agree with the context, but seems scarcely warranted by the original. Foës, on the other hand, gives a literal translation, but it is as unintelligible as the original. "Circa articulos autem, quòd ad directionem spectat, crure ii aliquanto magis capti sunt, quàm quibus aliter luxatio contigerit."

greater or less extent; and the thigh is more subject to these differences than the arm.¹

62. Wherefore, then, some of these congenital displacements, if to a small extent, may be reduced to their natural condition, and especially those at the ankle-joint. Most cases of congenital club-foot are remediable, unless the declination be very great, or when the affection occurs at an advanced period of youth.² The best plan, then, is to treat such cases at as early a period as possible, before the deficiency of the bones of the foot is very great, and before there is any great wasting of the flesh of the leg. There is more than one variety of club-foot, the most of them being not complete dislocations,³ but impairments connected with the habitual maintenance of the limb in a certain position. In conducting the treatment, attention must be paid to the following points: to push back and rectify the bone of the leg at the ankle from without inwards, and to make counter-pressure on the bone of the heel in an outward direction, so as to bring it into line, in order that the displaced bones may meet at the middle and side of the foot; and the mass of the toes, with the great toe, are to be inclined inwards, and retained so;⁴ and the parts are to be

¹ I believe all our modern authorities are agreed that there is no incomplete luxation of the femur. Sir Astley Cooper speaks of a partial dislocation of the humerus, but the nature of it does not seem to be accurately defined.

² Galen remarks, in his Commentary on this passage, that it is clear our author treats of the cure both of congenital club-foot, and of the club-foot which occurs in early infancy. He further adds, that his account of this affection applies principally to the species in which the leg is distorted outwards, and the foot turned inwards, that is to say, to *varus*.

³ I need scarcely remark *now* that our author has here exactly hit the true character of this impediment, which, as he says, is not a dislocation, but, originally, a mere *declination* of the foot.

⁴ Having lately gone through the process of curing congenital *varus* in both feet of a child a year old, I can attest to the general accuracy of the directions here given. From the nature of the case, it will readily be understood that the foot is to be pushed outwards, and the leg inwards, so as to bring the foot into a line with the leg. The only difficulty which one encounters in the description, is the direction that "the mass of the toes, with the great toe, should be inclined inwards, and retained so." M. J. Guérin, so well known for his skill in orthopedy, gave M. Littré the following explanation of this manoeuvre: "Quant à *ἔξω ἐγκλίσειν*, il faut le traduire par *abaisser*, *incliner* tous les orteils en dedans (par un mouvement d'arc de cercle sur l'axe antéro-postérieur du pied). C'est là le sens littéral et il exprime parfaitement ce

secured, with cerate containing a full proportion of resin,¹ with compresses, and soft bandages in sufficient quantity, but not applied too tight; and the turns of the bandages should be in the same direction as the rectifying of the foot with the hands, so that the foot may appear to incline a little outwards.² And a sole made of leather not very hard, or of lead, is to be bound on, and it is not to be applied to the skin, but when you are about to make the last turns of the bandages.³ And when it is all bandaged, you must attach the end of one of the bandages that are used to the bandages applied to the inferior part of the foot on the line of the little toe; and then this bandage is to be rolled upwards in what is considered to be a sufficient degree, to above the calf of the leg, so that it may remain firm when thus arranged. In a word, as if moulding a wax model, you must bring to their natural position the parts which were abnormally displaced and contracted together, so rectifying them with your hands, and with the bandaging in like manner, as to bring them into their position, not by force, but gently; and the bandages are to be stitched so as to suit the position in which the limb is to be placed, for different modes of the deformity require different positions. And a small shoe made of lead is to be bound on externally to the bandaging, having the

qu'il faut faire pour la réduction du varus. Dans cette variété du pied-bot, le pied étant renversé sur la face externe; la rangée des orteils est, comme le pied, située verticalement et regarde en dehors; il convient donc d'incliner ou d'abaisser les orteils en dedans et les fixer dans cette position." By the way, there is some mistake in this quotation, for the reading in the text is not ἔξω ἐκκλίνειν (although I humbly think ἔξω ἐκκλίνειν would be the most suitable reading), but ἐς τὸ εἰσω μέρος ἐκκλίνειν. The only way in which I can attach any proper meaning to the common reading, is by supposing that it refers to a very aggravated case of *talipes varus*, in which the foot is fairly turned round on its axis. In such a case, no doubt the toes would have to be pushed inwards and downwards, in the first place. But, however we may understand this clause, there can be no doubt that Hippocrates understood properly the principles upon which the treatment ought to be conducted.

¹ No doubt, as is remarked by Galen in his Commentary, the addition of resin to the cerate would give the bandages a greater degree of firmness and stability.

² That is to say—agreeably to the Hippocratic rule, *contraria contrariis curantur*—the abnormal inclination inwards is to be cured by producing for a time an inclination outwards.

³ The benefit of this leather sole is in reality very marked in the treatment of infantile club-foot. This I can attest from personal experience.

same shape as the Chian slippers had.¹ But there is no necessity for it if the parts be properly adjusted with the hands, properly secured with the bandages, and properly disposed of afterwards. This, then, is the mode of cure, and it neither requires cutting, burning, nor any other complex means, for such cases yield sooner to treatment than one would believe. However, they are to be fairly mastered only by time, and not until the body has grown up in the natural shape; when recourse is had to a shoe, the most suitable are the buskins, which derive their name from being used in travelling through mud; for this sort of shoe does not yield to the foot, but the foot yields to it. A shoe shaped like the Cretan is also suitable.

63. In cases of complete dislocation at the ankle-joint, complicated with an external wound, whether the displacement be inwards or outwards, you are not to reduce the parts, but let any other physician reduce them if he choose. For this you should know for certain, that the patient will die if the parts are allowed to remain reduced, and that he will not survive more than a few days, for few of them pass the seventh day, being cut off by convulsions, and sometimes the leg and foot are seized with gangrene.² It should be well known that such will be the results; and it does not appear to me that hellebore will do any good, though administered the same day, and the draught repeated, and yet it is the most likely means, if any such there be; but I am of opinion that not even it will be of service. But if not reduced, nor any attempts at first made to reduce them, most of such cases recover. The leg and foot are to be arranged as the patient wishes, only they must not be put in a dependent position, nor moved about;³ and they

¹ Of the Chian slippers or sandals, and the buskins for travelling through mud or clay, Galen can give no account. See further the editors of Erotian. They were, no doubt, composed of stout and unyielding materials. It is well known that such a boot is very useful to keep the foot in position after it has been rectified.

² Galen, in his Commentary, states that the danger of reduction consists partly in the additional violence inflicted on the muscles, and partly in their being then put into a stretched state, whereby spasms or convulsions are brought on, and gangrene as the result of the intense inflammation which ensues. Galen explains the term gangrene to mean the intermediate state between intense inflammation and sphacelus, the latter term being applied to the complete corruption, that is to say, death of a part. Celsus uses "cancer" as being synonymous with the term "gangrene." (viii, 25.)

³ Celsus translates this clause of the sentence as follows: "tantum (membrum) ne moveatur, neve dependeat." (viii, 25.)

are to be treated with pitched cerate, a few compresses dipped in wine, and not very cold, for cold in such cases induces convulsions; ¹ the leaves also of beet, or of colt's foot, of any such, when half boiled in dark-coloured austere wine, form a suitable application to the wound and the surrounding parts; and the wound may further be anointed with cerate in a tepid state. But if it be the winter season, the part is to be covered with unscoured wool, which is to be sprinkled from above with tepid wine and oil, but on no account is either bandage or compress to be applied; for this should be known most especially, that whatever compresses, or is heavy, does mischief in such cases. And certain of the dressings used to recent wounds are suitable in such cases; and wool may be laid upon the sore, and sprinkled with wine, and allowed to remain for a considerable time; but those dressings for recent wounds which only last for a few days, and into which resin enters as an ingredient, do not agree with them; for the cleansing of the sores is a slow process, and the sore has a copious discharge for a long time. Certain of these cases it may be advantageous to bandage. It ought also to be well understood, that the patient must necessarily be much maimed and deformed, for the foot is retracted outwards, and the bones, which have been displaced outwards, protrude: these bones, in fact, not being generally laid bare, unless to a small extent; neither do they exfoliate, but they heal by thin and feeble cicatrices, provided the patient keeps quiet for a length of time; but otherwise there is danger that a small ulcer may remain incurable. And yet in the case we are treating of, those who are thus treated are saved; whereas, when the parts are reduced and allowed to remain in place, the patients die. ²

¹ It will be remarked that our author only forbids the use of "very cold" applications, from which Galen justly infers that he did not disapprove of moderately cold things. Galen here gives some interesting observations on the distinction between things which are cold to the senses, and those which are possessed of cold *or* congealing qualities, such as cicuta, mandragora, and the like. The ancient authorities all held that narcotics are of a cold *or* refrigerant nature.

² Our author, it will be remarked in this and the succeeding paragraphs, lays down his own views respecting the treatment of compound dislocations. That he must have been familiar with the treatment of them there can be no doubt, from the precise and well-defined manner in which he describes all the phenomena regarding them. The danger of such accidents he has fairly stated, but probably not exaggerated. I need

64. The same rule applies to dislocations at the wrist, attended with a wound and projection of the bone, whether the bones of the arm be displaced inwards or outwards.¹ For this should be well understood, that the patient will die in the course of a few days, by the same mode of death as formerly described, if the bone be reduced, and allowed to remain so. But in those cases in which they are not reduced, nor any attempt made to reduce them, the patients, for the most part, recover; and the same mode of treatment as has been described will be applicable; but the deformity and impediment of the limb must necessarily be great, and the fingers of the hand will be weak and useless; for if the bones have slipped inwards, they cannot bend the fingers, or if outwards, they cannot extend them.²

65. When the *os tibiæ*, having made a wound at the knee, has protruded through the skin, whether the dislocation be outwards or inwards, in such a case, if the bone be reduced, death will be even more speedy than in the other cases, although speedy also in them. But the only hope of recovery is if you treat them without reduction. These cases are more dangerous than the others, as being so much higher up, as being so much stronger joints, and displaced from bones which are so much stronger. But if the *os femoris* form a wound at the knee, and slip through

scarcely say that, with the modern surgeon in these unfortunate cases, the first consideration is, whether or not the limb is to be taken off at once; and that, even with this frightful alternative, the results have been by no means satisfactory. We have discussed this subject, however, in the Argument, where we have given an abstract of the other views of practice entertained by subsequent authorities.

¹ That is to say, whether the bones of the fore-arm protrude before or behind. It is obvious from the text, and is made still more clear from Galen's Commentary, that, in this case, Hippocrates understands the bones of the fore-arm to be the parts displaced, and not those of the hand, as is usually understood in modern works on surgery. Sir Astley Cooper, however, like Hippocrates, considers the hand as the part in position, and the bones of the fore-arm as those which are displaced. But whether our author is always consistent with himself in regard to this, and the dislocations of the other joints, may be doubted. It is well known, that early writers, however remarkable they may be for originality of thought and vigour of expression, are seldom so distinguished for precision in the use of terms as succeeding authors are. That Hippocrates is not exempt from this defect must be admitted, nor is this to be wondered at, since he lived before the age of Aristotle, who first brought logic and criticism to perfection.

² I need scarcely say that recent authorities give the symptoms very differently. See the Argument.

it, provided it be reduced and left so, it will occasion a still more violent and speedy death than in the cases formerly described; but if not reduced, it will be much more dangerous than those cases mentioned before, and yet this is the only hope of recovery.¹

66. The same rule applies to the elbow-joint, and with regard to the bones of the fore-arm and arm. For when these bones protrude through a wound which they have made in the skin, all cases in which they are reduced prove fatal; but if not reduced, there is a chance of recovery; but to those that survive there is certain impediment. And if in any instance the bones of the upper articulations (*shoulder-joint?*) should be dislocated, and project through a wound which they have made in the skin, these, if reduced, are followed by more speedy death; and if not reduced, they are more dangerous than the others. But the mode of treatment which appears to me most suitable has been already described.

67. When the joints of the toes or hands are dislocated, and the bones protrude through a wound which they have made, and when there is no fracture of the bone, but merely displacement of the joint, in these cases, if the reduction be made and allowed to remain, there is some danger of spasm (*tetanus?*) if not properly treated, and yet it may be worth while to reduce them, having warned the patient beforehand that much caution and care will be required. The easiest, the most efficient method, and the one most conformable to art, is that by the lever, as formerly described when treating of bones which have been fractured and protruded; then the patient must be as quiet as possible, lie in a recumbent position, and observe a restricted regimen. And it will be better also that he should get some gentle emetics. The sore is to be treated with the dressings for fresh wounds, which permit of affusions, or with the leaves of camomile,² or with the applications for fractured bones of the head, but nothing very cold must be applied. The first (*most distant?*) joints are least dangerous, but those still higher,

¹ As remarked by Galen, our author in this paragraph makes a distinction in dislocations at the knee-joint, according as it is the end of the tibia or of the femur which protrudes through the skin. Galen adds, that at the ankle it is only the bones of the leg, and at the wrist only those of the fore-arm, which are protruded.

² Probably the *Anthemis valentina*. See the Appendix to Dunbar's Greek Lexicon, under πολυόρθαλιον.

are more so. Reduction should be made the same day, or the next, but by no means on the third or fourth, for it is on the fourth day that exacerbations especially attack. In those cases, then, where immediate reduction cannot be accomplished, we must wait until after the aforesaid days; for whatever you reduce within ten days, may be expected to induce spasm. But if the spasm supervene on its being reduced, the joint should be quickly displaced, and bathed frequently with warm water, and the whole body should be kept in a warm, soft, and easy condition, and more especially about the joints, for the whole body should rather be in a bent than in an extended state. Moreover, it is to be expected, that the articular extremities of the bones of the fingers will exfoliate, for this generally happens, if even the least degree of inflammation take place, so that if it were not that the physician would be exposed to censure, owing to the ignorance of the common people, no reduction should be made at all. The reduction of the bones of joints which have protruded through the skin, is attended with the dangers which have been described.

68. When the articular bones of the fingers are fairly chopped off, these cases are mostly unattended with danger, unless deliquium come on in consequence of the injury, and ordinary treatment will be sufficient to such sores. But when resection is made, not at the articulations, but at some other point in the bones, these cases also are free from danger, and are still more easily cured than the others; and the fractured bones of the fingers which protrude otherwise than at the joint admit of reduction without danger. Complete resections of bones at the joints, whether the foot, the hand, the leg, the ankle, the forearm, the wrist, for the most part, are not attended with danger, unless one be cut off at once by deliquium animi, or if continual fever supervene on the fourth day.¹

¹ This paragraph on resection of the bones in compound dislocations and fractures contains almost all the information on the subject which is to be found in the works on ancient medicine. Galen finds our author's meaning in this paragraph so obvious, that he does not think it necessary to give anything more than an apology for a commentary. Celsus notices the practice of resection in compound dislocations very briefly, as follows: "Si nudum os eminent, impedimentum semper futurum est; ideo quod excedit, abscindendum est." (viii, 25.)

In modern times this practice has been partially advocated by several eminent authorities in surgery, especially Mr. Hey, of Leeds, and Sir Astley Cooper, in this

69. With regard to the sphacelus of fleshy parts, it takes place in wounds where there are large blood-vessels, which have been strongly compressed, and in fractures of bones which have been bound too tight, and in other cases of immoderate constriction, when the parts which have been strangulated generally drop off; and the most of such patients recover, even when a portion of the thigh comes away, or of the arm, both bones and flesh, but less so in this case; and when the fore-arm and leg drop off, the patients readily recover.¹ In cases, then, of fracture of the bones, when strangulation and blackening of the parts take place at first, the separation of the dead and living parts quickly occurs, and the parts speedily drop off, as the bones have already given way; but when the blackening (*mortification*) takes place while the bones are entire, the fleshy parts, in this case, also quickly die; but the bones are slow in separating at the boundary of the blackening, and where the bones are laid bare. Those parts of the body which are below the boundaries of the blackening are to be removed at the joint, as soon as they are fairly dead and have lost their sensibility; care being taken not to wound any living part; for if the part which is cut off give pain, and if it should prove not to be quite dead, there is great danger lest the patient may swoon away

country, and by M. L eville, in France, the last of whom professes to have been guided by the authority of Hippocrates. (*Nouvelle Doctrine Chirurgicale*, tom. ii, p. 44.) The case in which this practice has been most generally followed is compound dislocation of the astragalus. In dislocations of the bones of the larger joints, such as the end of the humerus, the lower end of the tibia and fibula, and the like, resection has seldom been practised, and only when reduction was otherwise found to be impracticable. Mr. Fergusson suggests the propriety of resection at the elbow under these circumstances. Mr. Syme, upon the whole, approves of resection in the case of the elbow, the wrist, and the ankle, when the bones cannot be otherwise reduced; but, in the case of the knee-joint, he holds that amputation must be immediately had recourse to.

¹ This paragraph contains a very interesting account of the ancient mode of treating severe injuries of the extremities which terminate in gangrene. It will be seen that our author's practice was altogether of the expectant mode; when a limb mortified, as much of it as was become quite dead was separated at a joint, and the whole mortified part was not removed until there was a complete line of separation between the dead and living part. The constitutional treatment was altogether of a mild character. The advocates for the mild system of treatment in gangrene of the foot, it would thus appear, have the authority of Hippocrates to quote on their side. I need scarcely add that, until within the last few years, the opposite system of treatment is what was adopted in modern practice.

from the pain, and such swoonings often are immediately fatal. I have known the thigh-bones, when denuded in this manner, drop off on the eightieth day; but in the case of this patient, the parts below were separated at the knee on the twentieth day, and, as I thought, too early, for it appeared to me that this should be done more guardedly. In a case which I had of such blackening in the leg, the bones of the leg, as far as they were denuded, separated at its middle on the sixtieth day. But the separation of denuded bones is quicker or slower, according to the mode of treatment; something, too, depends upon whether the compression be stronger or weaker, and whether the nerves, flesh, arteries, and veins are quicker or slower in becoming blackened and in dying; since, when the parts are not strongly compressed, the separation is more superficial, and does not go the length of laying the bones bare, and in some cases it is still more superficial, so as not even to expose the nerves. For the reasons now stated, it is impossible to define accurately the time at which each of these cases will terminate.¹ The treatment of such cases, however, is to be readily undertaken, for they are more formidable to look at than to treat;² and a mild treatment is sufficient in all such

¹ Galen makes the following remarks on this passage: Hippocrates having previously stated that in those cases in which the flesh connected with the bones has become blackened and corrupted, the same thing, in the course of time, should happen to the bones; and, on that account, having given directions to cut them off, he now advises the removal to be made without touching the sound parts, lest, owing to the pain, the patient should fall into a severe swoon, from which it would be difficult to recover him. He recommends, therefore, that this should be done at a joint, as the removal there can be speedily accomplished, whereas, in the middle of a limb, time is taken up in cutting off the bone.

² Galen remarks on this passage that here our author shows that he had a proper regard for the safety of the physician as well as for that of the patient; for, as he states, these cases, although they put on a formidable appearance, are not so dangerous in reality, but that a physician may undertake the management of them without endangering his own character. Those cases, on the other hand, which at first sight do not appear formidable, but are dangerous in reality, he advises the physician to have nothing to do with. Many passages in the works of our author, and in those of the other ancient writers on medicine, have led me to the conclusion, that in ancient times a greater degree of responsibility attached to the physician in undertaking the management of the sick than there does in our days. It would appear to have been a very serious matter for the physician when his patient died without his death having been previously prognosticated. Necessity, then, and the regard for personal safety, would compel the ancient physician to cultivate prog-

cases, for they come to a crisis of themselves; only the diet must be attended to, so that it may be as little calculated to create fever as possible, and the body is to be placed in the proper positions: these are, neither raised very high up, nor inclining much downwards, but rather upwards, until the separation be completed; for at that time there is most danger of hemorrhage; on this account, wounds should not be laid in a declining position, but the contrary.¹ But after a while, and when the sores have become clean, the same positions will no longer be appropriate; but a straight position, and one inclining downwards, may be proper; and in the course of time, in some of these cases, abscesses form, and require bandages. One may also expect that such patients will be attacked with dysentery; for dysentery usually supervenes in cases of mortification and of hemorrhage from wounds; it comes on generally when the blackening and hemorrhage have arrived at a crisis, and is profuse and intense, but does not last many days; neither is it of a fatal nature, for such patients do not usually lose their appetite, nor is it proper to put them on a restricted diet.²

70.³ Dislocation inwards at the hip-joint is to be reduced

nosis, so that he might not decline to undertake the management of cases by which any credit could be gained, nor, on the other hand, undertake a formidable one without announcing, beforehand, its probable issue. I fear it must be admitted that professional virtue in ancient times never rose to that pitch of disinterestedness enjoined by our Sydeham, when he says that "the physician ought to be always ready to serve his patient even at the risk of his own reputation."

¹ I need scarcely point out to the professional reader how very sensible and judicious these directions are as regards the position of the limb in such cases. Galen, in a Commentary written in his elegant but diffuse style, gives our author's meaning in a more expanded form, but without supplying any additional information of the least practical importance.

² Galen, in his Commentary, enters into a lengthy discussion on the nature of the symptomatic dysentery here briefly described, but there is not much in it of any great interest, or that is not quite obvious.

³ Our author, in this and the six following paragraphs, resumes the consideration of dislocations of the hip-joint, and describes, very clearly and circumstantially, various modes of reducing the head of the bone. Galen, in his Commentary, informs us that Ctesias, being a kinsman of Hippocrates, and one of the Aselepiadae, and certain others after him, had found fault with Hippocrates for giving directions respecting the reduction, seeing that, as they alleged, the bone, when so reduced, in all cases immediately slips out of its socket. This opinion they pretended to have founded partly on experience and partly on the construction of the hip-joint; for they maintained

in the following manner: (it is a good, proper, and natural mode of reduction, and has something of display in it, if any one takes delight in such ostentatious modes of procedure.) The patient is to be suspended by the feet from a cross-beam with a strong, soft, and broad cord; the feet are to be about four inches or less from one another; and a broad and soft leather collar connected with the cross-beam is to be put on above the knees; and the affected leg should be so extended as to be two inches longer than the other; the head should be about two cubits from the ground, or a little more or less; and the arms should be stretched along the sides, and bound with something soft; all these preparations should be made while he is lying on his back, so that he may be suspended for as short a time as possible. But when the patient is suspended, a person properly instructed and not weak, having introduced his arm between his thighs, is to place his fore-arm between the

that, as dislocation cannot take place unless the *ligamentum teres* be torn, and, as when torn, its parts cannot unite, it follows that a complete cure in this case is physically impossible. Galen enters into a lengthy and elaborate discussion of this question, in the course of which he states, that in laxity of the joint, the *ligamentum teres* may be so elongated as to allow the bone to slip out of the acetabulum without being ruptured. And, coming to the point, he cites the authority of Heraclides Tarentinus in support of the opinion, that a reduced femur may remain in its place. Heraclides further appeals to Hippocrates, Diocles, Philotimus, Euenor Beleus (Nileus?), Molpius, and Nymphodorus on the same side. Galen concludes this portion of his Commentary with further stating that many recent authorities had reported cases in which they had effected the reduction without its being followed by another escape of the bone. —Apollonius Citiensis, in his Commentary on this passage, replies to the same objection as made by Hegetor, and others of the followers of Herophilus. This discussion of the question is interesting as a piece of ancient polemic, but does not elicit any additional facts in illustration of the subject. See Scholia in Hippocratem et Galenum, tom. i, pp. 34-41; ed. Dietz.—Celsus alludes to this controversy in the following terms: “Magnum autem femori periculum est, ne vel difficulter reponatur, vel repositum rursus excidat. Quidam semper iterum excedere contendunt; sed Hippocrates, et Diocles, et Philotimus, et Nileus, et Heraclides Tarentinus, clari admodum auctores, ex toto se restituisse memoriæ prodiderunt. Neque tot genera machinamentorum quoque, ad extendendum in hoc casu femur, Hippocrates, Andreas, Nileus, Nymphodorus, Protarchus, Heraclides, faber quoque quidam reperissent, si id frustra esset.” (viii. 20.) With regard to the methods of reducing this dislocation, recommended by our author, I may mention, in general terms, that they will be readily understood by any person who will read his descriptions carefully, and compare them with the figures as given by Vidus Vidius, and copied from him by M. Littré. There is not much, if anything, of practical importance in the Commentaries either of Apollonius or of Galen, so that I shall make but few extracts from them.

perineum and the dislocated head of the os femoris; and then, having joined the other hand to the one thus passed through the thighs, he is to stand by the side of the suspended patient, and suddenly suspend and swing himself in the air as perpendicularly as possible. This method comprises all the conditions which are natural; for the body being suspended by its weight, produces extension, and the person suspended from him, along with the extension, forces the head of the thigh-bone to rise up above the acetabulum; and at the same time he uses the bone of the fore-arm as a lever, and forces the os femoris to slip into its old seat. The cords should be properly prepared, and care should be taken that the person suspended along with the patient have a sufficiently stronghold.

71. Wherefore, as formerly stated, men's constitutions differ much from one another as to the facility or difficulty with which dislocations are reduced; and the cause of this was also stated formerly in treating of the shoulder. In some the thigh is reduced with no preparation, with slight extension, directed by the hands, and with slight movement; and in some the reduction is effected by bending the limb at the joint, and making rotation. But much more frequently it does not yield to any ordinary apparatus, and therefore one should be acquainted with the most powerful means which can be applied in each case, and use whatever may be judged most proper under all circumstances. The modes of extension have been described in the former parts of the work, so that one may make use of whatever may happen to be at hand. For, extension and counter-extension are to be made in the directions of the limb and the body; and if this be properly effected, the head of the thigh-bone will be raised above its ancient seat; and if thus raised, it will not be easy to prevent it from settling in its place, so that any ordinary impulse with the lever and adjustment will be quite sufficient; but some apply insufficient extension, and hence the reduction gives much trouble. The hands then should be fastened, not only at the foot, but also above the knee, so that the force of the extension may not be expended on the knee-joint more than upon the hip-joint. The extension in the direction of the foot is to be thus contrived. But the counter-extension is not only to be managed by means of something carried round the chest and armpits, but also by a long, double, strong, and supple

thong applied to the perineum, and carried behind along the spine, and in front along the collar-bone, and fixed to the point from which counter-extension is made; and then force is to be so applied, by means of this extension and counter-extension, that the thong at the perineum may not pass over the head of the thigh-bone, but between it and the perineum; and during the extension one should strike the head of the femur with the fist, so as to drive it outward. And when the patient is raised up by the stretching, you should pass a hand through (*between the legs?*) and grasp it with the other hand, so as at the same time to make extension, and force the dislocated limb outwards; while some other person sitting by the knee quietly directs it inwards.

72. It has been formerly stated by us that it will be of importance for any person who practises medicine in a populous city to get prepared a quadrangular board, about six cubits or a little more in length, and about two cubits in breadth;¹ a fathom will be sufficient thickness for it; and then along it from the one end to the other, an excavation must be made, so that the working of the levers may not be higher than is proper; then at both sides we are to raise short, strong, and strongly-fixed posts, having axes; and in the middle of the bench five or six long grooves are to be scooped out, about four inches distant from one another, three inches will be a sufficient breadth for them, and the depth in like manner; and although the number of grooves I have mentioned will be sufficient, there is nothing to prevent their being made all over the bench. And the bench should have in its middle a pretty deep hole, of a square shape, and of about three inches in size; and into this hole, when judged necessary, is to be adjusted a corresponding piece of wood, rounded above, which, at the proper time, is to be adjusted between the perineum and the head of the thigh-bone. This upright piece of wood prevents the body from yielding to the force dragging downwards by the feet;

¹ The drawings of the *scammum Hippocratis*, as given by us from Vidus Vidius and Littre, will render this description quite intelligible. It is thus described by Celsus: "Etiamnum valentius intenditur membram super scammum, cui ab utraque parte axes sunt, ad quos habene illae deligantur: qui, ut in toreularibus, conversi, rumpere quoque, si perseveraverit, non solum extendere, nervos et musculos possunt." (viii. 20.) See the Plates.

for sometimes this piece of wood serves the purpose of counter-extension upwards ; and sometimes, too, when extension and counter-extension are made, this piece of wood, if susceptible of some motion to this side or that, will serve the purpose of a lever for pushing the head of the thigh-bone outwards. It is on this account that several grooves are scooped out on the bench, so that this piece of wood, being erected at the one which answers, may act as a lever, either on the sides of the articular heads of bones, or may make pressure direct on the heads along with the extension, according as it may suit to push inwards or outwards with the lever ; and the lever may be either of a round or broad form, as may be judged proper ; for sometimes the one form and sometimes the other suits with the articulation. This mode of applying the lever along with extension is applicable in the reduction of all dislocations of the thigh. In the case now on hand, a round lever is proper ; but in dislocations outwards a flat lever will be the suitable one. By means of such machines and of such powers, it appears to me that we need never fail in reducing any dislocation at a joint.

73. And one might find out other modes of reduction for this joint. If the large bench were to have raised on it two posts about a foot (*in diameter?*), and of a suitable height, on each side near its middle, and if a transverse piece of wood like the step of a ladder, were inserted in the posts, then if the sound leg were carried through between the posts, and the injured limb were brought over the transverse piece of wood, which should be exactly adapted in height to the joint which is dislocated, (and it is an easy matter so to adjust it, for the step of the ladder should be made a little higher than required, and a convenient robe, folded several times, is to be laid below the patient's body), then a piece of wood, of suitable breadth and length, is to be laid below the limb, and it should reach from the ankle to beyond the head of the thigh-bone, and should be bound moderately tight to the limb. Then the limb being extended, either by means of the pestle-like piece of wood (formerly described), or by any of the other methods of extension, the limb which is carried over the step with the piece of wood attached to it, is to be forced downwards, while somebody grasps the patient above the hip-joint. In this manner the extension will carry the head of the thigh-bone above the

acetabulum, while the lever power that is exercised will push the head of the thigh-bone into its natural seat. All the above-mentioned powers are strong, and more than sufficient to rectify the accident, if properly and skilfully applied. For, as formerly stated, in most cases reduction may be effected by much weaker extension, and an inferior apparatus.

74. If the head of the bone slip outwards, extension and counter-extension must be made as described, or in a similar manner. But along with the extension a broad lever is to be used to force the bone from without inwards, the lever being placed at the nates or a little farther up, and some person is to steady the patient's body, so that it may not yield, either by grasping him at the buttock with his hands, or this may be effected by means of another similar lever, adjusted to one of the grooves, while the patient has something laid below him, and he is secured, and the dislocated thigh is to be turned gently from within outwards at the knee. Suspension will not answer in this form of dislocation, for, in this instance, the arm of the person suspended from him, would push the head of the thigh-bone from the acetabulum. But one might use the piece of wood placed below him as a lever, in such a manner as might suit with this mode of dislocation; it must work from without. But what use is there for more words? For if the extension be well and properly done, and if the lever be properly used, what dislocation of the joint could occur, that might not be thus reduced?¹

75. In dislocation of the thigh, backwards, extension and counter-extension should be made as has been described; and having laid on the bench a cloth which has been folded several times, so that the patient may lie soft, he is to be laid on his face, and extension thus made, and, along with the extension, pressure is to be made with a board, as in the case of hump-back, the board being placed on the region of the nates, and rather below than above the hip-joint; and the hole made in the wall for the board should not be direct over, but should be inclined a little downwards, towards the feet. This mode of reduction is particularly appropriate to this variety of dislocation, and at the same time is very strong. But perhaps, instead of

¹ See the Plate at the end of the volume.

the board, it might be sufficient to have a person sitting (*on the seat of luxation?*), or pressing with his hands, or with his foot, and suddenly raising himself up, along with the extension. None of the other afore-mentioned modes of reduction are natural in this form of dislocation.

76. In dislocation forwards, the same mode of extension should be made; but a person who has very strong hands, and is well trained, should place the palm of the one hand on the groin, and taking hold of this hand with the other, is at the same time to push the dislocated part downwards, and at the same time to the fore part of the knee. This method of reduction is most especially conformable to this mode of dislocation. And the mode of suspension is also not far removed from being natural, but the person suspended should be well trained, so that his arm may not act as a lever upon the joint, but that the force of the suspension may act about the middle of the perineum, and at the os sacrum.

77. Reduction by the bladder is also celebrated in dislocations at this joint, and I have seen certain persons who, from ignorance, attempted to reduce both dislocations outwards and backwards therewith, not knowing that they were rather displacing than replacing the parts; it is clear, however, that he who first invented this method intended it for dislocation inwards. It is proper, then, to know how the bladder should be used, if it is to be used, and it should be understood that many other methods are more powerful than it. The bladder should be placed between the thighs uninflated, so that it may be carried as far up the perineum as possible, and the thighs beginning at the patella are to be bound together with a swathe, as far up as the middle of the thigh, and then a brass pipe is to be introduced into one of the loose feet of the bladder,¹ and air forced into it, the patient is to lie on his side with the injured limb uppermost. This, then, is the preparation; some,

¹ By "feet" is meant corners, I suppose. Dietz gives the following note on this passage: "Pedes utris quatuor anguli dicuntur, capræ pedum reliquæ. Sæpius in Hispania vinum hujusmodi utribus inclusum, qui pleni tumidique capræ formam referunt, a mulionibus transveli cognovi iisque mulis impositis loco clitellarum usus sum viator." (Ed. Dietz. tom. i. p. 30.) In like manner, "pes veli" means "the lower corner of a sail." See Catullus, iv, 19; and Paccioliati's Lexicon, under *Pes*.

however, do the thing worse than as I have described, for they do not bind the thighs together to any extent, but only at the knees, neither do they make extension, whereas extension should be made, and yet some people by having the good fortune to meet with a favorable case, have succeeded in making reduction. But it is not a convenient method of applying force, for the bladder, when inflated, does not present its most prominent part to the articular extremity of the femur, which is the place that ought to be more especially pressed outwards, but its middle, which probably corresponds with the middle of the thigh, or still lower down, for the thighs are naturally curved, being fleshy, and in contact above, and becoming smaller downwards, so that the natural configuration of the parts forces the bladder from the most proper place. And if a small bladder be introduced, its power will be small, and unable to overcome the resistance of the articular bone. But if the bladder must be used, the thighs are to be bound together to a considerable extent, and the bladder is to be inflated along with the extension of the body, and in this method of reduction both legs are to be bound together at their extremity.

78. The prime object of the physician in the whole art of medicine should be to cure that which is diseased; and if this can be accomplished in various ways, the least troublesome should be selected; for this is more becoming a good man, and one well skilled in the art, who does not covet popular coin of base alloy. With regard to the subject now on hand, the following are domestic means of making extension of the body, so that it is easy to choose from among the things at hand:— In the first place, when soft and supple thongs are not at hand for ligatures, either iron chains, or cords, or cables of ships, are to be wrapped round with scarfs or pieces of woollen rags, especially at the parts of them which are to be applied, and in this state they are to be used as bands. In the second place, the patient is to be comfortably laid on the strongest and largest couch that is at hand, and the feet of the couch, either those at the (*patient's*?) head, or those at the feet, are to be fastened to the threshold, either within or without, as is most suitable; and a square piece of wood is to be laid across, and extending from the one foot to the other; and if this piece

of wood be slender, it should be bound to the feet of the couch, but, if it be thick, there will be no necessity for this; then the heads of the ligatures, both of those at the head and those at the feet, are to be fastened to a pestle, or some such piece of wood, at either end; the ligatures should run along the line of the body, or be a little elevated above it, and it should be stretched proportionally to the pestles, so that, standing erect, the one may be fastened to the threshold, and the other to the transverse piece of wood. Extension is then to be made by bending back the ends of the pestles.¹ A ladder, having strong steps, if laid below the bed, will serve the purpose of the threshold and the piece of wood laid along (*the foot of the couch?*), as the pestles can be fastened to the steps at either end, and when drawn back they thus make extension of the ligatures. Dislocation, inwards or forwards, may be reduced in the following manner: a ladder is to be fastened in the ground, and the man is to be seated upon it, and then the sound leg is to be gently stretched along and bound to it, wherever it is found convenient; and water is to be poured into an earthen vessel, or stones put into a hamper and slung from the injured leg, so as to effect the reduction. Another mode of reduction: a cross-beam is to be fastened between two pillars of moderate height; and at one part of the cross-beam there should be a protuberance proportionate to the size of the nates;² and having bound a coverlet round the patient's breast, he is to be seated on the protuberant part of the cross-beam, and afterwards the breast is to be fastened to the pillar by some broad ligature; then some one is to hold the sound leg so that he may not fall off, and from the injured limb is to be suspended some convenient weight, as formerly described.³

79. It should be particularly known that the union of all bones is, for the most part, by a head and socket (*cotylé*); in some of these the place (*socket?*) is cotyloid and oblong, and

¹ By "pestles," as explained above, was meant poles, or strong staffs. Celsus uses the expression "valida bacula" as applied to them. (viii, 20.)

² The reading here seems very doubtful; Vidus Vidius appears to have read *πηχναῖον*, which M. Littré approves of, though he does not adopt it.

³ We have got no commentary of Galen on this paragraph, and there is nothing in the Scholia of Apollonius of much interest bearing upon it. The modes of reduction adverted to in it are easily understood, when the description is compared with the drawings given by Vidus Vidius and Littré.

in some the socket is glenoid (*shallow?*).¹ In all dislocations reduction is to be effected, if possible, immediately, while still warm, but otherwise, as quickly as it can be done; for reduction will be a much easier and quicker process to the operator, and a much less painful one to the patient, if effected before swelling comes on. But all the joints when about to be reduced should be first softened, and gently moved about; for, thus they are more easily reduced. And, in all cases of reduction at joints, the patient must be put on a spare diet, but more especially in the case of the greatest joints, and those most difficult to reduce, and less so in those which are very small and easily reduced.

80. If any joint of the fingers is dislocated, whether the first, second, or the third, the same method of reduction is to be applied, but the largest joints are the most difficult to reduce. There are four modes of displacement—either upwards, downwards, or to either side; most commonly upwards, and most rarely laterally, and in consequence of violent motion.² On both sides of its articular cavity there is a sort of raised border. When the dislocation is upwards or downwards, owing to the articular cavity having smoother edges there than at the sides, if the joint of it be dislocated, it is more easily reduced. This is the mode of reduction:—The end of the finger is to be wrapped round with a fillet, or something such that, when you lay hold of it and make extension, it will not slip; and when this is done, some person is to grasp the arm at the wrist, and another is to take hold of the finger which is wrapped in the fillet, and then each is to make considerable extension towards himself, and at the same time the projecting bone is to be

¹ Our author evidently alludes especially to the hip- and shoulder-joints, but he applies the terms in a general way to all the articulations. The application of the term *κοτύλη* to the articular cavity of the hip-joint is very ancient, being met with in the Homeric poems, as—

ἔρρα μηρῶς

Ἰσχύρ ἐνσπρίφεται, κοτύλην αὐτῆν καλέουσι.

(Iliad, v. 305, 306.)

² Our author evidently understands the hand to be placed in a state of pronation; by upwards, then, is meant forwards, and by downwards is meant backwards, as the terms are now generally applied. See Cooper's Surgical Dictionary. Celsus also uses the terms forwards and backwards. "qui vel in priorem vel in posteriorem partem exelertunt." (viii. 19.)

pushed into its place. But, if the dislocation be lateral, the same mode of reduction is to be used; but when you think that the extremity of the bone has cleared the rim, at the same time that extension is made, the bone is to be pushed direct into its place, while another person on the other side of the finger is to take care and make counter-pressure, so that it may not again slip out there. The twisted nooses formed from palm-shoots are convenient for effecting reduction, if you will make extension and counter-extension by holding the twisted string in the one hand and the wrist in the other.¹ When reduced, you must bind the part as quickly as possible with bandages: these are to be very slender, and waxed with cerate, neither very soft nor very hard, but of middle consistence; for that which is hard drops off from the finger, while that which is soft and liquid is melted and lost by the increased heat of the finger. The bandage is to be loosed on the third or fourth day; but on the whole, if inflamed, it is to be the more frequently loosed, and if otherwise, more rarely; this I say respecting all the joints. The articulation of a finger is restored in fourteen days. The treatment of the fingers and of the toes is the same.

81. After all reductions of joints the patient should be confined to a restricted diet and abstinence until the seventh day; and if there be inflammation, the bandages are to be the more frequently loosed, but otherwise, less frequently, and the pained joint is to be kept constantly in a state of rest, and is to be laid in the most convenient position possible.

82. Accidents at the knee are more mild than at the elbow, from its being more compact, regular, and elegant in its construction; and, therefore, it is more readily dislocated and reduced. It is most frequently dislocated inwards, but also outwards and backwards. The modes of reduction are these: by flexion at the knee, or by sudden calcitration,² or having rolled

¹ These strings or nooses, formed from palm-shoots, are mentioned in allusion to this surgical use of them by Aristotle (*De Partibus Animal.*, iv, 9); and by Diocles, in a fragment preserved by Apollonius Citiensis (ed. Dietz, p. 19). See further Littré, tom. iv, p. 61. They would appear to have been formed from the inner rind of the palm-tree; these, if of a glutinous nature, would, no doubt, answer excellently in the case to which they are applied by our author.

² This term has not been explained by any ancient author, and therefore there is some difficulty in understanding properly the process to which it is applied. M.

a swathe into a ball, and fixed it in the ham, the patient's body is to be suddenly dropped on its bended knees. Dislocation backwards, also, as in the case of the elbow, may be reduced by moderate extension, and to either side, either by flexion or calcitration, but also by moderate extension. The adjustment is the same in all cases. In dislocations backwards which are not reduced, the patient cannot bend the joint, but neither can he, to any great extent, in the other varieties; the thigh and leg are wasted in front; but if inwards the patients become bow-legged, and the external parts are wasted; but if outwards they become more bandy-legged, but the impediment is less, for the body is supported on the larger of the bones, and the inner parts are wasted. When these accidents happen at birth or during adolescence, they follow the rule formerly stated.¹

83. Dislocations at the ankle-joint require strong extension, either with the hands or some such means; and adjustment, which at the same time effects both purposes, as is common in all cases.²

84. Injuries of the foot are to be remedied like those of the hand.³

85. The bones connected with the leg, and which are dislocated, either at birth or during adolescence, follow the same course as those in the hand.⁴

86. When persons jumping from a height pitch on the heel, so as to occasion separation (*diastasis*) of the bones, ecchymosis of the veins, and contusion of the nerves; when these symptoms are very violent there is danger of sphacelus, and that the case

Litré gives a very elaborate and ingenious disquisition on this subject. The following is his own explanation: "Cela établi, voici comment je conçois de l'*éclactisme*: le patient était placé debout sur la jambe saine, et des aides le maintenaient dans cette position; la jambe luxée était en l'air; le médecin la saisissait par le pied et la fléchissait brusquement en la portant vers les fesses. Ce procédé, dans l'hypothèse que je propose, ne différerait de la flexion simple que parce qu'il se pratiquerait le malade étant debout." (Œuv. Hip., tom. iv, p. 68, Arg.) Foës, in his note on this passage, explains the term thus: "Excalcitratio, per calces clapsi ossis impulsio, aut ea quæ fit repente calcibus in sublime jactatis et per subitum flexum articuli repositio." I do not exactly see how the process, as represented by Foës, could have effected the purpose; I am inclined therefore to think that M. Litré's explanation is the true one.

¹ On dislocations at the knee-joint, see the Argument, and § 37 of the work, On Fractures.

² See, On Fractures, § 13.

³ *Ibid.*, § 9.

⁴ *Ibid.*, § 10.

may give trouble during life, for the bones are so constructed as to slip from one another, and the nerves communicate together.¹ And, indeed, in cases of fracture, either from an injury in the leg or thigh, or in paralysis of the nerves (*tendons*?) connected with these parts, or from neglect during confinement to bed, when the heel gets blackened the most serious consequences result therefrom. Sometimes, in addition to the sphacelus, there come on acute fevers, accompanied with hiccup, aberration of intellect, and speedy death, with lividities of the large blood-vessels. With regard to the symptoms attending exacerbations, if the ecchymosed and blackened parts and those around be somewhat hard and red, and if along with the hardness there be lividity, mortification is to be apprehended; but if the parts be slightly livid, or even very livid, and the swelling diffused,

¹ The accident here briefly touched upon would appear to be dislocation of the os calcis from the astragalus. A very distinct case of it was reported lately by Mr. Bransby Cooper. "John Ryley, aged 49, was admitted into Guy's Hospital with a dislocation of foot. He stated that in swinging himself out of a cart, he lost his hold, and slipped down from the curb-stone, his right foot being turned completely inwards, in which position it remained until he was brought into the Hospital. The diagnostic marks of the injury were as follows: The chief deformity arose from the complete inversion of the whole foot, the sole of which faced directly inwards. The astragalus formed also a very evident deformity; for, although it remained in its natural position with respect to the tibia and fibula, its anterior articulatory surface pressed so tightly against the skin, that, had the dislocation remained unreduced, the integuments must very soon have undergone ulceration. The superior edge of the anterior articulatory surface of the astragalus could be easily felt, and its form was distinctly visible; a deep hollow was also observed below the external malleolus, where there was evidently extensive contusion of the soft parts. The external malleolus formed a considerable projection in its natural situation; but neither it nor any of the other bones of the foot was fractured. From these appearances it was judged to be a dislocation of the os calcis and navicular bone, with the rest of the foot outwards from the astragalus. The reduction was effected in the following manner: The surgeon knelt at the foot of the patient's bed, and, grasping the heel with his right hand, made extension from the instep with his left, an assistant at the same time pressing the tibia inwards towards its natural position. The reduction was very easily effected." Severe symptoms supervened at first, but afterwards a perfect recovery took place. (*Med. Gaz.*, No. 1069.) Though in this case the result was favorable, there can be little doubt that if the dislocation had been compound, or if the parts had not been promptly replaced, the consequences might have been such as Hippocrates describes, namely, great swelling and gangrene. These symptoms, it will be seen, he also represents as the consequences of injuries, and of the pressure produced by position in cases of paralysis. His observations on the latter case are most appropriate and deserving of attention.

or if greenish and soft, these appearances, in such cases, are all favorable. The treatment, if no fever be present, consists in the administration of hellebore, but otherwise it is not to be given, but *oxyglyky* (*decoction of honeycombs and vinegar*) is to be given for drink, if required. Bandaging as in the other articulations: above all, more especially in contusions, the bandages should be numerous and softer than usual, but the compression should be less; most turns should be made around the heel. Position, like the bandaging, should be so regulated as not to determine to the heel. Splints are not to be used.

87. When the foot is dislocated, either alone or along with its epiphysis, the displacement is, for the most part, to the inside. If not reduced, in the course of time, the hip, the thigh, and the side of the leg opposite the dislocation, become atrophied. Reduction is the same as in the wrist, but the extension requires to be very powerful. Treatment, agreeably to the general rule for joints. Exacerbations do occur, but less frequently than in dislocations at the wrist, provided the parts get rest. While they remain at rest the diet should be restricted. Those which occur at birth, or during adolescence, follow the rule formerly stated.¹

¹ See, On Fractures, § 13. Dislocation of the foot, that is to say, of the astragalus, is here correctly described. Compare Mr. Bransby Cooper's description of the accident in the Medical Gazette, No. 1069. As stated by our author, dislocation inwards is far more common than any of the other varieties, and is generally accompanied with fracture of the malleolus. Whether by epiphysis, in this paragraph, is meant the external malleolus or conjoined malleoli, has been much disputed. If the latter, the case was evidently fracture of bones of the leg immediately above the ankle-joint. See the Argument.

MOCHLICUS.

MOCHLICUS.

THE ARGUMENT.

THE work commences with a very brief description of the bones of the human body; that is to say, with a compendious system of Osteology (§ 1).

In § 2, fractures of the nose are treated of.

In § 3, those of the ears are treated of.

In § 4, there is given a summary view of dislocations of the lower jaw.

In § 5, the dislocations of the shoulder are minutely described, along with all the known methods of reduction.

In § 6, is given an account of the nature and treatment of abrasion of the acromion.

In § 7, two forms of displacement of the bones of the fore-arm, at the elbow-joint, are described: the same as 'Articulations,' § 17.

In § 8, two complete luxations of the same are given in the same terms as § 18, of 'Articulations.'

In § 9, is given a brief notice of dislocation forwards and backwards: it is the same as 'Articulations,' § 19.

In § 10, there is a brief notice of diastasis of the bones at the elbow, by which is evidently meant separation of the radius from the ulna: the same as 'Articulations,' § 20.

In § 11, the effects of these luxations when not reduced, are briefly described: the same as 'Articulations,' § 21.

In § 12, complete lateral dislocations of the bones of the fore-arm, are treated of: the same as 'Articulations,' § 22.

In § 13, complete dislocations forwards and backwards, are noticed: the same as 'Articulations,' § 23.

In § 14, another form of dislocation is described: the same as § 7, and 'Articulations,' § 24.

In § 15, the general rules by which reduction is to be accomplished, are briefly given.

In § 16, a description is given of luxation, or subluxation inwards and outwards, of the bones at the wrist.

In § 17, complete luxations of the bones at the wrist, in all directions, along with separate displacement of either bone are described very succinctly.

In § 18, the consequences of unreduced dislocations are very briefly noticed.

In § 19, luxations of the fingers are described.

Luxations at the hip-joint are correctly and distinctly described in §§ 20, 21, 22, 23, 24.

The modes of reduction are briefly enumerated in § 25.

In § 26, the symptoms and treatment of dislocation at the knee are correctly given.

In § 27, the modes of reducing dislocations at the ankle-joint are briefly described.

In § 28, the analogy between the accidents which befall the bones of the foot, and those of the hand, is adverted to.

In § 29, the consequences of unreduced luxations in the bones of the foot are compared with the same in the hand.

In § 30, the treatment of gangrene, following upon dislocation of the os calcis, and the consequence of other causes, is laid down in the same terms as at 'Articulations,' § 86.

In § 31, the luxations at the ankle-joint are briefly given as in § 87 of the work 'On the Articulations.'

In § 32, a brief summary is given of the important chapter on club-foot, in the work 'On the Articulations,' § 62.

In § 33, the treatment of compound luxations is given with much precision.

In § 34, a summary is given of the rules of practice respecting complete section of the extremities.

In § 35, gangrene of the members resulting from dislocation or any other cause, is distinctly treated of.

In § 36, curvatures of the spine from accident, and otherwise, are treated of. The doctrine is enforced that, as in injuries of the chest, there is more danger from a severe contusion than from a fracture.

In § 37, the displacement of the spinal vertebræ from injury is briefly treated of.

In § 38, all the usual modes of reducing dislocation of the spine are treated of at considerable length.

In § 39, necrosis of the palate with subsidence of the nasal bones is briefly described.

In § 40, some general observations of considerable importance, on displacements of bones are given, with other remarks.

In § 41, the treatment of fractures complicated with a wound, is distinctly laid down.

In § 42, are given a few general observations on complete and partial luxations.

We can have no difficulty in deciding that the author of this work, whether Hippocrates himself, or one of his immediate successors, must have intended it as a remembrancer to the reader on all the various subject-matters treated of in the preceding works 'On Fractures,' and 'On the Articulations.' In fact, many of the paragraphs in it, and the work 'On the Articulations,' are given in exactly the same words. That the object of the work is to fix in the mind the important facts more fully given in these two works, can admit of no doubt, and as such its importance cannot be questioned. Taking together the four treatises, namely, 'On the Surgery,' 'On Fractures,' 'On the Articulations,' and 'The Mochlicus,' the subject of dislocations and fractures is treated of most scientifically and completely. In the first place, the work 'On the Surgery,' supplies us with a *coup d'œil*, as it were, of the whole subject, and prepares us for what we are to meet with in the course of our investigation; then we have all the parts of the subject examined separately and minutely, in the works 'On Fractures,' and 'On the Articulations;,' and to conclude, we have here a brief recapitulation of all the heads of the preceding inquiry. When we reflect on the admirable manner in which the whole subject is handled, and the many important truths which are evolved in the course of it, we cannot surely but regard with veneration the labours of our forefathers, nor can we miss to be impressed with the feeling that they have more cause to look down with contempt upon us their posterity for not having prosecuted with more success the path of discovery which they had pointed out, than their posterity have to look back with scorn upon them, because we have now made some little advances beyond their limits. In conclusion, I do not hesitate to declare it as my decided opinion, that no other author has treated the same subject in so complete a manner as Hippocrates has done in these treatises.

MOCHLICUS.

1.¹ WITH regard to the construction of bones, the bones and joints of the fingers are simple, the bones of the hand and foot are numerous, and articulated in various ways; the uppermost are the largest; the heel consists of one bone which is seen to project outwards, and the back tendons are attached to it. The leg consists of two bones, united together above and below, but slightly separated in the middle; the external bone (*fibula*), where it comes into proximity with the little toe, is but slightly smaller than the other, more so where they are separated, and at the knee, the outer hamstring arises from it;² these bones have a common epiphysis below, with which the foot is moved, and another epiphysis above,³ in which is moved the articular extremity of the femur, which is simple and light in proportion to its length, in the form of a condyle, and having the patella (connected with it?), the femur itself bends outwards and forwards; its head is a round epiphysis which gives origin to the ligament inserted in the acetabulum of the hip-joint.⁴ This bone is articulated somewhat obliquely, but less so than the humerus. The ischium is united to the great vertebra contiguous to the os sacrum by a cartilaginous ligament.⁵ The spine, from the os sacrum to the great vertebra, is curved backwards; in this quarter are situated the bladder, the organs of generation, and the inclined portion of the rectum; from

¹ The brief description of the bones given in this paragraph is evidently condensed from a larger work on the subject. A considerable portion of the matter which is found here in an abridged form, is taken from the preceding treatises, On Fractures and On the Articulations, but not the whole of it.

² The tendon of the biceps.

³ It will be here perceived that by epiphysis is merely meant a close union of the two bones by means of a ligament. The term in this paragraph is not always used in this sense. Strictly speaking, its signification would appear to be a protuberance of a bone. It is applied to the malleoli, to the head of the tibia, to the head and neck of the femur, to the spinous processes of the vertebrae, to the upper and lower extremities of the humerus, and to the lower extremity of the radius.

⁴ Allusion is evidently made to the ligamentum teres.

⁵ It will be readily perceived that the term ischium is not used here exactly as applied by modern anatomists. It is applied in this place to the ilium where it is articulated with the os sacrum. By the great vertebra, as stated in the preceding work, is meant the last vertebra of the loins.

this to the diaphragm it proceeds in a straight line inclining forwards, and the psoæ are situated there; from this point, to the great vertebra above the tops of the shoulders, it rises in a line that is curved backwards, and the curvature appears greater than it is in reality, for the posterior processes of the spine are there highest; the articulation of the neck inclines forwards. The vertebræ on the inside¹ are regularly placed upon one another, but behind they are connected by a cartilaginous ligament; they are articulated in the form of synarthrosis at the back part of the spinal marrow; behind they have a sharp process having a cartilaginous epiphysis, whence proceeds the roots of nerves running downwards, as also muscles extending from the neck to the loins, and filling the space between the ribs and the spine. The ribs are connected to all the intervertebral spaces on the inside, from the neck to the lumbar region, by a small ligament, and before to the sternum, their extremities being spongy and soft; their form is the most arched in man of all animals; for in this part, man is, of all animals, the narrowest in proportion to his bulk. The ribs are united to each vertebra by a small ligament at the place from which the short and broad lateral processes (*transverse processes*?) arise. The sternum is one continuous bone, having lateral pits for the insertion of the ribs; it is of a spongy and cartilaginous structure. The clavicles are rounded in front, having some slight movements at the sternum, but more free at the acromion. The acromion, in man, arises from the scapulæ differently from most other animals. The scapula is cartilaginous towards the spine, and spongy elsewhere, having an irregular figure externally; its neck and articular cavity cartilaginous; it does not interfere with the movements of the ribs, and is free of all connexion with the other bones, except the humerus. The head of the humerus is articulated with its (*glenoid*?) cavity, by means of a small ligament, and it consists of a rounded epiphysis composed of spongy cartilage, the humerus itself is bent outwards and forwards, and it is articulated with its (*glenoid*?) cavity by its side, and not in a straight line. At the elbow it is broad, and has condyles and cavities, and is of

¹ Meaning before, that is to say, at their anterior part.

a solid consistence; behind it is a cavity in which the coronoid process (*olecranon*?) of the ulna is lodged, when the arm is extended;¹ here, too, is inserted the benumbing nerve,² which arises from between the two bones of the fore-arm at their junction, and terminates there.

2. When the nose is fractured, the parts should be modelled instantly, if possible. If the fracture be in its cartilaginous part, introduce into the nostrils a tent formed of caddis, inclosed in the outer skin of a Carthaginian hide, or anything else which does not irritate; the skin is to be glued to the parts displaced, which are to be thus rectified. Bandaging in this case does mischief. The treatment is to consist of flour with manna, or of sulphur with cerate. You will immediately adjust the fragments, and afterwards retain them in place with your fingers introduced into the nostrils, and turning the parts into place; then the Carthaginian skin is to be used. Callus forms even when there is a wound; and the same things are to be done, even when there is to be exfoliation of the bones, for this is not of a serious nature.³

¹ Here I would call the attention of the reader to the application of this term, "the coronoid process of the ulna" (*ἡ κορώνη ἢ ἐκ τῶν πήχθεος*), which creates a good deal of ambiguity in several of our author's descriptions of the accidents at the elbow-joint. There can be no doubt, in this place, that it is applied to the olecranon, as I think it is on all occasions, but M. Littré interprets differently several of the passages in which it occurs. In the present instance, M. Littré, however, understands it as I always do. By Galen, the term (*κορώνη*) is always decidedly applied to the whole of the posterior process of the ulna, that is to say, to the olecranon. See *Chirurgiæ Veteres*, ed. Cocchi, p. 141.

² Foë's explains this as meaning the ligament: he says, "*ναρκῶδες νεῦρον* ligamentum intelligere videtur quod ligamentorum natura sensu caret. Inuit autem ligamentum illud densum, crassum et validum ac membranosum, quod ex brachii fine inferiore exertum, cubitum cum radio connectit, totamque dearticulationem circumvestiens, majore tamen parte cubitum annectit, ut scribit Hippocrates libro de Fract." But, if our author meant the ligament in this place, it is clear that he ascribes to it the well-known sensation occasioned by pressure on the ulnar nerve. The following description of it will explain clearly what I allude to: "At the elbow the ulnar nerve is superficial, and supported by the inner condyle, against which it is easily compressed, giving rise to the thrilling sensation along the inner side of the fore-arm and little finger, ascribed to striking the 'funny-bone.'" (*Wilson's Anatomy*, p. 392.) Whether or not Hippocrates may not fall into the mistake of confounding nerves with ligaments I cannot venture to state positively.

³ This paragraph is abridged from §§ 35, 36, 37, 38, 39 of the work, *On the Articulations*. On the caddis mentioned in this paragraph, see the editors of Erotian, Eustachius, and Frantzius, under *ἄχρη ὀθόριον*.

3. In fractures of the ears, neither bandages nor cataplasms should be used ; or, if any bandage be used, it should be put on very light ; the cerate and sulphur, should be applied to agglutinate the bandages. When matter forms in the ears, it is found to be more deeply seated than might be supposed, for all parts that are pulpy, and consist of juicy flesh, prove deceptive in such a case. But no harm will result from making an opening, for the parts are lean, watery, and full of mucus. No mention is here made of the places and circumstances which render it fatal to make an opening.¹ The cure is soonest effected by transfixing the ear with a cautery ; but the ear is maimed and diminished in size, if burnt across. If opened, one of the gentle medicines for fresh wounds should be used as a dressing.²

4. The jaw-bone is often slightly displaced (*subluxated?*), and is restored again ; it is dislocated but rarely, especially in gaping ; in fact, the bone is never dislocated unless it slip while the mouth is opened wide. It slips, however, the more readily from its ligaments being oblique, supple, and of a yielding nature. The symptoms are : the lower jaw protrudes, it is distorted to the side opposite the dislocation, and the patient cannot shut his mouth ; when both sides are dislocated, the jaw projects more, the mouth can be less shut, but there is no distortion ; this is shown by the rows of the teeth in the upper and lower jaw corresponding with one another. If, then, both sides be dislocated, and not immediately reduced, the patient for the most part dies on the tenth day, with symptoms of continued fever, stupor, and coma, for the muscles there induce such effects ; there is disorder of the bowels attended with scanty and unmixed dejections ; and the vomitings, if any, are of the same character. The other variety is less troublesome. The method of reduction is the same in both :—The patient being laid down or seated, the physician is to take hold of his head, and grasping both sides of the jaw-bone with both hands, within and without, he must perform three manœuvres at once, —rectify the position of the jaw, push it backwards, and shut the mouth. The treatment should consist of soothing applica-

¹ Compare On the Articulations, § 15.

² The contents of this paragraph are abridged from § 40 of the work, On the Articulations.

tions, position, and applying a suitable bandage to support the jaw-bone, so as to co-operate with the reduction.¹

5. The bone of the shoulder is dislocated downwards. I have never heard of any other mode. The parts put on the appearance of dislocation forwards, when the flesh about the joint is wasted during consumption, as also seems to be the case with cattle when in a state of leanness after winter.² Those persons are most liable to dislocations who are thin, slender, and have humidities about their joints without inflammation, for it knits the joints. Those who attempt to reduce and rectify dislocations in oxen, commit a blunder, as forgetting that the symptoms arise from the manner in which the ox uses the limb, and that the appearance is the same in a man who is in a similar condition, and forgetting also that Homer has said, that oxen are most lean at that season. In this dislocation, then, when not reduced, the patient cannot perform any of those acts which others do, by raising the arm from the side. I have thus stated who are the persons most subject to this dislocation, and how they are affected. In congenital dislocations the nearest bones are most shortened, as is the case with persons who are *weasel-armed*; the fore-arm less so, and the hand still less; the bones above are not affected. And the parts (near the seat of the injury) are most wasted in flesh; and this happens more especially on the side of the arm opposite the dislocation, and that during adolescence, yet in a somewhat less degree than in congenital cases. The deep-seated suppurations occur most frequently to new-born infants about the joint of the shoulder, and these produce the same consequences as dislocations.³ In adults, the bones are not so diminished in size, and justly, seeing that the others will not increase as in the former case; but wasting of the flesh takes place, for it is increased, and is diminished every day, and at all ages. And attention should be paid to the force of habit, and to the symptom produced by the tearing away of the acromion, whereby a void is left, which makes people suppose that the humerus is

¹ This is an abridgment of §§ 30 and 31 of the work, On the Articulations.

² The language here would seem to imply that the dislocation in cattle is not real, but merely apparent. See § 8 of the Articulations, and the Annotations on it.

³ Every experienced physician must have met with cases in which abscess about a joint has occasioned impairment of it.

dislocated. The head of the humerus is felt in the armpit, and the patient cannot raise his arm, nor swing it to this side and that, as formerly. The other shoulder shows the difference. Modes of reduction:—The patient himself having placed his fist in the armpit, pushes up the head of the humerus with it, and brings the hand forward to the breast. Another:—Force it backwards, so that you may turn it round. Another:—Apply your head to the acromion, and your hands to the armpit, separate the head of the humerus (*from the side?*), and push the elbow in the opposite direction; or, instead of your knees, another person may turn aside the elbow, as formerly directed. Or, place the patient on your shoulder, with the shoulder in his armpit. Or, with the heel, something being introduced to fill up the hollow of the armpit, and using the right foot to the right shoulder. Or, with a pestle. Or, with the step of a ladder. Or, by rotation made with a piece of wood stretched below the arm. Treatment:—As to attitude, the arm placed by the side, the hand and shoulder raised; the bandaging and adjustment of the parts while in this attitude. If not reduced, the top of the shoulder becomes attenuated.¹

6. When the acromion is torn away, the appearance is the same as in dislocation of the shoulder; but there is no impediment, except that the bone does not return to its position. The figure should be the same as in dislocation, both as regards bandaging and suspending the limb. The bandaging according to rule.²

7. When partial displacement (*sub-luxation?*) takes place at the elbow, either inside or outside, but the sharp point (*olecranon?*) remains in the cavity of the humerus, make extension in a straight line, and push the projecting parts backwards and to the sides.³

8. In complete dislocations to either side, make extension while the arm is in the position it is put in to be bandaged for a fracture, for thus the rounded part of the elbow will not form an obstacle to it. Dislocation most commonly takes place inwards. The parts are to be adjusted by separating the bones

¹ This description of the symptoms and treatment of dislocation at the shoulder-joint is abridged from § 1-13 of the work, On the Articulations.

² This is an abridgment of § 14 of the work, On the Articulations.

³ This is a repetition of § 17 of the work, On the Articulations.

as much as possible, so that the end of the humerus may not come in contact with the olecranon, but it is to be carried up and turned round, and not forced in a straight line; at the same time the opposite sides are to be pushed together, and the bones reduced to their place.¹ In these cases rotation of the elbow cooperates; that is to say, turning the arm into a state of supination and pronation; so much for the reduction. With regard to the attitude in which it is to be put,—the hand is to be placed somewhat higher than the elbow, and the arm by the side; this position suits with it when slung from the neck, is easily borne, is its natural position, and one adapted for ordinary purposes, unless callus form improperly: the callus soon forms. Treatment:—By bandages according to the common rule for articulations, and the point of the elbow is to be included in the bandage.²

9. The elbow, when luxated, induces the most serious consequences, fevers, pain, nausea, vomiting of pure bile; and this especially in dislocations backwards, from pressure on the nerve which occasions numbness; next to it is dislocation forwards. The treatment is the same. The reduction of dislocation backwards is by extension and adaptation: the symptom of this variety, loss of the power of extension; of dislocation forwards, loss of the power of flexion. In it a hard ball is to be placed in the bend of the elbow, and the fore-arm is to be bent over this while sudden extension is made.³

10. Diastasis of the bones may be recognised by examining the part where the vein which runs along the arm divides.⁴

11. In these cases callus is speedily formed. In congenital dislocations, the bones below the seat of the injury are shorter than natural; in this case, the greatest shortening is in the nearest, namely, those of the fore-arm; second, those of the hand; third, those of the fingers. The arm and shoulder are stronger, owing to the nourishment which they receive, and the other arm, from the additional work it has to perform, is still more strong. The wasting of the flesh, if the dislocation was

¹ The meaning in this passage seems very equivocal. See Littré, and our Argument to the work, On the Articulations.

² This is a repetition of § 18 of the work, On the Articulations.

³ This is copied from § 19 of the work, On the Articulations.

⁴ This is literally copied from § 20 of the work, On the Articulations.

outwards, is on the inside ; or if otherwise, on the side opposite the dislocation.¹

12. In dislocation at the elbow, whether outwards or inwards, extension is to be made with the fore-arm at right angles to the arm ; the arm is to be suspended by a shawl passed through the armpit, and a weight is to be attached to the extremity of the elbow ; or force is to be applied with the hands. The articular extremity being properly raised, the parts are to be adjusted with the palms of the hands, as in dislocations of the hands. It is to be bandaged, suspended in a sling, and placed, while in this attitude.²

13. Dislocations backwards are to be rectified with the palms of the hands along with sudden extension. These two acts are to be performed together, as in other cases of the kind. In dislocation forwards, the arm is to bend around a ball of cloth, of proper size, and at the same time replaced.³

14. If the displacement be on the other side both these operations are to be performed in effecting the adjustment of the arm. With regard to the treatment,—the position and the bandaging are the same as in the other cases. For all these cases may be reduced by ordinary distension.⁴

15. With regard to the modes of reduction, some act upon the principle of carrying the one piece of bone over the other, some by extension, and some by rotation: these last consist in rapidly turning the arm to this side and that.⁵

16. The joint of the hand is dislocated inwards or outwards, but most frequently inwards. The symptoms are easily recognised ; if inwards, the patient cannot at all bend his fingers, but if outwards, he cannot extend them. Reduction :—By placing the fingers above a table, extension and counter-extension are to be made by assistants, while, with the palm of the hand or the heel, on the projecting bone, one presses forwards, and from behind, upon the other bone, and lays some soft substance on it ; and, if the dislocation be above, the hand is to be turned into a state of pronation ; or, if backwards, into

¹ This is taken from § 21 of the work, On the Articulations.

² This is taken from § 22 of the work, On the Articulations.

³ This is copied from § 23 of the work, On the Articulations.

⁴ This is taken from § 24 of the work, On the Articulations.

⁵ This is the same as § 25 of the work, On the Articulations.

a state of supination. The treatment is to be conducted with bandages.¹

17. The whole hand is dislocated either inwards or outwards, but especially inwards, or to this side or that. Sometimes the epiphysis is displaced, and sometimes there is displacement (*diastasis*) of the one bone from the other. Powerful extension is to be made in this case; and the projecting part is to be pressed upon, and counter-pressure made on the opposite side: both modes being performed at the same time, both backwards and laterally, either with the hands on a table, or with the heel. These accidents give rise to serious consequences and deformities; but in time the parts get so strong as to admit of being used. The treatment consists of bandages comprehending the hand and fore-arm, and splints are to be applied as far as the fingers; when put in splints, they are to be more frequently loosed than in fractures, and more copious affusions of water are to be used².

18. In congenital dislocations the hand becomes shortened, and the atrophy of the flesh is generally on the side opposite the dislocation. In the adult the bones remain of their proper size.³

19. The symptoms of dislocation of the finger are obvious, and need not be described. This is the mode of reduction:—By stretching in a straight line, and making pressure on the projecting part, and counter-pressure, at the opposite side, on the other. The proper treatment consists in the application of bandages. When not reduced, the parts unite by callus outside of the joint. In congenital dislocations, and in those which occur during adolescence, the bones below the dislocation are shortened, and the flesh is wasted principally on the side opposite to the dislocation; in the adult the bones remain of their proper size.⁴

20. Dislocation at the hip-joint occurs in four modes, inwards most frequently, outwards next, the others of equal frequency. The symptoms:—The common, a comparison with the sound leg. The peculiar symptoms of dislocations inwards;

¹ This is the same as § 26 of the work, On the Articulations.

² This is taken from § 27 of the work, On the Articulations.

³ This is the same as § 28 of the work, On the Articulations.

⁴ This is taken from § 29 of the work, On the Articulations.

the head of the bone is felt at the perineum; the patient cannot bend his leg as formerly; the limb appears elongated, and to a great extent, unless you bring both limbs into the middle space between them in making a comparison of them; and the foot and the knee are inclined outwards. If the dislocation has taken place from birth, or during one's growth, the thigh is shortened, the leg less so, and the others according to the same rule; the fleshy parts are atrophied, especially on the outside. Such persons are afraid to stand erect, and crawl along on the sound limb; or, if compelled, they walk with one or two staves, and bear up the affected limb; and the smaller the limb so much the more easily do they walk. If the accident happen to adults the bones remain of their proper size, but the flesh is wasted, as formerly described; the patients walk in a wriggling manner, like oxen; they are bent towards the flank, and the buttock on the uninjured side is prominent; for the uninjured limb must necessarily come below that it may support the body, whilst the other must be carried out of the way, as it cannot support the body, like those who have an ulcer in the foot. They poise the body by means of a staff on the sound side, and grasp the affected limb with the hand above the knee so as to carry the body in shifting from one place to another. If the parts below the hip-joint be used, the bones below are less atrophied, but the flesh more.¹

21. The symptoms and attitudes in dislocation outwards are the opposite, and the knee and foot incline a little inwards. When it is congenital, or occurs during adolescence, the bones do not grow properly; according to the same rule, the bone of the hip-joint is somewhat higher than natural, and does not grow proportionally. In those who have frequent dislocations outwards, without inflammation, the limb is of a more humid (flabby?) temperament than natural, like the thumb, for it is the part most frequently dislocated, owing to its configuration; in what persons the dislocation is to a greater or less extent; and in what persons it is more difficultly or easily produced; in what there is reason to hope that it can be speedily reduced, and in what not; and the remedy for this; and in what cases

¹ This is mostly condensed from §§ 51 and 52 of the work, *On the Articulations*.

the dislocation frequently happens, and treatment of this. In dislocation outwards from birth, or during adolescence, or from disease, (and it happens most frequently from disease, in which case there is sometimes exfoliation of the bone, but even where there is no exfoliation,) the patients experience the same symptoms, but to an inferior degree to those in dislocations inwards, if properly managed, so that in walking they can put the whole foot to the ground and lean to either side. The younger the patient is, the greater care should be bestowed on him; when neglected, the case gets worse; when attended to, it improves; and, although there be atrophy in all parts of the limb, it is to a less extent.

22. When there is a dislocation on both sides, the affections of the bones are the same; the flesh is well developed, except within, the nates protrude, the thighs are arched, unless there be sphacelus.¹ If there be curvature of the spine above the hip-joint, the patients enjoy good health, but the body does not grow, with the exception of the head.²

23. The symptoms of dislocation backwards are:—The parts before more empty, behind they protrude, the foot straight, flexion impossible, except with pain, extension least of all: in these the limb is shortened. They can neither extend the limb at the ham, nor at the groin, unless it be much raised, nor can they bend it. The uppermost joint, in most cases, takes the lead: this is common in joints, nerves, muscles, intestines, uteri, and other parts. There the bone of the hip-joint is carried backwards to the nates, and on that account it is shortened, and because the patient cannot extend it. The flesh of the whole leg is wasted in all cases, in which most, and to what extent, has been already stated. Every part of the body which performs its functional work is strong, but, if inactive, it gets into a bad condition, unless its inactivity arise from fatigue, fever, or inflammation. And in dislocations outwards, the limb is shortened, because the bone is lodged in flesh which yields; but, in dislocations inwards, it is longer, because the bone is lodged on a projecting bone. Adults, then, who have this dislocation unreduced, are bent at the groins in walking,

¹ That is to say, unless the case proceed from disease of the bone.

² The contents of this and the preceding paragraph are mostly condensed from § 54, 55, 56 of the work, On the Articulations.

and the other ham is flexed ; they scarcely reach the ground with the ball of the foot ; they grasp the limb with the hand, and walk without a staff if they choose ; if the staff be too long, their foot cannot reach the ground,—if they wish to reach the ground, they must use a short staff. There is wasting of the flesh in cases attended with pain ; and the inclination of the leg is forward, and the sound leg in proportion. In congenital cases, or when in adolescence, or from disease, the bone is dislocated (under what circumstances will be explained afterwards), the limb is particularly impaired, owing to the nerves and joints not being exercised, and the knee is impaired for the reasons stated. These persons, keeping the limb bent, walk with one staff or two. But the sound limb is in good flesh from usage.¹

24. In dislocations forwards the symptoms are the opposite : a vacuity behind, a protuberance before ; of all motions they can least perform flexion, and extension best ; the foot is straight, the limb is of the proper length at the heel ; at its extremity the foot a little turned up ; they are especially pained at first : of all these dislocations retention of urine occurs most frequently in this variety, because the bone is lodged among important nerves. The fore parts are stretched, do not grow, are diseased, and are obnoxious to premature decay ; the back parts are wrinkled. In the case of adults, they walk erect, resting merely on the heel, and this they do decidedly if they can take great steps ; but they drag it along ; the wasting is least of all in this variety of dislocation, owing to their being able to use the limb, but the wasting is most behind. The whole limb being straighter than natural they stand in need of a staff on the affected side. When the dislocation is congenital, or has occurred during adolescence, if properly managed, the patient has the use of the limb as well as adults (otherwise?) have of it. But, if neglected, it is shortened and extended, for in such cases the joint is generally ancylosed in a straight position. The diminution of the bones, and wasting of the fleshy parts, are analogous.²

25. In reduction—the extension of the thigh is to be powerful,

¹ The contents of these two paragraphs on dislocation backwards are condensed from §§ 57, 58 of the work, On the Articulations.

² The contents of this paragraph are condensed from §§ 59, 60 of the work, On the Articulations.

and the adjustment what is common in all such cases, with the hands, or a board, or a lever, which, in dislocations inwards, should be round, and in dislocations outwards, flat; but it is mostly applicable in dislocations outwards. Dislocations inwards are to be remedied by means of bladders, extending to the bare part of the thigh, along with extension and binding together of the limbs. The patient may be suspended, with his feet a little separated from one another, and then a person, inserting his arm within the affected limb, is to suspend himself from it, and perform extension and readjustment at the same time; and this method is sufficient in dislocations forwards and the others, but least of all in dislocations backwards. A board fastened under the limb, like the board fastened below the arm in dislocations at the shoulder, answers in dislocations inwards, but less so in the other varieties. Along with extension you will use pressure either with the foot, the hand, or a board, especially in dislocations forwards and backwards.¹

26. Dislocations at the knee are of a milder character than those of the elbow, owing to the compactness and regularity of the joint; and hence it is more readily dislocated and reduced. Dislocation generally takes place inwards, but also outwards and backwards. The methods of reduction are—by circumflexion, or by rapid exalcitration, or by rolling a fillet into a ball, placing it in the ham, and then letting the patient's body suddenly drop down on his knees: this mode applies best in dislocations backwards. Dislocations backwards, like those of the elbows, may also be reduced by moderate extension. Lateral dislocations may be reduced by circumflexion or exalcitration, or by extension (but this is most applicable in dislocation backwards), but also by moderate extension. The adjustment is what is common in all. If not reduced, in dislocations backwards, they cannot bend the leg and thigh upon one another, but neither can they do this in the others except to a small extent; and the fore parts of the thigh and leg are wasted. In dislocations inwards they are bandy-legged, and the external parts are atrophied. But, in dislocations outwards, they incline more outwards, but are less lame, for the body is supported on the thicker bone, and the inner parts are wasted. The con-

¹ This paragraph is made up from § 70 and other paragraphs of the work, On the Articulations.

sequences of a congenital dislocation, or one occurring during adolescence, are analogous to the rule formerly laid down.¹

27. Dislocations at the ankle-joint require strong extension, either with the hands or some such means, and adjustment, which at the same time effects both acts; this is common in all cases.²

28. Dislocations of the bones of the foot are to be treated like those of the hand.³

29. Dislocations of the bones connected with the leg, if not reduced, whether occurring at birth or during adolescence, are of the same character as those in the hand.⁴

30. Persons who, in jumping from a height, have pitched on the heel, so as to occasion diastasis (separation) of the bones, ecchymosis of the veins, and contusion of the nerves,—when these symptoms are very violent, there is danger that the parts may sphacelate, and give trouble to the patient during the remainder of his life; for these bones are so constructed as to slip past one another, and the nerves communicate together. And, likewise, in cases of fracture, either from an injury in the leg or thigh, or in paralysis of the nerves connected with these parts, or, when in any other case of confinement to bed the heel, from neglect, becomes blackened, in all these cases serious effects result therefrom. Sometimes, in addition to the sphacelus, very acute fevers supervene, attended with hiccup, tumours, aberration of intellect, and speedy death, along with lividity of the large blood-vessels, and gangrene. The symptoms of the exacerbations are these: if the ecchymosis, the blackened parts, and those around them, be somewhat hard and red, and if lividity be combined with the hardness, there is danger of mortification; but, if the parts are sublivid, or even very livid and diffused, or greenish and soft, these symptoms, in all such cases, are favorable. The treatment consists in the administration of hellebore, if they be free from fever, but otherwise, they are to have *oxyglyky* for drink, if required. Bandaging,—agreeably to the rule in other joints; but this is to be attended to also,—the bandages should be numerous, and softer than usual; compres-

¹ The substance of what is here said on dislocations at the knee, is taken from § 82 of the work, On the Articulations, and § 37 of the work, On Fractures.

² See On the Articulations, § 83; and On Fractures, § 13.

³ See On the Articulations, § 81.

⁴ *Ibid.*, § 85.

sion less; more water than usual to be used in the affusions; to be applied especially to the heel. The same object should be sought after in the position as in the bandaging, namely, that the humours may not be determined to the heel; the limb to be well laid should have the heel higher than the knee. Splints not to be used.¹

31. When the foot is dislocated, either alone, or with the epiphysis, the displacement is more apt to be inwards. If not reduced, in the course of time the parts of the hips, thigh, and leg, opposite the dislocation, become attenuated. Reduction:—As in dislocation at the wrist; but the extension requires to be very powerful. Treatment:—Agreeably to the rule laid down for the other joints. Less apt to be followed by serious consequences than the wrist, if kept quiet. Diet restricted, as being in an inactive state. Those occurring at birth, or during adolescence, observe the rule formerly stated.²

32. With regard to slight congenital dislocations, some of them can be rectified, especially club-foot. There is more than one variety of club-foot. The treatment consists in modelling the foot like a piece of wax; applying resinous cerate, and numerous bandages; or a sole, or a piece of lead is to be bound on, but not upon the bare skin; the adjustment and attitudes to correspond.³

33. If the dislocated bones cause a wound in the skin, and protrude, it is better to let them alone, provided only they are not allowed to hang, nor are compressed. The treatment consists in applying pitched cerate, or compresses dipped in hot wine (for cold is bad in all such cases), and certain leaves; but in winter unwashed wool may be applied as a cover to the part; neither cataplasms nor bandaging; restricted diet. Cold, great weight, compression, violence, restricted position, all such are to be accounted as fatal measures. When treated moderately (they escape), maimed and deformed; for, if the dislocation be at the ankle, the foot is drawn upwards, and, if elsewhere, according to the same rule. The bones do not readily exfoliate;

¹ The contents of this paragraph are copied almost word for word from § 86 of the work, *On the Articulations*.

² This is literally taken from § 87 of the work, *On the Articulations*.

³ This is a very brief abstract of the contents of § 62 of the work, *On the Articulations*.

for only small portions of them are denuded, and they heal by narrow cicatrices. The danger is greatest in the greatest joints, and those highest up. The only chance of recovery is, if they are not reduced, except at the fingers and hand, and in these cases the danger should be announced beforehand. Attempts at reduction to be made on the first or second day; or, if not accomplished then, on the tenth, by no means on the fourth. Reduction by levers. Treatment:—As in injuries of the bones of the head, and the part is to be kept hot; and it is better to give hellebore immediately after the parts have been reduced. With regard to the other bones, it should be well known, that, if replaced, death will be the consequence; the more surely and expeditiously, the greater the articulation, and the more high its situation. Dislocation of the foot is attended with spasm (tetanus) and gangrene; and if, upon its being replaced, any of these symptoms come on, the chance of recovery, if there be any chance, is in displacing it anew; for spasms do not arise from relaxation, but from tension of the parts.¹

34. Excision, either of articular bones, or of pieces of bones, when not high up in the body, but about the foot or the hand, is generally followed by recovery, unless the patient die at once from *deliquium animi*. Treatment:—As in injuries of the head; warmth.²

35. Sphacelus of the fleshy parts is produced by the tight compression of bleeding wounds, and by pressure in the fractures of bones, and by blackening, arising from bandages. And in those cases in which a portion of the thigh or arm, both the bones and the flesh drop off, many recover, the case being less dangerous than many others. In cases, then, connected with fracture of the bones, the separation of the flesh quickly takes place, but the separation of the bone, at the boundary of its denuded part, is slower in taking place. But the parts below the seat of the injury, and the sound portion of the body, are to be previously taken away (for they die previously), taking care to avoid producing pain, for *deliquium animi* may occasion death. The bone of the thigh in such a case came away on the eightieth day, but the leg was removed on the twentieth day. The bones of the leg, in a certain case, came

¹ This is condensed from §§ 63-7 of the work, On the Articulations.

² See § 68 of the work, On the Articulations.

away at the middle on the sixtieth day. In these cases the separation is quick or slow, according to the compression applied by the physician. When the compression is gently applied, the bones do not drop off at all, neither are they denuded of flesh, but the gangrene is confined to the more superficial parts. The treatment of such cases must be undertaken; for most of them are more formidable in appearance than in reality. The treatment should be mild, but, with a restricted diet; hemorrhages and cold are to be dreaded; the position, so as that the limb may be inclined upwards, and afterwards, on account of the purulent abscess, horizontally, or such as may suit with it. In such cases, and in mortifications, there are, usually, about the crisis, hemorrhages and violent diarrhœas, which, however, only last for a few days; the patients do not lose their appetite, neither are they feverish, nor should they be put upon a reduced diet.¹

36. Displacement of the spine, if inwards, threatens immediate death, attended with retention of urine and loss of sensibility. Outwards, the accident is free from most of these bad effects, much more so than when there is merely concussion without displacement; the effects in the former case being confined to the spot affected, whereas in the latter they are further communicated to the whole body, and are of a mortal character. In like manner, when the ribs are fractured, whether one or more, provided there be no splinters, there is rarely fever, spitting of blood, and sphacelus, and ordinary treatment without evacuation will suffice, provided there be no fever;—bandaging, according to rule; and the callus forms in twenty days, the bone being of a porous nature. But in cases of contusion, tubercles form, along with cough, suppurating sores, and sphacelus of the ribs, for nerves from all the parts run along each rib. In many of these cases hæmoptysis and empyema also take place. The management of this case consists in careful treatment, bandaging according to rule, diet at first restricted, but afterwards more liberal, quiet, silence, position, bowels, and venereal matters regulated. Even when there is no spitting of blood, these contusions are more painful than fractures, and are more subject in time to relapses; and when any mucous collection is left in

¹ This is condensed from § 69 of the work, *On the Articulations*.

the part, it makes itself be felt in disorders of the body. Treatment:—burning, when the bone is affected, down to the bone, but not touching the bone itself; if in the intercostal space, the burning must not extend through it, nor be too superficial. In splanchnus of the ribs, tents are to be tried, all other particulars will be stated afterwards; but they should be learned by sight rather than by words, namely, food, drink, heat, cold, attitude; medicines, dry, liquid, red, dark, white, sour, for the ulcers, and so with regard to the diet.¹

37. Displacements (*of the vertebrae*) from a fall rarely admit of being rectified, and those above the diaphragm are most difficult to rectify. When the accident happens to children, the body does not grow, with the exception of the legs, the arms, and the head. Excurvation, in adults, speedily relieves the individual from the disease he is labouring under, but in time it renews its attack, with the same symptoms as in children, but of a less serious nature. Some individuals have borne this affection well, and have turned out to be brawny and fat. But few of them have lived to the age of sixty. Lateral curvatures also occur, the proximate cause of which is the attitudes in which these persons lie. These cases have their prognostics accordingly.

38. The rule for the reduction and adjustment:—The axle, the lever, the wedge, pressure above;² the axle to separate, the lever to push aside. Reduction and adjustment are to be accomplished by forcible extension, the parts being placed in such a position as will facilitate the conveying of the displaced bone over the extremity of the bone from which it was displaced: this is to be accomplished either with the hands, or by suspension, or axles, or turned round something. With the hands this is to be effected properly, according to the structure of the parts. In the case of the wrist and elbow, the parts are to be forced asunder, at the wrist in the line of the elbow, and the elbow with the fore-arm at a right angle with the arm, as when it is suspended in a sling. When we want to separate the protruding bones, and force them into place, in the case of the fingers, the toes, or the wrist, the proper separation may be

¹ This and the next paragraph are taken partly from § 41 of the work. On the Articulations, and partly from the three following paragraphs of the same book.

² See On Fractures, § 31.

made by hands, while the projecting part is forced into its place by pressing down with the heel or the palm of the hand upon some resisting object, while something moderately soft is laid under the projecting part, but nothing such under the other, and then pressure is to be made backwards and downwards, whether the dislocation be inwards or outwards. In lateral displacements, pressure and counter-pressure must be made on the opposite sides. Displacements forwards can be reduced neither by sneezing, nor coughing, nor by the injection of air, nor by the cupping-instrument; and if anything can do good in such a case, it is extension. People are deceived in fractures of the spinal processes, the pain of which causing the patient to stoop forwards, the case is taken for dislocation inwards: these fractures heal speedily and easily. Dislocation outwards is to be remedied by succussion, when high up, towards the feet; and when situated low down, in the contrary direction; the part is to be pressed back into its place, either with the foot or a board. Dislocations to either side, if they admit of any remedy, are to be treated by extension, and suitable attitudes, with regimen. The whole apparatus should be broad, soft, and strong; or otherwise, they should be wrapped in rags; before being used, they should all be prepared proportionately to the length, height, and breadth. In applying extension to the thigh, for example, the bands should be fastened at the ankle and above the knee, these stretching in the same direction, another band to be passed by the loins, and around the armpits, and by the perineum and thigh, one end passing up the breast, and the other along the back, these all stretching in the same direction, and being fastened either to a piece of wood resembling a pestle, or to an axle. When this is done on a couch, either of its feet is to be fastened to the threshold, and a strong block of wood is to be laid across the other, and the pieces of wood resembling a pestle are to be raised on these, to make extension and counter-extension; the naves of a wheel are to be fastened in the floor, or a ladder is to be adjusted, so that extension may be made in both directions. The thing commonly used is a bench six cubits long, two cubits broad, one fathom in thickness, having two low axles at this end and that, and having at its middle two moderate-sized pillars, to which is to be adjusted a transverse piece of wood like the step of a ladder, which is to receive the

piece of wood tied below the limb, as is done in dislocation at the shoulder; and the bench is to have excavations like trays, smooth, four inches in breadth and depth, and at such an interval as to leave room for the lever used to reduce the limb. In the middle of the bench a square hole is to be scooped out to receive a small pillar, which, being adjusted to the perineum, will obviate the tendency of the body to slip downwards, and being rather loose may act somewhat as a lever. In certain occasions a piece of wood is required, which is inserted into a hole scooped out of the wall; the other end of it is then to be pressed down, something moderately soft being placed under it.¹

39. In those cases where the bone of the palate has exfoliated, the nose sinks in its middle. In contusions of the head without a wound, either from a fall, a fracture, or pressure, in certain of these cases acrid humours descend from the head to the throat, and from the wound in the head to the liver and thigh.²

40. The symptoms of sub-luxations and luxations, and where, and how, and how much these differ from one another. And the cases in which the articular cavity has been broken off, and in which the ligament has been torn, and in which the epiphysis has been broken off; and in which, and how, when the limb consists of two bones, one or both are broken: in consequence of these the dangers, chances in which bad, and when the injuries will result in death, and when in recovery. What cases are to be reduced or attempted, and when, and which, and when not; the hopes and dangers in these cases. Which and when congenital dislocations are to be undertaken: the parts in a state of growth, the parts fully grown, and why sooner, or slower: and why a part becomes maimed, and how, and how not: and why a certain part is atrophied, and where,

¹ The contents of this paragraph are taken from various parts of the works, On Fractures, and On the Articulations, but more especially from § 47 of the latter.

² The greater part of this paragraph is founded on the work, On Injuries of the Head. See Epidem. iv, 19, and vi, 3, for cases of exfoliation of the bones of the nose. These are evidently cases of *malignant* sloughing about the mouth and nose, connected no doubt with the pestilential constitution then prevalent. The notice of this affection, given in the Sixth Book, is to this effect: "In those cases in which the bone of the palate exfoliates, the middle of the nose sinks down; but in those in which the sloughing is about the teeth, the ridge is flattened." At Epid. iv, the case is related more circumstantially.

and how, and in what eases to a less extent. And why fractured parts unite sooner or slower, how distortions and callosities form, and the remedy for them. In what cases there are external wounds, either at first or afterwards: in what fractures the bones are shortened, and in what not: in what cases the fractured bones protrude, and when they protrude most: in what cases dislocated bones protrude. That physicians are deceived, and by what means, in what they see, and in what they devise, regarding affections, and regarding cures. Established rules with regard to bandaging: preparation, presentation of the part, extension, adjustment, friction, bandaging, suspension and placing of the limb, attitude, seasons, diet. The most porous parts heal fastest, and *vice versâ*. Distortions, where the bones are crooked. Flesh and tendons wasted on the side of the dislocation. The force used in reduction to be applied at as great a distance as possible from the seat of the displacement. Of nerves (*ligaments?*), those which are in motion and in humidity (*flabby?*) are of a yielding nature; those that are not, less so. In every dislocation the most speedy reduction is best. Reduction not to be made while the patient is in a febrile state, nor on the fourth or fifth day; and least of all, in those of the elbow, and all cases which induce torpor; the soonest the best, provided the inflammatory stage be avoided. Parts torn asunder, whether nerves, or cartilages, or epiphyses, or parts separated at symphyses, cannot possibly be restored to their former state; but callus is quickly formed in most cases, yet the use of the limb is preserved. Of luxations, those nearest the extremities are least dangerous. Those joints which are most easily dislocated are the least subject to inflammation. Those which have been least inflamed, and have not been subjected to after-treatment, are most liable to be dislocated anew. Extension should be made in the position most calculated to enable the one bone to clear the extremity of the other, attention being paid to configuration and place. Adjustment to be made in the direction of the displacement; to push the displaced limb straight backwards and sideways. Parts suddenly drawn aside are to be suddenly drawn back by a rotatory motion. Articulations which have been oftenest dislocated are the most easily reduced; the cause is the conformation of the nerves (*ligaments?*) or of the bones;

of the ligaments, that they are long and yielding ; and of the bones, the shallowness of the articular cavity, and roundness of the head [of the bone that enters it]. Usage, by its friction, forms a new socket. The cause—the disposition, and habit, and age. A part somewhat mucous is not subject to inflammation.¹

41. In those cases where there are wounds, either at first, or from protrusion of the bones ; or afterwards, from pruritus, or irritation ; in the latter case you are immediately to unloose the bandages, and having applied pitched cerate to the wound, bandage the limb, placing the head of the roller upon the wound, and proceeding otherwise as if there were no wound in the case ; for thus will the swelling be reduced as much as possible, and the wound will suppurate most quickly, and the diseased parts will separate, and when it becomes clean the wound will most quickly heal. Splints are not to be applied to the place, nor is it to be bound tight. Proceed thus when no large bones exfoliate, but not in the latter case, for then there is great suppuration, and the same treatment is not applicable, but the parts require to be exposed to the air on account of the abscesses. In such cases where the bones protrude, and whether reduced or not, bandaging is not befitting, but distension is to be practised by means of rolls of cloth, made like those used upon shackles ; one of these is to be placed at the ankle, and the other at the knee ; they are to be flattened towards the leg, soft, strong, and having rings ; and rods made of cornel, and of a proper length and thickness are to be adjusted to them, so as to keep the parts distended ; and straps, attached to both extremities, are to be inserted into the rings, so that the extremities being fixed into the rolls, may effect distension.² Treatment:—Pitched cerate, in a hot state ; the attitudes, position of the foot and hip ; regulated diet. The bones which have protruded through the skin are to be replaced the same day, or next ; not on the fourth or fifth, but when the swelling has subsided. Reduction is to be performed with levers ; when the bone does not present any place upon which the lever can

¹ The contents of this paragraph are taken from various parts of the works, On Fractures, and On the Articulations.

² This method of treating fractures by continued distension is abridged from Fractures, § 30. See also the figures at the end of this volume.

rest, a portion of the part which prevents this is to be sawed off. But the denuded parts will drop off, and the limb become shortened.¹

42. Dislocations at the joints are to a greater and less extent. Those that are to a less extent are the most easily reduced; those that are to a greater extent occasion lesions of the bones, of the ligaments, of the joints, of the fleshy parts, and of the attitudes. The thigh and arm resemble one another very much in their dislocations.²

¹ This is condensed from various parts of the work, On Fractures.

² The opinions here expressed occur both in the treatise On Fractures, and in the work On the Articulations. The analogy between the joints of the upper and lower extremities is adverted to in §§ 8, 9 of the work, On Fractures, and in other parts of that work and the treatise, On the Articulations. See the note on § 18, On Fractures.

APHORISMS.

APHORISMS.

THE ARGUMENT.

WE now come to the examination of a work so celebrated, that Suidas, who lived more than seventeen centuries after the time of Hippocrates, and no doubt spoke the established opinion of his age, does not hesitate to pronounce it to be "a performance surpassing the genius of man." In short it is a work which, from his own time down to within a very recent period, when ancient authority in medicine came to be unjustly discarded, was always looked upon as being one of the most important productions which have come down to us from antiquity. It has been translated (I believe I may say) into all the learned languages on earth: into the Hebrew, Arabic, Latin, English, Dutch, Italian, German, and French languages; it has been commented upon, from the earliest time down to the present day, by a whole host of commentators, some of whom are remarkable for their learning and practical acquaintance with their profession; and it has been published so frequently, and in so many different forms, that the titles alone of the various editions occupy ten pages in the edition of Littré, and still more in that of Kühn. I shall be readily believed, then, to be sincere, when I state that it is with much diffidence that I approach this part of my task, more especially as every previous attempt to confer upon this great work its proper position in the English literature of medicine has proved a complete failure. Of these insignificant translations into English I have already given some account in the Preliminary Discourse, and I shall now merely state in a few words the plan upon which I myself have proceeded. The work in question being remarkable for condensation of thought and brevity of style, the necessity of some explanatory notes, in

order to adapt the subject-matters to the tastes of modern readers, was felt by me to be so strong, that I resolved upon giving on each of the Aphorisms a brief commentary, founded on a careful study of all the commentaries and annotations which I myself have had an opportunity of consulting. It will be seen that my commentaries are remarkably brief, when their bulk is contrasted with that of many of my predecessors; but I may be permitted to say in this place, that I shall feel much disappointed if it be found that I have not given a sufficient amount of illustration to render the understanding of all parts of the work an easy task to a careful reader. Illustrated in this manner, it is hoped that my readers will find no difficulty in comparing the views of our author with those entertained by the profession at the present time.

I have now to give a general exposition of the nature of the work, and a brief analysis of its contents. First, then, with regard to the nature and scope of the present work: the three ancient commentators, Theophilus, Meletius, and Stephanus,¹ have all virtually given the same definition of what is meant by an aphorism, namely (to give a literal translation of their quaint language), that "it is a succinct saying, comprehending a complete statement," or, in other words, that it is "a saying poor in expression, but rich in sentiment." They say it is called an aphorism because (agreeably to the derivation of the word in Greek) "the thought in every instance is defined and distinctly separated from what goes before and succeeds it." Galen, in like manner, pronounces an aphorism to be "a writing of great power, comprehended in few words," that is to say, in more modern language, that it is a writing remarkable for brevity and point.² With regard to the scope and object of our author in this work, the same commentators do not hesitate to pronounce it to have been to embrace the heads of the whole Art and the operations of Nature, by which is probably meant, to give an exposition in brief terms of all the principles of medicine, physiology, and physical philosophy; for the two latter branches of science were generally held to be inseparably connected with the Art of medicine. Hence the work embraces many things relating to the seasons, the risings

¹ See the edition of their Scholia by Dietz, vol. ii. Regimont. Pruss., 1834.

² Comment. IV, in Diet. Morb. Acut.

of the stars, the nature of waters, the symptoms of disease, and the modes of combating them. Stephanus, in particular, passes a high eulogium on the work, as being useful to the perfect scholar, and to the uninitiated,—to those who have been late in beginning their studies, and to those who have been familiar with them from their youth,—to travellers, and to those who reside in cities,—to men of excellent parts, and to those of obtuse understanding,—to the enterprising and the indolent,—to persons whose knowledge is complete, as putting them in mind summarily of those things which they formerly knew, and to those who are imperfect in knowledge, as giving them in a brief space what had been previously delivered to them in a diffuse style.

From a careful examination of the work, it is not difficult to perceive that our author's object was to collect the conclusions to which his investigations on various subjects had conducted him, or, in other words, to give in a general view all the grand results of his preceding inquiries. That the work in question was the production of his advanced age, is frequently stated by Galen,¹ and, indeed, from the nature of it, we might confidently affirm, that no one could have written it but a person who had been long familiarly acquainted with the phenomena of disease, and had maturely reflected on all the various subjects to which the several books of Aphorisms relate. A very considerable portion of the sentences which occur in it are evidently taken from the treatises with which we have been already occupied, especially 'The Prognostics,' 'On the Articulations,' and 'On Airs, Waters, and Places.' But here, on the outset, we are met with a puzzle, namely, how to account for the books of Aphorisms containing many extracts from works which we have set down as being of a spurious nature? Are these interpolations? or, have these sentences been taken from the books of Aphorisms, and transferred to the other works in which they appear? These are questions, which it is much to be regretted that, in many instances, we have no means of answering in a satisfactory manner. Indeed, it must be admitted that, with the most positive evidence in favour of the general authenticity of the Aphorisms, it is unfortunately but too well

¹ See De Crisibus, i, 6.

ascertained that a certain portion of them are unquestionably interpolations; and of a good many more it is often difficult to pronounce whether they be genuine or not. With these drawbacks, from which it is to be lamented that few works which have descended to us from remote antiquity, are altogether exempt, we must proceed to examine the book as we now possess it, and to give a succinct analysis of its subject-matters.

I must mention, however, in the first place, that the Aphorisms were differently divided by the commentators in ancient times. Thus, Soranus divided them into three sections, Ruffus into four, and Galen into seven. In modern editions they are usually divided into eight sections, but those contained in the last of them are generally admitted to be apocryphal, with the exception of a few which have been added to the seventh section by Foës and Littré.

SECTION I.

The work opens with a memorable Aphorism, in which the author strikingly contrasts the shortness of human life with the prolixity of Art; proclaims the necessity of prompt decision, while he states the difficulty of forming a correct judgment, owing to the fallaciousness of medical experience; and evinces his practical acquaintance with the business of the profession, by announcing that it is not sufficient for the physician to be prepared to do his duties himself, unless he disposes those who surround the patient to cooperate with him in the performance of his task (§ 1).

The following Aphorisms, down to the 20th, relate principally to dietetics, or, at least, they bear more or less upon that subject. In the 2d, it is stated that, as in natural evacuations, if the discharges, whether upwards or downwards, be such as the system requires to get rid of, they do good, and are easily supported, but if otherwise, the contrary is the case; so the same rule applies to evacuations produced by the administration of medicines. The next states the danger of too full and too spare a diet in the persons of the Athletes, and hence follows the natural conclusion, that a very full or very spare diet is equally dangerous in the case of convalescents (§§ 3, 4, 5). The rules of diet in diseases are next given with great precision; the propriety of using the sparest diet when the disease

is at its acme, is stated; and in particular it is laid down as a general rule, that the administration of food is to be avoided at the stage of the exacerbations in intermittent fevers, attention, however, being paid to the strength of the patient, so that it may not be allowed to sink for want of proper support. See §§ 6, 7, 8, 9, 10, 11. The symptoms by which the exacerbations and remissions of fever may be judged of, are tersely but distinctly stated in § 12. The system of diet best suiting the different ages, founded on the grand principle of the differences of the innate *or* animal heat in youth and old age, are stated in §§ 13, 14, and the regimen befitting the different seasons in § 15. In § 16 is announced the great principle upon which the regimen in acute diseases is to be regulated, namely, that a diluent diet, that is to say, a diet consisting principally of liquids, is the most suitable in all such cases. In the 17th, 18th, and 19th are given some further directions with regard to the times of administering food. One of the rules there laid down, deserves to be kept in constant remembrance: "something is to be conceded to habit, to season, to country, and to age."

The remaining Aphorisms in this section from the 20th to the 25th, relate entirely to purging, the rules of which are here accurately laid down. One of them is most important, namely, that when the strength permits, evacuation in certain cases should be carried the length of inducing *deliquium animi*. (See § 2.)

SECTION II.

The first eight Aphorisms of this section relate principally to the rules of prognosis, especially those regarding sleep, fasting, and repletion, §§ 1-6: then there are two relating to the effect of food in convalescence, which leads to the remark that when food does not recruit the body, we know that evacuation is required (§ 8); and hence our author proceeds to give directions about purgings (§§ 9, 10), and then he remarks upon the mode of recruiting, which he recommends to be done with liquid food (§ 11); and the consequences of allowing the peccant humours to remain in the system are stated in § 12. Next follow two Aphorisms touching the crisis (§§ 13, 14); and afterwards ingenious directions are given for determining

whether an abscess in the throat or elsewhere, be of a local nature, or whether it affect the constitution (§ 15); then follow three Aphorisms regarding hunger and the administration of food in convalescence (§§ 16, 17, 18); with an important advice as to the necessity of being cautious in giving a prognosis in acute diseases (§ 19); in the next (§ 20), is given a statement, not very intelligible, regarding the condition of the bowels in youth and old age; then, after a short aphorism, in which wine is declared to be the cure of hunger (§ 21), the author states the grand rule of all rational therapeutics, namely, that diseases are to be cured by their contraries (§ 22); three Aphorisms (§§ 23, 24, 25) then follow, relative to crises (the 26th, in which the combination of fever with spasms is stated, seems rather out of place); after this there are two Aphorisms, relative to prognostics in febrile diseases (§§ 27, 28); the next two Aphorisms are devoted to the exposition of the times at which remedial measures are to be used in fevers, these are the beginning and decline, avoiding the acme (§§ 29, 30); the two following (§§ 31, 32) relate to the regimen in convalescence; in the next, the importance of a sound intellect and good appetite in all diseases is stated (§ 33); the following one refers to prognostics, and states the comparative immunity from danger in diseases, when they are in accordance with ages, constitutions, and habits (§ 34); the next one relates to the state of the hypochondrium in diseases,—a point in semeiology to which our author paid great attention (§ 35); in §§ 36, 37, the deleterious effects of purgatives, when unseasonably administered, are pointedly declared; in § 38, the propriety of consulting the palate in laying down the rules of regimen is distinctly stated; the comparative effects of diseases on the old and young are given in § 39; and the danger of pectoral complaints in the old are stated in § 40. The danger attending sudden swoonings is proclaimed in § 41, and hence, naturally apoplexy, and the danger with which it is accompanied, form the subject of § 42; probably from some fancied connexion between the subjects, the author next states the appearances from which one may judge whether or not a person who has been strangled may be resuscitated (§ 43). The comparative degree of danger when disease attacks the fat and the lean is declared in § 44. The 45th relates to the influence which

changes of age, place, and circumstances have on epileptics. The 46th contains the announcement of an important principle in the natural treatment of diseases, namely, that a milder attack of pain is obscured by a more severe. The 47th embraces the symptoms which accompany the formation of pus in an abscess; in the 48th is stated the well-known fact of the need of rest in all disorders of the body. The next four relate to changes, and the dangers attending them: the 49th proclaims the effect of habit in making the weak endure more than the strong; the 50th embraces the same subject in a more comprehensive form; in the 51st the danger of sudden changes is depicted; and in the 52d, the medical practitioner is cautioned not to alter his plan of treatment without a suitable indication. The 53d is a repetition of the 20th, and the last proclaims the advantages of tallness in youth, and the disadvantages in old age.

From the outline now given, it will be readily perceived that very important subjects in semeiology, therapeutics, and prognostics, are touched upon in this section, but that it is often difficult to trace any connexion between the different parts of which it is composed.

SECTION III.

This section, as is stated by Theophilus, the Commentator, is principally devoted to two subjects: the one being the temperature of the seasons and the diseases connected with them; and the other, the different ages and the diseases peculiar to them. The first sixteen relate almost entirely to the seasons, and the states of the weather, with the diseases to which they give rise, and the constitutions best and worst adapted to particular seasons. The changes of the seasons, and the changes of the weather in the different seasons, are declared to be the principal causes of disease. Autumn is held to be the most unhealthy of the seasons. The 17th resumes the subject of the effects of the seasons in different states of the health, and in the 18th, 19th, 20th, 21st, 22d, and 23d, the diseases which prevail most in particular seasons are enumerated. The remaining Aphorisms in this section are devoted to the consideration of the diseases peculiarly incident to certain periods of life.

A large portion of the Aphorisms in this section are taken

from the works 'On Airs, Water, and Places,' and 'On Humours,' that is to say, provided the latter be genuine, which is not now generally admitted. If it is not recognised to be genuine, we must suppose that the parallel passages have been transferred from the Aphorisms to the other work.

SECTION IV.

A great portion of this section relates to semeiology, but the first 21 Aphorisms are restricted to the consideration of purgings, and the circumstances under which they are to be performed. In purgings, it is directed (§ 2) to eject only those humours which it is advantageous for the system to get rid of. In summer the system is to be purged upwards, and in autumn downwards (§ 4); and during the great heat of the dog-days, purgings are to be entirely avoided (§ 5); and many directions are given respecting the administration of the hellebores (§§ 13-16).

From §§ 21-28, the prognostics founded on the alvine discharges are given. The dangers attending the evacuations of black bile are strongly stated in §§ 22, 23, 24.

The 29th and 30th relate principally to crises. The 31st, 32d, and 33d contain a statement of the circumstances under which deposits or abscesses take place on particular parts, and the marks by which they are to be recognised. In the 34th and 35th, two acute affections of the neck are noticed in very striking terms. The next three, namely, the 36th, 37th, and 38th, are semeiotic, and relate to sweats. The 39th and 40th are allied to them, and the same subject is resumed in the 41st and 42d. The 43d, 44th, 45th, 46th, and 47th relate to remittent fevers, and the usual terminations and complications of fevers in general. The Aphorisms from §§ 48-74 all relate to the prognostics in fever, and contain many important observations on this subject. A considerable proportion of them are taken from 'The Prognostics,' and 'The Coan Prænotions.' From the 74th to the end of the section, the Aphorisms relate principally to prognostics founded on the appearances of the urine.

From what has now been stated, it will be readily perceived that this section relates mainly to semeiology and prognostics.

SECTION V.

Theophilus, the Commentator, states, in general terms, that our author delivers diagnostic and prognostic rules in this section. It contains a variety of matters, which may be thus arranged. From §§ 1-6, the danger of convulsions from purging by hellebore, from a wound, from loss of blood, from immoderate purgings, and from drinking, is clearly stated. A favorable prognosis is given in the case of persons before puberty who are seized with epilepsy, but an unfavorable, in the case of those who have passed their 25th year (§ 7).

From §§ 8-15, various prognostics relating to empyema and phthisis are given. The danger of the case in which angina passes down to the lungs is strongly expressed (§ 10).

The medicinal effects of heat and cold in a variety of diseases are delivered with much precision from §§ 16-29. The danger of applying snow and ice to the chest is strongly expressed (§ 24); and the benefit of the affusion of cold water in diseases of the joints is stated with much force (§ 25).

Then follows an interesting series of Aphorisms relating to pregnant women, and the diseases of pregnancy, from §§ 28-62. The 63d relates to the causes of impotence in men. The good and bad effects of milk are given in § 64. The 65th relates to the translations of swelling from the external to the internal parts. To this the next two Aphorisms are nearly allied, that is to say, they relate to swellings consequent upon severe wounds. The 68th contains an important rule in therapeutics, namely, that when the back part of the head is pained, it is relieved by bleeding from the frontal vessels. The 69th relates to the rationale of rigors in women and in men. The 70th announces a most important principle in natural therapeutics, namely, that a quartan may prove a cure of convulsions. The 71st relates to the indications from the state of the skin; and the 72d to the nature of jaundice.

SECTION VI.

This section relates principally to a class of cases which, in the ancient system of prognostics, were called superventions.¹ By this term was meant a disease supervening *or* coming on another disease, as a fever upon pleurisy; or a symptom on a disease, as headache on fever; or a disease on a symptom, as dryness on headache; or a symptom on a symptom, as headache on insomnolency. These superventions are scattered over the section, in what would appear to be a disorderly manner, and are also mixed up with other important Aphorisms on totally different subjects. The Aphorisms in the present section, then, do not well admit of any distinct grouping; but M. Littré has attempted an arrangement of them, which I, in part, shall follow.

The first class of superventions contains cases in which the symptom or disease which supervened proved favorable. These are §§ 1, 10, 11, 13, 14, 15, 17, 21, 25, 26, 37, 40, 41, 48, and 51. Of these, some suggest valuable indications as to the proper method of cure, such as (§ 37) that an external swelling coming on in a case of quinsy relieves the latter; and (§ 17) that it is a good thing in ophthalmy when a diarrhœa comes on; and (§ 15) that spontaneous vomiting relieves diarrhœa; and (§ 11) that dropsy is carried off by a watery discharge from the bowels.

The second class contains cases in which the new disease, or symptom proves an aggravation of the disease. These are §§ 3, 16, 35, 42, 43, 54, 56. Of these, some of the most interesting are— (§ 16) that in confirmed pleurisy and pneumonia a looseness of the bowels aggravates the disease; and (§ 43) that dysentery is a fatal disease when it supervenes on enlargement of the spleen.

Of the others it is difficult to give any arrangement; and I shall merely advert to a few which appear to me particularly deserving of notice, such as (§ 5) that one should consider the nature of pains in the side, and other parts of the body, whether they differ from one another; and (§ 7) that pains in the abdo-

¹ A modern writer, Leonard Iacelinus, in his work entitled *Methodus Præcognoscendi*, has an interesting chapter on the *Supervenientia* (c. viii). In a word, this formed a very important part of the ancient system of prognostics.

minal region are formidable in proportion as they are deep seated; and (§ 12) that in removing hemorrhoids, one should be left, as a safety valve, so to speak, to the system; that (§ 18) wounds in certain parts of the body, of which a list is given, are deadly; that (§ 19) bone and certain other structures of the body, when excised, are not restored; that (§ 20) extravasated blood, in certain cavities of the body, becomes purulent; that (§ 27) it is dangerous to evacuate the fluid rapidly in empyema and ascites. In §§ 29, 30, 55 are given some important statements respecting gout. In § 31 there is an important list of all the various remedies for ophthalmy. At §§ 36 and 48 venesection is pronounced to be a remedy in acute pains of the bladder and side. In § 38 the danger of meddling with cancerous diseases is stated. In § 39 the double nature of convulsions is distinctly indicated. In § 47 it is laid down as a rule, that persons requiring bleeding or purging, should be bled or purged in spring. The last two Aphorisms relate to morbus coxarius, and are very interesting, as showing how well acquainted our author was with this disease in all its stages.

SECTION VII.

In this section, also, a large portion of the Aphorisms belong to the class called superventions, namely, from §§ 1-27, 29, 41, 47, 49, 70, 75, 76, 77, 78, 79, 80, 84, 85, 86. It appears, then, that nearly the half partake of this character. In this list it is generally a symptom which supervenes on a disease, as (§ 1) coldness of the extremities on an acute disease; and (§ 3) hiccup on vomiting; or (§ 7) rigor and delirium upon intoxication; and (§ 11) stupor and delirium on injury of the head; and (§ 15) purulent expectoration on hæmoptysis; and (§ 16) purulent expectoration on phthisis.

Another class is mostly prognostic, as §§ 31, 32, 33, 37, 38, 44, 45, 52, 82. Of these, §§ 31, 32, and 33 relate to the characters of the urine in fevers, and are very interesting.

Another class are diagnostic, as §§ 30, 34, 35, 36, 39, 40, 62, and 69.

Other Aphorisms contained in this section are deserving of being well considered, such as §§ 66, 67, 68, 69, in which the importance of attending to the excretions is pointedly stated. In

§ 72, the prognosis founded on coldness of the extremities, while the internal parts are warm, in intermittent fevers, is distinctly pointed out.

Many of the Aphorisms in the latter part of the work are probably supposititious ; and, moreover, they are possessed of little value. The last, as given here, and in the editions of Foës and Littré, is memorable, from its containing a notable statement of the proportional powers of medicines, the knife, and the actual cautery as remedial means.

This, then, is a brief outline of a work which, whether we regard the value of the subject-matters of which it is composed, or the influence which they have exerted on professional practice during a long lapse of ages, may be confidently pronounced to be one of the most remarkable works in the whole compass of Medical Literature. I may be permitted to say further respecting it, that whoever is possessed with any proper degree of liberal curiosity to understand the real state of professional knowledge at the time when its scattered fragments were first embodied into a regular system ; and whoever would wish to have his mind thoroughly imbued with those enduring principles which have formed the groundwork of medical theory and practice during the many revolutions of professional opinions, in the course of the last twenty-four centuries, should give his days and nights to the study of these Aphorisms. But I feel that any formal eulogy on a work of so undisputed a reputation would be entirely out of place ; and that if I were to attempt it, I might be stopped short at once with the pertinent interrogatory, *Quis culpavit ?*

APHORISMS.

SECTION I.

1. LIFE is short, and the Art long; the occasion fleeting; experience fallacious, and judgment difficult. The physician must not only be prepared to do what is right himself, but also to make the patient, the attendants, and externals cooperate.

The exordium of this work bespeaks at once the reflective philosopher and the practised physician. It commences by contrasting the shortness of human life with the extent of the Medical Art, the parts of which, as Theophilus, the commentator, remarks, are diversified, and some of them require long and tedious investigation. "The occasion is fleeting," that is to say, the season during which remedies may be successfully applied is soon past; as the poet says, "fugit irreparabile tempus." Some render this clause by "the time is urgent," and this interpretation is quite apposite. The following clause might be rendered: "experiment is dangerous, and decision is difficult;" and this appears to be the meaning which Galen puts upon it. He remarks that it is evidently hazardous to experiment in a case which involves the life of a human being, and that it is difficult to catch the truth in medicine, as is evident from the circumstance of the profession being divided into so many opposite sects. The last part of the Aphorism evinces how well he had apprehended the difficulties which beset the practitioner of Medicine, who must not only be well acquainted with the part which he himself has to act, but ought also to possess the talent of making the patient, the assistants, and all around, cooperate with him in the performance thereof. The whole of Galen's Commentary on this Aphorism is replete with philosophical reflection, but is written in too diffuse a style for my limits. The same objection partly applies to those of Theophilus, Damascius, and Meletius. Compare *Loc. in Hom.* l, 1; *ib.* liv, 1; *II Prædict.* six, 13, xxix, 8; *I Morb.* iv, 1-2; *I Morb. Mul.* lxvi, 13; *Humor.* i, 6, 7; *Artic.* ix, 7; *I Epid.* ii, 93, 96; *VI Epid.* ii, 78-82.¹

2. In disorders of the bowels and vomitings, occurring spontaneously, if the matters purged be such as ought to be purged, they do good, and are well borne; but if not, the contrary. And so artificial evacuations, if they consist of such matters as should be evacuated, do good, and are well borne; but if not, the contrary. One, then, ought to look to the country, the season, the age, and the diseases in which they are proper or not.

I need scarcely remark, that this Aphorism consists of two divisions: in the former of these the effects of natural, that is to say, spontaneous evacuation, are described; and in the latter, those of artificial, that is to say, such as are produced by medicinal

¹ The reader is requested to observe that in the Annotations on the Aphorisms the references, for convenience sake, are all made to the edition of Van der Linden, unless otherwise stated.

means. I have adopted the interpretation approved of by Galen, about the correctness of which I cannot entertain a doubt. The last clause of it contains a precept which is evidently of great importance in medical practice, and yet I fear it is often overlooked at the present day. We now seldom find the question mooted whether or not it be safe to practise severe evacuations in hot seasons or in hot countries; in a word, we forget the precept of Hippocrates, who directs us "to look to the country and to the season." A few years ago it was the fashion in this country for us to deride the Italian physicians because they would not bleed *heroically*, as was the practice with us. Now, we are obliged to admit that the Italians were not so far wrong as we supposed, and that their practice was adapted to their own climate. They had not forgot the rule laid down by their ancient countryman: "differunt pro natura locorum genera medicinæ." (Celsus, Præf.) Compare Aphor. i, 25; Humor. ii, 49; VI Epid. iv, 30.

3. In the *athletæ*, *embonpoint*, if carried to its utmost limit, is dangerous, for they cannot remain in the same state nor be stationary; and since, then, they can neither remain stationary nor improve, it only remains for them to get worse; for these reasons the *embonpoint* should be reduced without delay, that the body may again have a commencement of reparation. Neither should the evacuations, in their case, be carried to an extreme, for this also is dangerous, but only to such a point as the person's constitution can endure. In like manner, medicinal evacuations, if carried to an extreme, are dangerous; and again, a restorative course, if in the extreme, is dangerous.

In the Life of Hippocrates we have stated that he was initiated in medicinal gymnastics under Herodicus; in this school, then, it is to be supposed that he learned the facts which he enunciates in this Aphorism. The two following modern authors have written very learnedly on the gymnastics of the ancients: Hieron. Mercurialis (*de Arte Gymnast. Veter.*); Schulze (*Hist. Med., and de Athletis Veterum*). Hippocrates evidently points out what happens in the case of the *athletæ*, as a lesson, to show the dangerous effects of repletion; he also takes occasion to state the danger of carrying depletion to an extreme. About the meaning of the different parts of this Aphorism there can scarcely be any doubt; and none of the commentaries, ancient or modern, supply much interesting information under this head. Compare IV *Morb.* xi, 15, 16; Aphor. ii, 51; *Vet. Med.* xviii, 1; *Vict. Acut.* xvii, 10; and Celsus, ii, 2.

4. A slender and restricted diet is always dangerous in chronic diseases, and also in acute diseases, where it is not requisite. And again, a diet brought to the extreme point of attenuation is dangerous; and repletion, when in the extreme, is also dangerous.

As Galen, in his Commentary, remarks, our author, having pointed out the dangerous effects of too great repletion and depletion on the health, in the present Aphorism defines the effects of a slender, an extremely spare, and a full diet, in diseases. Any difficulty which the reader may meet in this Aphorism, he will find cleared up satisfactorily.

torily by Heurnius and Berends, in their very sensible Commentaries on the Aphorisms of Hippocrates. Compare *Vict. Acut.* xx, 6, 7; *Aph.* vi, 39; and *Celsus*, iii, 2.

5. In a restricted diet, patients who transgress are thereby more hurt (than in any other?); for every such transgression, whatever it may be, is followed by greater consequences than in a diet somewhat more generous. On this account, a very slender, regulated, and restricted diet is dangerous to persons in health, because they bear transgressions of it more difficultly. For this reason, a slender and restricted diet is generally more dangerous than one a little more liberal.

There have been different interpretations of the first clause of this Aphorism, but I am satisfied that Galen and Theophilus are correct in explaining it as I have rendered it, namely, that a patient who is put upon too strict a regimen is apt to transgress the rules prescribed to him, and in this way he is more injured than if he had been allowed a fuller diet. Damascius also understands Hippocrates to mean that when patients are much restricted as to regimen, they are apt to deceive their physicians, and to take things that are very prejudicial to them. Lefebure, however, understands Hippocrates to mean that the physician commits a mistake by putting his patient upon too restricted a diet, whereby he suffers. As I have stated, however, I prefer the interpretation given by the old commentators, to which, I should mention, Bosquillon also inclines. With regard to the meaning of the latter part of the Aphorism, and the correctness of the opinions there stated, there can, to my mind, be no question. On the propriety of using a varied regimen, see *Celsus*, i, 1. Compare *Vet. Med.* xv, 9-14; *Vict. Acut.* xx, 6, 7, 11.

6. For extreme diseases, extreme methods of cure, as to restriction, are most suitable.

By extreme diseases it will be readily understood is meant, extremely acute, as is explained by Galen, Theophilus, Damascius, and Stephanus. By extreme methods of cure these commentators all understood an extremely restricted regimen. Heurnius, however, gives a wider latitude to our author's rule of practice, and understands him to mean that, in very dangerous diseases, the physician is warranted in using "*dieta quam tenuissima, pharmacia exquisita, et crudeli chirurgia.*" This mode of interpretation is ingenious, but it is unsupported by any of the ancient medical authorities, who may be supposed the best judges of our author's meaning. At the same time it must be admitted that Cicero seems to have adopted this interpretation; for it would appear to be this passage which he alludes to (*de Officiis*, i, 24). Our earlier modern authorities in surgery also adopted this interpretation. See Angelus Bologninus, *de Ulc.* Compare, further, *Loc. in Homin.* xxxvi, 14, lv, 7-11; *Artic.* i, 9.

7. When the disease is very acute, it is attended with extremely severe symptoms in its first stage; and therefore an extremely attenuating diet must be used. When this is not the case, but it is allowable to give a more generous diet, we may depart as far from the severity of regimen as the disease, by its mildness, is removed from the extreme.

The meaning here seems quite obvious, and the rule of practice judiciously laid down. The ancient commentators agree in explaining "a very acute disease" to mean one that is finished in four days. As Galen remarks, inflammations and fevers are the classes of disease principally comprehended under this order. Compare Aph., iv, 10; I Epid., iii, 29, 33; II Epid., i, 24; Celsus, iii, 6.

8. When the disease is at its height, it will then be necessary to use the most slender diet.

Theophilus, in his Commentary, remarks, that there are four stages of a disease: the beginning, the increase, the height (*or* acme), and the decline. That there ought to be least food administered when the disorder of the system is at its height, and consequently when the body is in the worst possible condition to digest it, is evidently a proper rule of practice, and consistent with reason. Compare Aph. ii, 28; Viet. Acut. xvii, 11, xx, 1-6.

9. We must form a particular judgment of the patient, whether he will support the diet until the acme of the disease, and whether he will sink previously and not support the diet, or the disease will give way previously, and become less acute.

This Aphorism is evidently a corollary, as it were, to the preceding one, indeed, the two are joined together by Dietz along with the commentaries of Damascius and Theophilus. As the former of these remarks, when the physician calculates that the strength of the patient will not endure through all the stages of the disease, it is evidently his duty to give a more nourishing diet than would otherwise be allowed. Berends, in his Commentary, draws attention to the term here used by our author (*συντεκμαίρεσθαι*), the meaning of which rests on the distinction between a general symptom (*σημῶν*) and a special one (*τέκμαρσιν*). The physician, then, is supposed to form his judgment in this case from his knowledge of the peculiar constitution of his patient. From this we see the importance of a physician being well acquainted with the habits and constitution of his patient. This is very pointedly stated by Celsus in his Preface. (See p. 16, ed. Milligan.) Compare Viet. Acut. xix, 5-10; Aph. i, 23; Humor. iii, 87.

10. In those cases, then, which attain their acme speedily, a restricted diet should be enjoined at first; but in those cases which reach their acme later, we must retrench at that period or a little before it; but previously we must allow a more generous diet to support the patient.

The meaning here is so obvious, that even Galen is very brief under this head. Damascius states that it was considered to be an early acme when it happened during the first seven days. Compare Viet. Acut. xix, 8, 9; Affect. xlii, 3.

11. We must retrench during paroxysms, for to exhibit food would be injurious. And in all diseases having periodical paroxysms, we must restrict during the paroxysms.

This rule follows, as a natural consequence, from Aphor. i, 7. I would beg here to refer the reader to the admirable chapter of Celsus, On Regimen in Fevers, iii, 4.

See, further, Aph. i, 19; Nat. Hom. xviii, 30, 31; Humor., iii, 82; Loc. in Hom. xxxix, 1; Affect. xlii, 3, lii, 14.

12. The exacerbations and remissions will be indicated by the diseases, the seasons of the year, the reciprocation of the periods, whether they occur every day, every alternate day, or after a longer period, and by the supervening symptoms; as, for example, in pleuritic cases, expectoration, if it occur at the commencement, shortens the attack, but if it appear later, it prolongs the same; and in the same manner the urine, and alvine discharges, and sweats, according as they appear along with favorable or unfavorable symptoms, indicate diseases of a short or long duration.

The general meaning here is obvious, although there be differences of opinion respecting certain terms which are used in this Aphorism. On them see, in particular, Heurnius and Berends, by which I have been assisted in making my translation. That the changes in any disease are to be calculated from the nature of the disease, and from the symptoms which come on in its later stages (the epiphænomena, the superventions of our author), seems quite clear. Galen's lengthy and elaborate Commentary on this head may be read with some advantage, although one cannot see much necessity for it, seeing that the meaning is sufficiently transparent without such illustration. Compare II Epid. i, 26-30; Aph. v, 8, 15; Prænot. xiii, 1, 12, xiv, 12; Coac. iii, 132, 143; III Morb. xxi, 33, 34.

13. Old persons endure fasting most easily; next, adults; young persons not nearly so well; and most especially infants, and of them such as are of a particularly lively spirit.

This Aphorism is beset with considerable difficulties. Celsus would appear, at first sight, to controvert decidedly the rule laid down by Hippocrates. He says, "quod ad ætates vero pertinet, in diem facillime sustinent mediæ ætates, minus juvenes, minime pueri et senectute confecti." (i, 3.) In fact, it stands to reason, and is conformable to common experience, that persons in extreme old age could not long endure a total abstinence from food; for, as the poet Sophocles beautifully expresses it, "a slight turn of the scale settles aged persons (*σικκρά παλαιὰ σώματ' ἐνιάζει ροπή*," Cæd. Tyr. 961). Berends thinks the view which Galen takes of our author's meaning is the only one which solves the difficulties. Galen holds that Hippocrates did not mean "total abstinence from food," but merely "a spare diet," and by "aged persons," that he did not understand "persons in extreme old age," but "persons of advanced years." I am inclined to adopt this interpretation. Sanctorius, however, (Aph., i, 83) and Kaau Boerhaave (Persp. Diet. Hippocrat.) held that it is true that old men bear fasting better than men at any other age.

14. Growing bodies have the most innate heat; they therefore require the most food, for otherwise their bodies are wasted. In old persons the heat is feeble, and therefore they require little fuel, as it were, to the flame, for it would be

extinguished by much. On this account, also, fevers in old persons are not equally acute, because their bodies are cold.

This Aphorism contains the physiological explanation of the facts assumed in the preceding one; namely, that the vital flame, so to speak, is strongest in growing bodies, and gradually becomes weaker as life advances, until in extreme old age it becomes quite feeble. I refer the reader to what I have stated in the Third Section of the Preliminary Discourse, on the connexion between heat and vitality. The ancient philosophers all held that every animal and vegetable substance is endued with a *calidum innatum*, which serves as the first instrument by which its vital operations are performed. On this physiological opinion Galen has written with great ingenuity and earnestness, more especially in his Commentary on this Aphorism, and in his work, Against Lycus. (Opera, tom. v, 329; ed. Basil.) The term *calidum innatum* occurs frequently in the works of Harvey and his contemporaries. We now use "animal heat" in place of it, as applied to animals; but we seem to want a term to comprehend the corresponding tepidity of vegetables. It is to be regretted, in short, that physiologists should have dropped the use of the term "*calidum innatum*." On this subject, one of the best works which the reader can consult is the one entitled *Perspiratio diæta Hippocreati*, of Kaau Boerhaave. Compare *De Arte*, xxii, 2; *I Diæt.* xxviii, 5, 6, 7; *Nat. Human.* xxiv, 7, 8; *Aph.* iii, 7; *I Morb.* xx, 15, 16, xxi, 16.

15. In winter and spring the bowels are naturally the hottest, and the sleep most prolonged; at these seasons, then, the most sustenance is to be administered; for as the belly has then most innate heat, it stands in need of most food. The well-known facts with regard to young persons and the *athletæ* prove this.

This Aphorism, in like manner, turns upon the ancient doctrine of *calidum innatum*, which, according to Hippocrates and the other authorities, is most abundant in winter and spring; and hence the greatest supply of food is required at these seasons. In confirmation of the opinions here stated, he appeals to the well-known facts in reference to infants and the *athletæ*, who, being possessed of a large amount of the *calidum innatum*, require a corresponding supply of food. Berends' Commentary on this Aphorism is very sensible and instructive. Compare *Humor.* v, 4; *Ær., Aq., Loc.* ii, 2; *Aphor.* i, 18; *Salubr. Diæt.* i, 2, 26; *IV Morb.* xvii, 9.

16. A humid regimen is befitting in all febrile diseases, and particularly in children, and others accustomed to live on such a diet.

That a humid *or* diluent diet is the kind best adapted for febrile diseases, is an important conclusion derived by our author from his disquisition, On the Regimen in Acute Diseases. I need scarcely remark that it is one of the most important facts in the practice of medicine. It is well expressed by Celsus: "*Cibus autem febricitantibus humidus est aptissimus, aut humori certe quam proximus,*" &c. (iii, 6.) The rationale of this practice, according to Galen, is, that a fever being an affection of a hot and dry nature, the proper indication in the cure of it is to administer things of a cooling and humectating nature. Galen informs us that some of the adversaries of Hippocrates objected to this Aphorism as not containing a truth of general appli-

cability, since, as they argued, such a regimen would be very improper in fevers of a dropsical nature; but, as Berends justly remarks, modern experience in the treatment of dropsy is quite in favour of the diluent treatment even in that case. Compare *Insomn.* xv, 12, 15, 16, 17; *III Morb.* xxxi, 11; *Salubr. Diat.* ii, 5, 11.

17. We must consider, also, in which cases food is to be given once or twice a day, and in greater or smaller quantities, and at intervals. Something must be conceded to habit, to season, to country, and to age.

In the work, *On Ancient Medicine*, our author adverts to the differences which prevail in regard to the number of meals among persons in good health. He seems here to lay it down as a rule, that attention should be paid to the habit in administering food to persons in disease. Compare *Vict. Acut.* v, 19, 20, xix, 6; *Vet. Med.* xviii, 4; *III Diat.* i, 10.

18. Invalids bear food worst during summer and autumn, most easily in winter, and next in spring.

There will be little doubt, I suppose, that the opinion here stated is well founded. This Aphorism is nearly allied to the fifteenth; indeed Theophilus informs us that some had held it to be merely a repetition of that Aphorism. Compare also, *Humor.* viii, 24; and *Celsus*, i, 3.

19. Neither give nor enjoin anything to persons during periodical paroxysms, but abstract from the accustomed allowance before the crisis.

This Aphorism is so like the eleventh, that I am much disposed, with Lefebure and Berends, to set it down as an interpolation. Galen and Heurnius attempt to make out a distinction, but it is not obvious after all. See also, *Humor.* viii, 24.

20. When things are at the crisis, or when they have just passed it, neither move the bowels, nor make any innovation in the treatment, either as regards purgatives or any other such stimulants, but let things alone.

Our author, it will be seen, here recommends the expectant method, when things are at a crisis. It would be difficult to controvert this practice even at the present day. By other stimulants, he means clysters and suppositories. Compare *Humor.* iii, 83; *Nat. Hum.* xix, 8.

21. Those things which require to be evacuated should be evacuated, wherever they most tend, by the proper outlets.

That is to say, by the stomach, or bowels, or uterus. See the Commentaries of Galen and Theophilus; also *Humor.* i, 2, 24, iii, 85; *VII Epid.* xxxii, 4; *Aph.* vii, 61.

22. We must purge and move such humours as are concocted, not such as are unconcocted, unless they are struggling to get out, which is mostly not the case.

The only difficulty in this Aphorism is about the expression, which I have rendered "struggling to get out" (*ὁρῶντι*). As Galen explains, its original meaning

is "in a state of orgasm," that is to say, in a state of excitement and irritability, or in a turgid state. See Heurnius and Berends; also Humor. iii, 84; Aph. iv, 13, vii, 68.

23. The evacuations are to be judged of not by their quantity, but whether they be such as they should be, and how they are borne. And when proper to carry the evacuation to *deliquium animi*, this also should be done, provided the patient can support it.

I need scarcely remark that this is a very important rule of practice, and one that deserves to be maturely weighed and comprehended. The commentators attempt to define the cases in which evacuation is to be carried the length of inducing *deliquium animi*. They instance strong inflammations, violent fevers, and very severe pains. See the Commentaries of Galen, Theophilus, and Damascius. It will be remarked that our author guards his recommendation of this practice by restricting it to those cases in which the powers of the patient are sufficient to support it. The commentators understood that the evacuation here meant is venesection, but I incline to think it is purging by drastic medicines. This Aphorism seems to be taken from the work, On Humours, iii, 86, 87. See also, Aph. i, 25; Loc. in Hom. xxxix, 9; Viet. Acut. lii, 8, 9; II Morb. Mulier. xxix, 9.

24. Use purgative medicines sparingly in acute diseases, and at the commencement, and not without proper circumspection.

This rule of practice here laid down is a natural inference from Aphor. xxii; indeed Berends arranges this Aphorism immediately after it. Galen admires our author's cautious spirit in forbidding purging altogether in acute diseases, unless when proper circumspection has been used. He seems to lay it down as a rule that we are to purge only when we have reason to believe that more good will be derived from the evacuation of the offending matters, than harm from the administration of the purgative medicines. This seems a very safe and sensible rule; but, I need scarcely remark, that we are now much bolder in the use of purgative medicines; and accordingly Berends seems at a loss to decide in this case between modern usage and the authority of Hippocrates. This Aphorism is in accordance with Humor. iii, 97. See Purg. iv, 1, v, 4; Aph. i, 22; I Morb. Mul. xxiii, 9.

25. If the matters which are purged be such as should be purged, the evacuation is beneficial, and easily borne; but, if otherwise, with difficulty.

All the commentators point out the resemblance between this and the second Aphorism. Although certainly in so far a repetition, it is evidently, as stated by Galen, a timely remembrancer, in this place, of a truth formerly announced and applying to the present occasion. There can be no doubt that, in this place, it forms an excellent conclusion to the four preceding Aphorisms on the use of purgative medicines. Compare further, Humor. ii, 49; VI Epid. iv, 30.

SECTION 11.

1. In whatever disease sleep is laborious, it is a deadly symptom ; but if sleep does good, it is not deadly.

The meaning of "laborious," as an epithet to sleep, Galen remarks, is clearly indicated by the last clause of the sentence to which it is a contrast. As the meaning there is clearly stated to be "to do good," there can be no doubt that, in the former clause, it signifies "to do harm." The term "deadly," too, it deserves to be remarked, is only a strong expression for "dangerous." This is pointed out by Galen, Foës, and Berends. Galen acutely remarks further under this head, that sleep, being sometimes the commencement of coma in disease, is, in such a case, the very reverse of a favorable symptom. He further explains the cause of sleep having these effects, upon physiological principles: the innate heat, he remarks, being more concentrated inwardly during sleep, if it does not do good, it must necessarily do harm. I Epid. iii; Æg. vii, 83; II Epid. iii, 12; Aph. iv, 67; I Prædiet. xv, 5, 17; VI Epid. viii, 5.

2. When sleep puts an end to delirium, it is a good symptom.

As remarked by Galen and the others, the truth embodied in this Aphorism follows naturally from the preceding one. Lefebure mentions an addition to this Aphorism, which is found in certain MSS. to this effect: "but when it increases (the delirium), it is deadly"—*ὅκου δὲ παρέχει, θανατωδές*. This reading does not appear to be recognised by any of the ancient commentators, and therefore it may be regarded as an interpolation. Compare I Epid. iii; Æg. vii, 13, 16; II Epid. iii, 11, 12; also Celsus, iii, 18.

3. Both sleep and insomnolency, when immoderate, are bad.

Few experienced physicians will be disposed to question the opinion here stated, and yet Galen informs us that some of the commentators had denied that sleep could ever be a symptom of bad omen. Galen and the other commentators hold that sleep is produced by the cooling of the first sensorium, that is to say, of the brain, and insomnolency by a heated state of the same. This physiological dogma seems plausible, and our modern physiologists have neither confirmed nor controverted it. Compare Aph. vii, 71; Humor. iii, 78; I Coac. ii, 35; VI Epid. vi, 6.

4. Neither repletion, nor fasting, nor anything else, is good when more than natural.

The propriety of the rule "ne quid nimis" will, of course, not be questioned. I need scarcely remark that it is a truth which the poets have frequently proclaimed to mankind. Compare VI Epid. viii, 16; II Morb. xvi, 13; Aph. ii, 21, 61; Vet. Med. xv, 13, 15.

5. Spontaneous lassitude indicates disease.

This Aphorism announces an important and now generally admitted fact. On the kinds of lassitude described by the ancient authorities, see PAULUS ÆGINETA, Book 1, 22, Syd. Soc. edit.

6. Persons who have a painful affection in any part of the body, and are in a great measure insensible of the pain, are disordered in intellect.

This also is the announcement of an important and unquestionable fact. Galen instances erysipelas, inflammation, a wound, a bruise, a rupture, and a sprain, as cases in which it is an unfavorable symptom when the patient does not feel pain, and when delirium may accordingly be apprehended. Compare Celsus, ii, 2, 7.

7. Those bodies which have been slowly emaciated should be slowly recruited; and those which have been quickly emaciated should be quickly recruited.

This appears a very judicious rule of practice, the rationale of which, as pointed out by Berends, seems to be, that, in emaciation resulting from acute disease, the digestive functions are only impaired for a time; whereas in chronic, the depravation of them is of a more inveterate character. The ancient commentators have nothing interesting under this head. Compare Aliment. xi, 6, 7; Aph. ii, 11, 18.

8. When a person after a disease takes food, but does not improve in strength, it indicates that the body uses more food than is proper; but if this happen when he does not take food, it is to be understood that evacuation is required.

That there have been differences of opinion regarding the text and import of this Aphorism, may be seen upon consulting the Commentaries of Galen and Berends, and the note of M. Littré. It appears to me that our author evidently refers to the treatment of the depraved appetite, and anorexia of convalescents. Compare Aph. ii, 22, 31; Coac. i, 179; Aph. iv, 41, 45, vii, 64.

9. When one wishes to purge, he should put the body into a fluent state.

That is to say, the body should be put into a state to admit readily of evacuations. For this purpose Galen mentions hydromel, in which some hyssop, marjoram, or the like, has been boiled. He arranges this Aphorism immediately before the last of the first section, as well as here. Theophilus says the body is to be prepared for evacuations by giving attenuant and emollient articles. Compare Aph. iv, 13, vii, 70; IV Morb. ix, 1; also Celsus, iii, 18.

10. Bodies not properly cleansed, the more you nourish the more you injure.

The meaning here is clear, and the rule of practice unexceptionable. Compare Aph. vii, 65, 67; Vet. Med. xii, 11, 12, xix, 10-14, &c.

11. It is easier to fill up with drink than with food.

The meaning is, that it is easier to recruit an emaciated body with liquid than with solid food. Among liquid articles of food Galen enumerates particularly thick and red wines. Berends has a most interesting Commentary on this Aphorism, but I regret that it is too bulky for my limits. See also, Vet. Med. xii, 3, 9; Aliment. xi, 5.

12. What remains in diseases after the crisis is apt to produce relapses.

That relapses are to be apprehended when the body is left in an unsound state by the illness, is sufficiently obvious. Compare Humor. vii, 16, 17; II Epid. i, 81, iii, 72.

13. Persons in whom a crisis takes place pass the night preceding the paroxysm uncomfortably, but the succeeding night generally more comfortably.

That a crisis is preceded by disturbance in the system is remarked by all the later authorities. See in particular PAULUS ÆGINETA, Book II, 10. This truth is illustrated by an example related in the VI Epidem. ii, 42. Galen informs us that the last part of the Aphorism was wanting in certain copies. Celsus gives a version of the whole sentence (iii, 5). See further, I Epid. iii; Æg. vii, 13; III Epid. iii, 66.

14. In fluxes of the bowels, a change of the dejections does good, unless the change be of a bad character.

Heurnius and Prosper Martian understand this Aphorism as referring to critical diarrhœas. When these, then, are of varied characters, they purge the body the more effectually. The bad characters of the dejections are minutely given in the Prognostics (10), and Aphor. iv, 21.

15. When the throat is diseased, or tubercles (*phymata*) form on the body, attention must be paid to the secretions; for if they be bilious, the disease affects the general system; but if they resemble those of a healthy person, it is safe to give nourishing food.

Upon reference to the Commentary of Berends and the notes of Heurnius, it will be seen that there have been different readings and interpretations of this Aphorism. Heurnius supposes that allusion is here made to critical abscesses in the parotid gland, of which an interesting description is given in the Third Book of the Epidemics. I am inclined to think that our author merely means to state the symptoms by which it may be determined whether glandular swellings about the neck be of a local nature, or whether they are connected with constitutional disorder. A better rule for solving this question cannot well be imagined than to pay attention to the characters of the secretions; for by attending to this direction one need seldom commit mistakes in such a case. See further, Aph. iii, 26.

16. When in a state of hunger, one ought not to undertake labour.

This Aphorism is well rendered by Celsus: "Si quibus de causis futura inedia est, labor omnis vitandus est." (i, 2.) Galen very ingeniously applies this rule to the treatment of invalids, and infers from it that when the system is debilitated from want of food, it is unsafe to pursue any active treatment, such as venesection, purging, vomiting, or any other means which would produce a great change in the body. He praises Hippocrates for always attending to the preservation of the vital powers.

17. When more food than is proper has been taken, it occasions disease; this is shown by the treatment.

Galen, in a lengthy and very elaborate Commentary, gives what he holds to be the meaning of this Aphorism, namely, that it is meant as a particular illustration of the general truth announced in the fourth Aphorism of this section, and that it is intended to teach that too much food, like too much of anything, is hurtful to the body, and that this is shown by the mode of cure, which consists in evacuation. Neurnius thinks that it applies to the regimen of convalescents. Lefebure emends the text, and instead of *ροῦσον ποίει* reads *ναυσίην ποίει*, and for *ἴησις* reads *ἴρησις*, "inanition." He would then translate it thus: "when too much food is taken, it induces nausea; inanition shows this." I see no reason for departing from the interpretation given by Galen, which is adopted by Theophilus and Damascius. Compare Aph. ii, 22; Vet. Med. viii, 16, xii, 10, xiii, 11, 24, xix, 6, 31; I Diat. xxx, 15; III Diat. xv, 16; Loc. in Hom. lii, 8, 9.

18. From food which proves nourishing to the body either immediately or shortly, the dejections also are immediate.

Galen and the other Greek commentators understand this Aphorism to mean, that as liquid food, and especially wine, is soon digested and furnishes nourishment to the body, so is it speedily evacuated; whereas solid food, such as beef and shell-fish, as it is slowly digested, so is it also slowly evacuated. This would appear to me to be decidedly the meaning. For the interpretation of Lefebure, see Berends's Commentary. Compare Aliment. xi, 4, 5; VI Epid. v, 37, 53.

19. In acute diseases it is not quite safe to prognosticate either death or recovery.

Dr. Rush gives a similar advice to young practitioners of the Art; that is to say, not to treat any febrile case as being slight, nor abandon any one as hopeless. No doubt it is a prudent maxim. Compare Decent. Ornat. x, 7, 8; and Celsus, ii, 6.

20. Those who have watery discharges from their bowels when young have dry when they are old; and those who have dry discharges when they are young will have watery when they are old.

Galen and the other Greek commentators wrote very long dissertations on this Aphorism, which, however, enunciates as a general fact what will scarcely be admitted as such by any experienced physician of the present day. Lefebure accordingly rejects it entirely as unworthy of the great Hippocrates. See further Berends. It is evidently closely connected with Aphorism 53 of this section.

21. Drinking strong wine cures hunger.

By hunger, in this place, Galen, Theophilus, and Damascius understand an abnormal appetite for food. Galen, however, does not approve of restricting the term hunger here to the signification of bulimia. That strong wine, when drunk, removes hunger, all are agreed. See Celsus, i, 3.

22. Diseases which arise from repletion are cured by depletion; and those that arise from depletion are cured by

repletion; and in general, diseases are cured by their contraries.

That diseases are cured by their contraries—or as it is expressed in Latin, “*contraria contrariis curantur*,” is a general rule frequently announced in the Hippocratic works, as in the treatise, *De Locis in Homine*. See the notice of that work in the Preliminary Discourse. That this rule is announced here would appear probable to me, but Berends is not satisfied with this interpretation. See his Commentary. See further, *Nat. Human.* xvii, 11, 12, 13; *San. tuend. ad Dem.* 8; *VI Epidem.* vii, 16; *I Aph.* ii, 8; *Flat.* ii, 9-16, iii, 2, 3.

23. Acute diseases come to a crisis in fourteen days.

We have here a distinct definition of what is meant by an acute disease, and of the time within which it will come to a crisis. See further, *Aph.* ii, 9; *Judicat.* iv, 12; *Coac.* i, 190, 211.

24. The fourth day is indicative of the seventh; the eighth is the commencement of the second week; and hence, the eleventh being the fourth of the second week, is also indicative; and again, the seventeenth is indicative, as being the fourth from the fourteenth, and the seventh from the eleventh.

For the ancient opinions on the Critical Days, see PAULUS ÆGINETA, Book II, 7, *Syd. Soc.* edit. Compare *Aph.* iv, 36, 71; *Sept.* viii, 6; *Judicat.* ii, 7-12; *Prænot.* xx, 5-10; and *Celsus*, iii, 4.

25. The summer quartans are, for the most part, of short duration; but the autumnal are protracted, especially those occurring near the approach of winter.

That summer fevers are generally short and mild is a well-known fact, at least with respect to those of warm climates. Compare *Nat. Human.* xxix, 5, 6, 7; *I Epid.* iii, 17; *Coac.* i, 236.

26. It is better that a fever succeed to a convulsion, than a convulsion to a fever.

Galen and the other commentators explain the rationale of this rule as follows: Convulsions are connected either with repletion or inanition; when, then, in the former case, a convulsion takes place, a fever succeeding removes the thick humours which occasioned the convulsion, and in so far proves beneficial; whereas, in the latter case, when a convulsion seizes the body in a debilitated state from the fever, it is likely to prove fatal at once. Compare *Coac.* i, 232, iii, 80, 82; *I Morb.* vi, 13, 14; *San. tuend. ad Dem.* 10.

27. We should not trust ameliorations in diseases when they are not regular, nor be much afraid of bad symptoms which occur in an irregular form; for such are commonly inconstant, and do not usually continue, nor have any duration.

The meaning here is sufficiently obvious. Heurnius, although a remarkably good

expounder of our author's sense in most cases, gives a most absurd interpretation of the first clause of this Aphorism, as if it were meant to exclude the use of amulets, and other superstitious modes of working upon the imagination, which, although they produce a temporary amendment, are not followed by any good consequences. This interpretation is altogether fanciful. Our author, like a man of sense and experience, merely warns the physician not to form a wrong judgment in febrile cases from any irregular symptoms, either good or bad, which may come on. Compare I Prædict. vi, 16, vii, 7; II Prædict. xxix, 6; Coac. i, 73, iii, 100, 109, 110; II Epid. iii, 132.

28. In fevers which are not altogether slight, it is a bad symptom for the body to remain without any diminution of bulk, or to be wasted beyond measure; for the one state indicates a protracted disease, and the other weakness of body.

The Greek commentators explain the facts here stated thus:—When the body is not wasted in proportion to the severity of the fever, this proceeds from the thickness of the morbid particles, or the condensation of the patient's cuticle; and, on the other hand, when the emaciation is rapid, it is connected with thinness of the humours and rarity of the skin, either of which conditions is obviously unfavorable. Celsus renders these rules as follows:—He ranks it among the symptoms of a protracted fever, “*ubi æger pro spatio parum emacrescit,*” (ii, 5); and says elsewhere, “*mali etiam morbi signum est, nimis celeriter emacrescere.*” (ii, 4.) Compare Humor. iii, 17; Aph. v, 55; Humor. iii, 52; also Celsus, ii, 2.

29. If it appear that evacuations are required, they should be made at the commencement of diseases; at the acme it is better to be quiet.

The rationale of this rule of practice is sufficiently explained in the next Aphorism. Compare Aph. i, 24, ii, 30; Loc. in Hom. xxxviii, 9, 10, 11; Purgant. iv, 1.

30. Towards the commencement and end of diseases all the symptoms are weaker, and towards the acme they are stronger.

The facts here stated are so obvious, that even Galen dismisses this Aphorism with a very brief Commentary.

31. When a person who is recovering from a disease has a good appetite, but his body does not improve in condition, it is a bad symptom.

The opinion here stated is consistent with general observation. Nowadays, in such a case, we should suspect organic disease in some part of the body. Compare Aphor. ii, 8; and Coac. i, 179.

32. For the most part, all persons in ill health, who have a good appetite at the commencement, but do not improve, have a bad appetite again towards the end; whereas, those who have a very bad appetite at the commencement, and afterwards acquire a good appetite, get better off.

This Aphorism refers to convalescents; and it is a very important observation of

our author, that too good an appetite at first in their case is anything but a favorable circumstance, since the appetite is greater than the digestion. Hærnicius points out that, by "commencement," in this place, is meant the beginning of convalescence. See further, Coac. i, 179; Aph. vii, 6.

33. In every disease it is a good sign when the patient's intellect is sound, and he is disposed to take whatever food is offered to him; but the contrary is bad.

The facts stated in this Aphorism, I need scarcely remark, are important and unquestionable. They are expressed by our author with wonderful brevity and force. Compare De Medic. iii, 9; Coac. i, 72; and Celsus, ii, 3.

34. In diseases, there is less danger when the disease is one to which the patient's constitution, habit, age, and the season are allied, than when it is one to which they are not allied.

The meaning here is obvious, and when fairly interpreted, there seems no reason to dispute the facts announced in it; yet it would appear that his immediate successor, Diocles, had strongly attacked our author on the score of the facts being incorrect. See the Commentary of Galen, and that of Stephanus. (Dietz, tom. ii, p. 327.) Surely, for example, the diseases of infancy are more dangerous when they attack the old than when they occur in the young; and it implies a more serious cause when the diseases of summer take place in winter, and *vice versâ*. Compare further, Aph. vii, 82; Humor. vi, 1-5; Dies Judic. i, 11-15; VI Epid. viii, 43-46; Affect. vii, 3, 46.

35. In all diseases it is better that the umbilical and hypogastric regions preserve their fulness; and it is a bad sign when they are very slender and emaciated; in the latter case it is dangerous to administer purgatives.

From the reports of the cases contained in the Books of the Epidemics, it will be remarked that our author paid great attention to the condition of the upper region of the abdomen in febrile diseases; that is to say, to the part which he calls the hypochondria; in this place he directs attention also to the hypogastric region, by which he meant the part of the abdomen between the umbilicus and pubes. See Galen and Hærnicius. That it is a bad symptom when the abdomen is excessively emaciated, every practical physician must know. Celsus renders this Aphorism thus: "Inter mali morbi testimonia esse, nimis celeriter emarescere, et eutem circa umbilicum pubemque macram esse." (ii, 3.) That purgatives are contraindicated under such circumstances will readily be understood; and Galen wonders that our author did not also forbid emetics, but supposes that he took it for granted that they also would be understood to be proscribed. Compare Præn. x, 2; Aph. ii, 28; I Morb. Mulier. lxxvii, 9; Celsus, ii, 3.

36. Persons in good health quickly lose their strength by taking purgative medicines, or using bad food.

This Aphorism announces an important fact, which deserves to be always kept in mind; but, although obvious when fairly stated, we often see it neglected. I once knew an excellent runner lose a race in consequence of being previously weakened by taking purgative medicines. Compare Aph. i, 3, ii, 37, iv, 16; Verat. Usus. i, 12.

37. Purgative medicines agree ill with persons in good health.

This, according to Galen, is merely an announcement in more general terms of the particular fact respecting purgatives which is stated in the preceding Aphorism. As he remarks, by the operation of a purgative medicine, the fluids of the body are evacuated, and the solids melted down. Compare Aph. ii, 36, iv, 16; Verat. Usus, i, 5, 12.

38. An article of food or drink which is slightly worse, but more palatable, is to be preferred to such as are better but less palatable.

This is evidently a wise rule in regimen, since, as Galen in his Commentary remarks, what is palatable is likely to be more readily digested by the stomach. Berends prudently observes, further, that a physician often shows his skill most particularly by applying this rule in making a proper selection of those things which are peculiarly adapted to the tastes of his patient. See Sydenham, p. 344, Syd. Soc. edit. Compare de Arte, xii, 10; VI Epid. iv, 26; IV Morb. xii, 7; Affect. xlii, 1, 2; Veet. Acut. xv, 1, 2, xviii, 24.

39. Old people, on the whole, have fewer complaints than young; but those chronic diseases which do befall them generally never leave them.

One reason, as Galen remarks, why old people have fewer complaints than young is, that they are generally more guarded in their course of life. That chronic complaints in old age generally prove fatal, is confirmed by daily experience. Damascius, in his Commentary on the next Aphorism, says, in illustration, that nephritis, gout, arthritis, and ischiatic disease are incurable in old age. Compare I Morb. xx, 13, 15; Aph. v, 7; Celsus, ii, 1-8.

40. Catarrhs and coryzae in very old people are not concocted.

This Aphorism, as Galen remarks, contains an illustration of the truth stated in the preceding one. By coryza is to be understood a catarrh seated in the nose. That these complaints in old age are never entirely got rid of is a well-known fact.

41. Persons who have had frequent and severe attacks of swooning, without any manifest cause, die suddenly.

This, I need scarcely say, is now a well-known fact, it being ascertained by *post-mortem* inspections, that in such cases there is generally some cardiac disease. One cannot but admire the accurate observation of Hippocrates, who ascertained the fact so correctly, although he had not the same opportunities, as we now have, of accounting for it. To him may be applied the general maxim of Cicero: "Sufficit si quid fiat intelligamus, etsi quomodo quidve fiat nesciamus." I may mention here, however, that although the ancient physicians cannot have practised *inspectiones cadaverum* very frequently, there can be no doubt that they did so occasionally; and it is a remarkable circumstance, that in the cases of sudden death they referred the cause, as we now generally do, to cardiac disease. Theophilus, in his Commentary, mentions that Galen inferred this from finding disease of the heart in the inferior animals that died suddenly. See Dietz, t. ii, p. 332, and PAULUS AEGINETA, B. III, 34, Syd. Soc. edit. Compare Coac. i, 83.

42. It is impossible to remove a strong attack of apoplexy, and not easy to remove a weak attack.

The experience of twenty-two centuries and upwards affords no reason to call in question the prognosis here announced by our author. It is thus rendered by Celsus: "Isque morbus mediocris vix sanatur, vehemens sanari non potest." (ii, 8.) Galen has an interesting Commentary under this head, in which he attempts to explain how it happens that the respiratory muscles in attacks of apoplexy, often continue to perform their office, although the others are paralysed.

43. Of persons who have been suspended by the neck, and are in a state of insensibility, but not quite dead, those do not recover who have foam at the mouth.

There are great diversities of opinion as to the reading and interpretation of this Aphorism, but upon these I have not room to enter. I may just mention, however, that I would have preferred reading *καταδρομέων* as applying to persons who have been immersed in water, but dare not adopt it, as it appears not to be sanctioned by any of the MSS. On this Aphorism see the Commentary on PAULUS ÆGINETA, B. III, 28, Syd. Soc. edit. Galen's Commentary is well worth being consulted.

44. Persons who are naturally very fat are apt to die earlier than those who are slender.

There seems no great reason to question the prognostic rule here laid down. Galen explains the rationale of it, upon the principle that fat persons have smaller blood-vessels, and consequently are less liberally supplied with the *pneuma*, or vital spirit, than leaner persons. Compare Celsus, ii, 1.

45. Epilepsy in young persons is most frequently removed by changes of age, of country, and of modes of life.

We may well exclaim with Berends, that this Aphorism embodies a most important statement of facts! His lengthy Commentary on this passage contains much interesting matter, which I regret that my limits preclude me from availing myself of: those of the ancient commentators contain nothing but what is common-place. Compare Aph. v, 7; II Prædict. xvi, 123; Morb. Sac. xiii, 6; VI Epid. vi, 36.

46. Of two pains occurring together, not in the same part of the body, the stronger weakens the other.

Experience, I need scarcely say, has amply confirmed the truth of the maxim here announced. It is a principle of extensive applicability in the practice of medicine. Consult Galen and Berends. Compare Humor. xi, 16, 17; Aliment. i, 11.

47. Pains and fevers occur rather at the formation of pus than when it is already formed.

This also is an announcement of an important and indisputable fact. Galen and the other ancient commentators all hold that pus is formed from blood. Compare Vet. Med. xxxiii, 8; Prænot. xvii, 6; Ulcer. ii, 8-11.

48. In every movement of the body, whenever one begins to endure pain, it will be relieved by rest.

This is a self-evident, but, as Berends remarks, not an unimportant fact. See Aph. ii, 22; Præcept. xiii, 4; Nat. Human. xvii, 14, 15; Flat. ii, 14.

49. Those who are accustomed to endure habitual labours, although they be weak or old, bear them better than strong and young persons who have not been so accustomed.

This Aphorism, it will readily be seen, is founded on the well-known effects of habit. It is thus rendered by Celsus: "Omnem laborem facilius vel puer, vel senex, quam insuetus homo sustinet." (i, 3.) See, also, Cicero Tuscul. Disput. ii, 17.

50. Those things which one has been accustomed to for a long time, although worse than things which one is not accustomed to, usually give less disturbance; but a change must sometimes be made to things one is not accustomed to.

This Aphorism contains a very proper exception to the general rule announced in the preceding Aphorism. Celsus describes very fully the most proper course of life, which, it will be remarked, he directs not to be tied down to too strict rules (i, 1), at the beginning. Compare Viet. Acut. xviii, 2, 6 II Diæt. xlv, 4; Humor. iii, 115; Humid. Us. iii, 8.

51. To evacuate, fill up, heat, cool, or otherwise move the body in any way much and suddenly, is dangerous; and whatever is excessive is inimical to nature; but whatever is done by little and little is safe, more especially when a transition is made from one thing to another.

The rule of practice here stated is very tersely given by Celsus: "Ergo, quum quis mutare aliquid volet, paulatim debet assuescere." (i, 3.) Berends, in his Commentary, remarks, that although the propriety of this rule may appear to be self-evident, we often see it improperly transgressed. Compare, in particular, VI Epid. ii, 27; Viet. Acut. v, 22, x, 8. The same subject is often handled in the Hippocratic treatises. See further, Aph. iii, 1, v, 16, vi, 39; II Diæt. xlv, 5; Humor. viii, 17, 18; Humid. Us. iii, 7; VI Epid. ii, 27.

52. When doing everything according to indication, although things may not turn out agreeably to indication, we should not change to another while the original appearances remain.

This Aphorism shows decidedly that our author's system of treatment was not empirical, but founded upon reason. What he directs here evidently is not to change one's plan of treatment when grounded on a proper indication, although it may not turn out according to expectation. This is a rule which every physician must follow who would wish to support the dignity of the profession, and it is further consonant to reason. See further, Loc. in Nom. xx, 11, 12; and Celsus, iii, 2.

53. Those persons who have watery discharges from the bowels when they are young, come off better than those who have dry; but in old age they come off worse, for the bowels in aged persons are usually dried up.

Galen dismisses this Aphorism with the remark that it is evident, and refers the reader to Aph. ii, 20. Celsus, with great propriety, has joined the two together: "Quibus juvenibus fluxit alvus, plerumque in senectute contrahitur. Quibus in ado-

lescentia fuit adstricta, sæpe in senectute solvitur. Melius autem in juvene fusior, in senectute astrictior." (i, 3.) There can be no doubt about the latter rule being generally true, but the former is subject to many exceptions. Perhaps what our author means to say is, that the best rule of health is that the bowels should be rather loose in youth and rather confined in old age. That this generally holds true there can be no doubt.

54. Largeness of person in youth is noble and not unbecoming; but in old age it is inconvenient, and worse than a smaller stature.

Celsus renders this Aphorism as follows: "longa statura, ut in juvenia decora est, sic matura senectute conficitur." (i, 1.) All the Greek commentators remark that old men are subject to gibbosity, that is to say, become bent forwards. See further, Præcept. xi, 10.

SECTION III.

1. The changes of the seasons mostly engender diseases, and in the seasons great changes either of heat or of cold, and the rest agreeably to the same rule.

This is an announcement of a fact pretty generally acknowledged and admitted in all ages, namely, that diseases or disorders in the constitution are mostly, or at least frequently, produced by changes of the seasons and changes of the weather. Berends has well remarked, in his Commentary on this Aphorism, that our author here lays the foundation of the doctrines more fully expanded and explained by Sydenham, Stoll, and other modern authorities. This Aphorism agrees with Humor. viii, 15. Compare further, Aër. Aq. Loc. i, 19; Viet. Acut. xvii, 9; Morb. Sac. xii, 7.

2. Of natures (*temperaments?*), some are well- or ill-adapted for summer, and some for winter.

Galen and Theophilus, by "natures," in this place, understand "temperaments." That some of these agree better with summer and others with winter is indisputable. This is in accordance with the work Humor. viii, 20. See also, Vet. Med. xxxvii, 14; I Diat. xxv, 12; III Diat. i, 6; Aër. Aq. Loc. xxxiv, 9.

3. Of diseases and ages, certain of them are well- or ill-adapted to different seasons, places, and kinds of diet.

As here stated, there is no doubt as to the fact announced in this Aphorism. But Galen complains that it is rather confusedly expressed in the original. Compare Humor. viii, 21; and Celsus, ii, 1.

4. In the seasons, when during the same day there is at one time heat and at another time cold, the diseases of autumn may be expected.

The meaning here would appear to be, that very changeable weather at any season will induce diseases similar to those of autumn, which is a very changeable and unhealthy season. See the Commentaries of Stephanus and Theophilus, and of Heurnius

and Berends, among the modern annotators. That autumn is an unhealthy season is declared by the poet Horace as follows: "Frustra per autumnos nocentem Corporibus metuemus austrum." Ovid, in like manner, expresses the effects of changeable weather on the health very correctly and strikingly:

"Cum modo frigoribus premimur, modo solvimur æstu,
Tempore non certo, corpora languor habet."

On this subject, see further Humor. viii, 21.

5. South winds induce dullness of hearing, dimness of vision, heaviness of the head, torpor, and languor; when these prevail, such symptoms occur in diseases. But if the north wind prevail, coughs, affections of the throat, hardness of the bowels, dysuria attended with rigors, and pains of the sides and breast occur. When this wind prevails, all such symptoms may be expected in diseases.

The same announcement is made at Humor. viii, 1. I shall merely notice a few things which appear to be somewhat obscure. By "hardness of the bowels," about the meaning of which expression Galen informs us that there had been some difference of opinion among the commentators, would appear to be meant constipation of the bowels. See also Theophilus. Dysuria, as they remark, is no doubt produced by the cold occasioning a determination inwardly. Celsus translates this Aphorism literally. (ii, 1.)

6. When summer is like spring, much sweating may be expected in fevers.

See, in like manner, Humor. viii, 1. The reason assigned by Galen for the prevalence of sweats under the circumstances described is, that they are produced by the prevalence of humidity, and the absence of the heat which used to dissipate it.

7. Acute diseases occur in droughts; and if the summer be particularly such, according to the constitution which it has given to the year, for the most part such diseases may be expected.

According to Theophilus, in his very interesting Commentary on this Aphorism, by acute fevers in this place Ruffus understood "pestilential," namely, such as are connected with buboes; for that these are occasioned in Libya by the excessive heat. (Dietz. ii, 353.) But none of the other commentators, ancient or modern, understand it as applying to pestilential fevers. Compare Humor., vii, 11; and Celsus, 36; ed. Milligan.

8. In seasons which are regular, and furnish the productions of the season at the seasonable time, the diseases are regular, and come readily to a crisis; but in inconstant seasons, the diseases are irregular, and come to a crisis with difficulty.

This agrees with Humor. vii, 3, 15. The meaning appears certainly to be, that when the weather is suitable to the season of the year, that is to say, hot in summer, cold in winter, and so forth; and when the fruits of the earth are produced seasonably,

the complaints are mild and regular; but when the weather is unseasonable, the diseases are of an irregular character. This truth is admirably illustrated in the First and Third Books of the Epidemics.

9. In autumn, diseases are most acute, and most mortal, on the whole. The spring is most healthy, and least mortal.

See Epidem. ii, 1; and Prorrhēt. ii, 13, 4. These characters of the two seasons are thus given by Celsus: "Igitur saluberrimum ver est:—autumnus longè periculosissimus." (ii, 1.) On this subject I believe all the ancient authorities, professional and non-professional, are perfectly agreed. I might quote Horace, Juvenal, and a whole host of poets, who have celebrated the healthfulness of spring, and described the insalubrity of autumn. The rule, however, as is well known, does not apply to northern latitudes.

10. Autumn is a bad season for persons in consumption.

Popular opinion, at least, is in this country quite in unison with what is here stated by our author; and many medical authorities in modern times have declared in favour of it. See Riverius in Prax. xvii; De Hectica, 3; Dolæus de Phthisi, ii, 4. I am not aware that recent experience has furnished any ground for questioning this opinion.

11. With regard to the seasons, if the winter be of a dry and northerly character, and the spring rainy and southerly, in summer there will necessarily be acute fevers, ophthalmics, and dysenteries, especially in women, and in men of a humid temperament.

This is manifestly taken from the work, On Airs, &c., § 10. It is thus rendered by Celsus: "Si hiems sicca septemtrionales ventos habuit, ver autem austros et pluvias exhibet, fere subeunt lippitudines, tormina, febres, maximèque in mollioribus corporibus, ideoque præcipue in muliebribus." (ii, 1.) Galen has an interesting but rather lengthy Commentary upon it.

12. If the winter be southerly, rainy, and calm, but the spring dry and northerly, women whose term of delivery should be in spring, have abortions from any slight cause; and those who reach their full time, bring forth children who are feeble, and diseased, so that they either die presently, or, if they live, are puny and unhealthy. Other people are subject to dysenteries and ophthalmics, and old men to catarrhs, which quickly cut them off.

This, in like manner, is taken from the work, On Airs, &c., xxvi, § 10, ed. Linden. It is thus rendered by Celsus: "Si vero austri pluviaeque hiemem occuparunt, ver autem frigidum et siccum est, gravidæ quidem feminæ quibus tum adest partus, abortu periclitantur; cæ vero qui gignunt, imbecillos, vixque vitales edunt: ceteros lippitudo arida, et, si seniores sunt, gravidites malè habent." (ii, 1.)

13. If the summer be dry and northerly, and the autumn

rainy and southerly, headaches occur in winter, with coughs, hoarsenesses, coryzæ, and in some cases consumptions.

This also is taken from the same chapter of the work, *On Airs, &c.*, and is thus rendered by Celsus: "At si sicca aestas aquilonem habuit, autumnum æro imbres austrique sunt, tota hieme, quæ proxima est, tussis, distillatio, raucitas, in quibusdam etiam tabes oritur." (ii, 1.)

14. But if the autumn be northerly and dry, it agrees well with persons of a humid temperament, and with women; but others will be subject to dry ophthalmies, acute fevers, coryzæ, and in some cases melancholy.

This is taken, with a few alterations, from the same chapter as the preceding. It is thus rendered by Celsus: *Sin autem autumnus quodæ æque siccus iisdem aquilonibus perflatur, omnibus quidem mollioribus corporibus, inter quæ muliebria esse proposui, secunda valetudo contingit: durioribus vero instare possunt et aridæ lippitudines, et febres partim acutæ, partim longæ, et ii morbi, qui ex atra bile nascuntur.*" (ii, 1.)

15. Of the constitutions of the year, the dry, upon the whole, are more healthy than the rainy, and attended with less mortality.

This is partly taken from the §4 of the work, *On Airs*. Celsus thus tersely renders it: "saluberrimi sunt sereni dies." (ii, 1.) That the fact is correctly stated by our author, no one, I suppose, will pretend to question. That dry seasons and dry countries are more healthy than humid, is consistent with universal experience and observation. The reason of this, as stated by the ancient commentators, is, that in hot weather the humours are dissipated; whereas, in humid, that is to say, rainy, the humours are collected within the body, and engender putrid diseases. There is no doubt, however, as to the fact, in whatever way it is to be accounted for.

16. The diseases which occur most frequently in rainy seasons are, protracted fevers, fluxes of the bowels, mortifications, epilepsies, apoplexies, and quinsies; and in dry, consumptive diseases, ophthalmies, arthritic diseases, stranguries, and dysenteries.

Galen explains at considerable length, upon the principles of the humoral pathology, his ideas respecting the manner in which rainy or dry weather produce the various diseases enumerated under this head. It will be seen from his Commentary, and that of Theophilus, that some connected the epithet "consumptive" with ophthalmies, and understood the meaning to be, "ophthalmies which lead to the destruction of the eye." Compare Celsus, ii, 1.

17. With regard to the states of the weather which continue but for a day, that which is northerly, braces the body, giving it tone, agility, and colour, improves the sense of hearing, dries up the bowels, pinches the eyes, and aggravates any previous

pain which may have been seated in the chest. But the southerly relaxes the body and renders it humid, brings on dullness of hearing, heaviness of the head, and vertigo, impairs the movements of the eyes and the whole body, and renders the alvine discharges watery.

It is to be borne in mind, that our author here touches upon the effects of temporary conditions of the weather upon the health. As Theophilus then remarks, he has been unjustly blamed for tautology in this place. Celsus briefly renders the first part of this sentence as follows: "Aquila sanum corpus spissat, et mobilius atque expeditius reddit." (ii, 1.) The latter clause is rendered rather freely: "Auster aures hebetat, sensus tardat, capitis dolorem movet, alvum solvit, totum corpus efficit hebes, humidum, languidum." (Ibid.) See further, Aph. v, 26.

18. With regard to the seasons, in spring and in the commencement of summer, children and those next to them in age are most comfortable, and enjoy best health; in summer and during a certain portion of autumn, old people; during the remainder of the autumn and in winter, those of the intermediate ages.

There is no obscurity about this Aphorism, nor any reason to controvert the facts as stated in it. It is thus elegantly rendered by Celsus: "Quod ad ætates vero pertinet, pueri proximique iis vere optimè valent, et æstate prima tutissimi sunt; senes æstate et autumnii prima parte: juvenes hyeme, quique inter juventam senectutemque sunt. Inimicior senibus hyems, æstas adolescentibus est." (ii, 1.) The Greek commentators explain all the facts, as stated in this Aphorism, upon their principles regarding the temperaments and humours. See Galen and Theophilus.

19. All diseases occur at all seasons of the year, but certain of them are more apt to occur and be exacerbated at certain seasons.

As Berends remarks, this Aphorism contains an undoubted and most important truth. Galen remarks in his Commentary, that if diseases had been connected solely with the temperament of the atmosphere, all would have been affected with such diseases as are peculiar to particular seasons; but since many diseases arise from errors of diet, these occur at all seasons. Constitution, as he further states, has much to do with the occurrence of disease. That certain diseases are more disposed to happen at certain seasons, he declares in the subsequent Aphorisms. Compare Prænot. xxvi, 4; Aph. iii, 17; and Celsus, ii, Præf.

20. The diseases of spring are, maniacal, melancholic, and epileptic disorders, bloody flux, quinsy, coryza, hoarseness, cough, leprosy, lichen, alphas, exanthemata mostly ending in ulcerations, tubercles, and arthritic diseases.

I have little to say on the subject of this Aphorism, as the meaning is sufficiently plain, and the nature of the diseases here enumerated may be readily ascertained upon reference to the Index of the Sydenham Society's edition of *Pavlus Aegineta*.

Celsus gives a translation of it, but not very literal; and it is worthy of remark, that he vaguely includes all the cutaneous diseases here noticed under the single term "pustulæ." He has also chronic ophthalmia (*or* lippitudines), which does not occur in our author's list. (ii, 1.)

21. Of summer, certain of these, and continued, ardent, and tertian fevers, most especially vomiting, diarrhœa, ophthalmia, pains of the ears, ulcerations of the mouth, mortifications of the privy parts, and the sudamina.

On most of the diseases contained in this list it will be unnecessary to make any remarks. I may mention, however, that the gangrene of the genital organs here noticed is minutely described in the Books of the Epidemics of which I have given a translation. Berends mentions, that some had regarded it as being of a venereal nature, but without any good reason. The sudamina are described by Galen as being a cutaneous disease of the skin produced by excessive sweating. By the way, Celsus translates it in such terms, as would seem to imply that he did not at all understand it: "et quicquid sudore hominem resolvit." (ii, 1.)

22. Of autumn, most of the summer, quartan, and irregular fevers, enlarged spleen, dropsy, phthisis, strangury, lientery, dysentery, sciatica, quinsy, asthma, ileus, epilepsy, maniacal and melancholic disorders.

Celsus gives an elegant version of this Aphorism, on which I have only to remark, that he has omitted the maniacal and melancholic disorders from his list of summer diseases. (ii, 1.) How this happened it is impossible to find out. That these are engendered by black bile, and that it prevails in autumn, was held by all the ancient authorities. See the Commentaries of Galen and Theophilus.

23. Of winter, pleurisy, pneumonia, coryza, hoarseness, cough, pains of the chest, pains of the ribs and loins, headache, vertigo, and apoplexy.

About this Aphorism there can be no doubt nor difficulty. I have again to remark, that it is rendered by Celsus in so vague and indefinite terms, as would almost lead one to doubt whether he apprehended correctly the meaning of our author: "Hyems autem capitis dolores, tussim, et quicquid in faucibus, in lateribus, in visceribus mali contrahitur, irritat." (ii, 1.)

24. In the different ages the following complaints occur: to little and new-born children, aphthæ, vomiting, coughs, sleeplessness, frights, inflammation of the navel, watery discharges from the ears.

There is little in this list of the common disorders which attack new-born children that requires comment. Celsus, in his translation, omits "frights," for what reason cannot be ascertained. Both Galen and Theophilus state, that these are connected with the stomach. I may mention that Rhases, the Arabian, gives a pretty full treatise on the diseases of infancy. He describes twenty-four diseases altogether.

25. At the approach of dentition, pruritus of the gums, fevers, convulsions, diarrhœa, especially when cutting the canine teeth, and in those who are particularly fat, and have constipated bowels.

Among the Hippocratic treatises there is one on Dentition, of which I have given a brief analysis in the Preliminary Discourse. Celsus, in his version of this Aphorism, renders the disease named *ὀδᾶξιμὸς* by our author, and which Galen and Damascius distinctly explain to mean "pruritus of the gums," by "gingivarum exulcerationes." This seems another instance of mistranslation.

26. To persons somewhat older, affections of the tonsils, incurvation of the spine at the vertebra next the occiput, asthma, calculus, round worms, ascarides, acrochordon, satyriasmus, struma, and other tubercles (phymata), but especially the aforesaid.

There are many things in this Aphorism which it might be interesting to examine, did not our limits preclude; in particular, the affection of the vertebræ here enumerated. Did our author mean the disease described by Sir Charles Bell under the head of "Inflammation and Ulceration in the Atlas and Vertebra Dentata?" (Institutes of Surgery, p. 144.) See, also, V. Swieten, Comment. in Boerhaav. Aph. t. ii, de Angina Convulsiva. Or did he apply it to the less formidable affection called "the crick of the neck?" I am inclined to adopt the latter conjecture. See the Commentaries of Galen and Theophilus. All the other terms will be found explained in the Comment. on PAULUS ÆGINETA. See the INDEX. According to Heurnius and Berends, the satyriasmus here noticed was an affection of the glands of the neck. See, also, the note of M. Littré.

27. To persons of a more advanced age, and now on the verge of manhood, the most of these diseases, and, moreover, more chronic fevers, and epistaxis.

According to Damascius, the period of life here referred to is that immediately following 14; but Galen applies it to the term of puberty, which, he says, may be at 12, 13, or 14. That epistaxis is common at this period of life is well known; but why fevers should be more protracted than usual, does not appear clear. Heurnius ascribes them to voracity, which gives rise to a pituitous crudity, and to a certain acrimony which occasions putridity. Theophilus and Damascius seem to point to a similar explanation.

28. Young people for the most part have a crisis in their complaints, some in forty days, some in seven months, some in seven years, some at the approach to puberty; and such complaints of children as remain, and do not pass away about puberty, or in females about the commencement of menstruation, usually become chronic.

There is little that requires elucidation in this Aphorism. It will be remarked that our author seems to attach a *religious* importance, so to speak, to the number *seven*.

I have made some observations on this subject in the Analysis of the Hippocratic Treatise bearing this title. See Preliminary Discourse, § II. See further Aph. ii, 45; II Prædict. xvi, 1, 3.

29. To persons past boyhood, hæmoptysis, phthisis, acute fevers, epilepsy, and other diseases, but especially the aforementioned.

With respect to the diseases mentioned in this Aphorism, the only one which we would hesitate in recognising as being particularly common at this period of life, is epilepsy. Galen, in fact, wonders that his author placed it here, seeing he had formerly ranked epilepsy among the diseases of infancy, which sometimes disappear at puberty. A modern commentator, Riegerus, suggests, that by epilepsy he probably meant the hysterical convulsion. But perhaps it is better to consider our author's meaning to be, that epileptical convulsions are apt to be exacerbated at this period. That hæmoptysis and phthisis are most common at this period has been accurately determined by recent statistics. By the way, the period of life here treated of is not so satisfactorily determined as could be wished. In M. Littré's translation, it is marked "from 21 to 25," but surely this last is a misprint for 35. It comprehends the "adolescencia" and "juvenes" of Celsus. (ii, 1.) Compare Aph. v, 9, viii, 7; Coac. iii, 260; Morb. Sac. xiii, 1.

30. To persons beyond that age, asthma, pleurisy, pneumonia, lethargy, phrenitis, ardent fevers, chronic diarrhœa, cholera, dysentery, lientery, hæmorrhoids.

The period here treated of is that from 35 to 50. See Galen and Theophilus. There is not much in it requiring illustration. Galen is rather surprised that our author has omitted "melancholy" in this list of diseases. Compare Coac. iii, 395; Aër., Aq., Loc. iv, 7; VII Epid. xl, 19.

31. To old people dyspnœa, catarrhs accompanied with coughs, dysuria, pains of the joints, nephritis, vertigo, apoplexy, cachexia, pruritus of the whole body, insomnolency, defluxions of the bowels, of the eyes, and of the nose, dimness of sight, cataract (glaucoma), and dullness of hearing.

There is little to remark on the contents of this Aphorism, most of the diseases here enumerated being notoriously those of old age. I may mention that, as Galen states, the terms here used in reference to diseases of the eyes apply both to amaurosis and cataract (*ἰπόχυμα*.) Compare Affection. xxix, 10; Coac. iii, 395.

SECTION IV.

1. We must purge pregnant women, if matters be turgid (in a state of orgasm?), from the fourth to the seventh month, but less freely in the latter; in the first and last stages of pregnancy it should be avoided.

The term significative of "being in a state of orgasm" occurs at Aphor. i, 22. It would appear to mean that the fluids, that is to say, the contents of the vessels, are

ready to burst forth with plethora. That purging is unsafe in the earlier and later stages of pregnancy is consistent with common observation at the present day. I have translated the latter clause agreeably to the interpretation of it given by Theophilus. Compare Aph. i, 22, v, 29; Morb. Mul. xlii, 8.

2. In purging we should bring away such matters from the body as it would be advantageous had they come away spontaneously, but those of an opposite character should be stopped.

The meaning is obvious, and the propriety of the rule will scarcely be challenged. As Damascius remarks, the practice in this case imitates Nature. Galen further remarks, that upon this principle we administer cholagogues in diseases of a bilious nature. Compare Aph. i, 2.

3. If the matters which are purged be such as should be purged, it is beneficial and well borne; but if the contrary, with difficulty.

This is a repetition of the rule of practice given in Aphor. i, 25. It is evidently very much in place here, where the rules of practice respecting purging are treated of. Galen, however, mentions that some of the editors had expunged it.

4. We should rather purge upwards in summer, and downwards in winter.

This appears to be a very proper rule of practice, and it is accordingly approved of by all the ancient commentators. Celsus, however, seems to controvert it: he says: "Vomitus utilior est hieme quam æstate." (i, 3.) Whether he opposes Hippocrates designedly or in ignorance, cannot be determined.

5. About the time of the dog-days, and before it, the administration of purgatives is unsuitable.

It is an important rule of practice, followed by all the Greek and Arabian authorities, not to give purgative medicines in hot weather. According to Galen, it is fighting against Nature to determine inwardly by purgative medicines, while the heat is determining outwardly. Damascius says, that the body being then enfeebled, cannot bear purgatives. Compare Acr., Aq., Loc. xxx, 2, 5, 8; Purg. v, 8.

6. Lean persons who are easily made to vomit should be purged upwards, avoiding the winter season.

Galen and Theophilus approve of this rule of practice; the rationale of which they explain by stating that slender persons are bilious. They both, however, approve of limiting the practice to those who vomit readily, and of avoiding the winter season. Celsus again appears to be opposed to our author, for he holds that "vomitus inutilis gracilibus." (i, 3.) I have not met with any satisfactory solution of this apparent contradiction. Compare II Morb. xiii, 12.

7. Persons who are difficult to vomit, and are moderately fat, should be purged downwards, avoiding the summer season.

The rule here laid down is a natural inference from the preceding one. Here *moderately fat* is opposed to *lean*; *difficult to vomit*, to *easy to vomit*; and *the summer season*, to *winter*. I have had occasion to state already that the ancients particularly avoided purgatives during the heat of summer. Compare II Morb. xii, 35.

8. We must be guarded in purging phthysical persons upwards.

It will be seen upon reference to the Commentaries of Theophilus and Damascius, as published by Dietz, that they joined this Aphorism to the last. I have followed Galen, as M. Littré has also done. Considering how frequently phthisis is complicated with hæmoptysis, it is a prudential rule, at all events, to avoid giving emetics in such cases, lest one should get the blame of causing the rupture of a blood-vessel. We have mentioned in an analysis of the work, *On Diseases*, that the author of it enumerates this among the awkward mistakes which a physician is liable to make. Compare *Loc. in Hom.* xxxv, 4; *Int. Affect.* iv, 26, xiii, 36.

9. And from the same mode of reasoning, applying the opposite rule to melancholic persons, we must purge them freely downwards.

It was an invariable rule of ancient practice to administer purgatives, and more especially black hellebore (*helleborus niger*) in melancholy, with the intention of carrying off the black bile downwards. "The opposite rule," to which he refers, would appear to be that laid down in *Aph.* 6, respecting the treatment of persons to whom it is proper to give emetics. Compare *Aër., Aq., Loc.* xi, 2.

10. In very acute diseases, if matters be in a state of orgasm, we may purge on the first day, for it is a bad thing to procrastinate in such cases.

The meaning of this Aphorism is obvious, namely, that when there is great turgescence of the fluids, they should be purged off without delay. See *Aph.* 1 of this section. According to Galen, by "very acute diseases" he means such as terminate within seven days. Compare *V Epidem.* xxv, 16, 17.

11. Those cases in which there are tormina, pains about the umbilicus, and pains about the loins, not removed either by purgative medicines or otherwise, usually terminate in dry dropsy.

We have the positive assurance of Galen that by "dry dropsy" Hippocrates meant that species of dropsy called tympanites, which is so named because in it the belly, when struck, sounds like a drum (tympanum). Although Prosper Martian, Berends, and other modern authorities, are sceptical on this point, I must say that I see no reason for doubting that it was the same as the tympanites of modern nosologists. See further, PAULUS ÆGINETA, B. III, 48, *Syd. Soc. edit.* Compare *Coac.* ii, 279, iii, 286.

12. It is a bad thing to purge upwards in winter persons whose bowels are in a state of lientery.

As Galen states, the disease being seated in the lower intestines, emetics can obviously do no good in lientery. But, moreover, it is contrary to rule to administer them in winter. See above, § 6. Berends, under this head, gives a very interesting, but very lengthy, dissertation on lientery.

13. Persons who are not easily purged upwards by the

hellebores, should have their bodies moistened by plenty of food and rest before taking the draught.

For a full account of all the ancient rules respecting the administration of hellebore, see PAULUS ÆGINETA, B. VII, 10. One can readily understand that it would be a wise rule to give diluents before administering so violent an emetic as the *veratrum album*. Compare Aph. i, 22, ii, 9, vii, 70; II Diet. xxxvi, 18; Loc. in Hom. xl, 3; Verat. Us. i, 1; II Morb. xiii, 10; Int. Affect. xxiii, 13; Morb. Mulier. xxv, 13, 14; Superfct. xx, 1.

14. When one takes a draught of hellebore, one should be made to move more about, and indulge less in sleep and repose. Sailing on the sea shows that motion disorders the body.

The object being to procure ready vomiting, it was no doubt a good rule to move the patient about. That motion produces vomiting is illustrated, as he says, by the movements of a ship occasioning sea-sickness. That such is his meaning, there can be no doubt. See the Commentaries of Galen and Theophilus. Compare Verat. Us. i, 2; VI Epid. v, 45; Aph. ii, 51.

15. When you wish the hellebore to act more, move the body, and when to stop, let the patient get sleep and rest.

The argument contained in this Aphorism is manifestly a continuation of the preceding one. Compare Veratr. Us. i, 4; Superfct. xx, 1; VI Epid. v, 45; Aph. v, 27; VI Epid. v, 45.

16. Hellebore is dangerous to persons whose flesh is sound, for it induces convulsion.

This is little else but a repetition of Aphor. ii, 36. Celsus, in like manner, declares that emetics "non semper ægris prodesse, semper sanis nocere." (ii, 13.) See Verat. Us. i, 5; Aph. ii, 36, 37, vi.

17. Anorexia, heartburn, vertigo, and a bitter taste of the mouth, in a person free from fever, indicate the want of purging upwards.

The symptoms here enumerated are, no doubt, indicative of the presence of bile in the stomach, and consequently emetics must be proper in such a case. See Galen and Berends. Compare Verat. Us. i, 10; Affect. xiv, 12; II Morb. Mulier. xxiv, 2, 3.

18. Pains seated above the diaphragm indicate purging upwards, and those below it, downwards.

I here follow the reading which Berends, Lefebure, and Littré have adopted from Bosquillon. The rule here laid down seems to be, that, in affections of the chest, emetics are to be administered; and in those of the abdomen, purgatives. That this rule would be a very proper one in many cases I can well believe, but as a general rule, I suppose we would now demur submitting to it. Compare Veratr. Us. i, 10, 11.

19. Persons who have no thirst while under the action of a

purgative medicine, do not cease from being purged until they become thirsty.

The same remark is made in the little tract on the Administration of Hellebore. It is a well-known fact that the operation of a drastic purgative induces thirst. The rationale of the rule of practice founded upon it is explained by Theophilus to be, that until thirst takes place we must consider that the system has not been properly dried. See *Veratr. Us.* i, 11.

20. If persons free from fever be seized with tormina, heaviness of the knees, and pain of the loins, this indicates that purging downwards is required.

This Aphorism is little else than a continuation of Aph. 18. The reader will remark that our author qualifies both by restricting purging to those cases in which no fever is present. Compare *Veratr. Us.* i, 11.

21. Alvine dejections which are black, like blood, taking place spontaneously, either with or without fever, are very bad; and the more numerous and unfavorable the colours, so much the worse; when with medicine it is better, and a variety of colours in this case is not bad.

The characters of the dejections given in this Aphorism, and some of the following, is taken partly from *Prognost.* § 11, and *Coac. Pr.* § 596, of Litré's edition. The Commentaries of Galen and Theophilus are interesting, as showing us the manner in which the ancient authorities accounted for this appearance physiologically. They held that the office of the spleen being to attract the melancholic humour for its own purposes, when this viscus fails to perform its office, the superfluity deranges the liver; and hence this discharge is indicative of the greatest possible derangement of the internal viscera. Galen mentions that he found black dejections from the bowels a common symptom in the plague which prevailed in his time.

22. When black bile is evacuated in the beginning of any disease whatever, either upwards or downwards, it is a mortal symptom.

This is a natural inference from the preceding Aphorism. Of course, as the commentators remark, a black discharge either upwards or downwards, at the commencement of a disease, indicates a very serious derangement of the system. Galen remarks that, in a more advanced stage of the disease, such an evacuation may be critical, and in that case favorable. See also *Coac.* i, 100.

23. In persons attenuated from any diseases, whether acute or chronic, or from wounds, or any other cause, if there be a discharge either of black bile, or resembling black blood, they die on the following day.

Of the fatal nature of such dejections there can be no question. Hippocrates would, no doubt, be familiar with them in the fevers of his own country. In inter-tropical fevers, I need scarcely remark, they are looked upon as most mortal symptoms.

24. Dysentery, if it commence with black bile, is mortal.

Galen, in his Commentary, pronounces such a case to be as incurable as cancer,—as, in fact, being produced by the same humour, that is to say, black bile. Theophilus makes the curious remark, that if black bile, when poured on the earth, occasions an effervescence, like vinegar, it may well be supposed that it will corrode the human body when confined in it. Compare Coac. i, 100, iii, 292; V Epid. x, 2.

25. Blood discharged upwards, whatever be its character, is a bad symptom, but downwards it is (more?) favorable, and so also black dejections.

Upon reference to Dietz (*Analec.* tom. ii, p. 400) and Littré (*Œuv.* Hipp. tom. iv, p. 510), it will be seen that there are different readings of this paragraph. As a general fact, there is little to say to the announcement made in this Aphorism; for certainly discharges of blood upwards are generally unfavorable, whereas those downwards are less so. Galen understands the meaning to be, that discharges of blood, or black discharges, when they proceed from the hæmorrhoidal vessels, are favorable. Compare Aph. vii, 37; Coac. ii, 254, vi, 14.

26. If in a person ill of dysentery, substances resembling flesh be discharged from the bowels, it is a mortal symptom.

The dejection resembling the scrapings of the guts, is noticed at Prognost. § 11, and occurs among the symptoms of dysentery as given by Aretæus (*Morb. Chron.* i, 9), and the other authorities. All regard it as a fatal symptom, proceeding from exoriation of the bowels. See Aph. iv, 76.

27. In whatever cases of fever there is a copious hemorrhage from whatever channel, the bowels are in a loose state during convalescence.

The rationale of this, as stated by Theophilus, is, that the discharge of blood having occasioned debility of the digestive powers, the food is not properly digested, and in consequence the chyle is evacuated from the bowels. See also Prorrh. i, 133; Coac. 149, 326, ed. Littré.

28. In all cases whatever, bilious discharges cease if deafness supervenes, and in all cases deafness ceases when bilious discharges supervene.

As remarked by Galen, our author, in this place, evidently refers to symptomatic deafness in fevers, and other such complaints. Theophilus explains, that such an affection, being occasioned by a metastasis of the bile upwards, is naturally relieved by an evacuation of the same downwards. See Coac. ii, 66, 103, vi, 77; Aph. iv, 60.

29. Rigors which occur on the sixth day have a difficult crisis.

The sixth was regarded by all the authorities as an unfavorable critical day. Theophilus compares the sixth to a tyrant, and the seventh to a king. See Galen *De Crisibus*; and PAULUS ÆGINETA, B. II, 7, Syd. Soc. edit. Compare Coac. i, 23; VII Epid. xl, 20.

30. Discases attended with paroxysms, if at the same hour

that the fever leaves it return again next day, are of difficult crisis.

It will be seen upon reference to the Commentary of Galen, that there had been two different interpretations of this passage. As rendered here, the meaning seems sufficiently clear, and the diagnosis would appear to be very well founded. See Humor. iii, 91.

31. In febrile diseases attended with a sense of lassitude, deposits form about the joints, and especially those of the jaws.

See Humor. iii, 98; IV Epidem. xviii, 16, 17. This Aphorism evidently bears reference to semiology. As stated by Galen, the deposits here noticed are bubo and parotis. These, I need scarcely remind the reader, are frequently mentioned in the Epidemics.

32. In convalescents from diseases, if any part be pained, there deposits are formed.

See Humor. iii, 100. I need not say that deposits *or* abscesses (for they are nearly the same) are largely treated of in the different books of Epidemics. That in such a case a deposit should form in a part affected with pain, is what might be naturally expected.

33. But if any part be in a painful state previous to the illness, there the disease fixes.

As stated by Galen, this Aphorism is closely connected with the two preceding ones. That any disease is apt to fix on a weak limb, is a well-known fact in semiology. See Humor. iii, 101; IV Epidem. xviii, 2, 3; Loc. in Homin. xxxvi, 6.

34. If a person labouring under a fever, without any swelling in the fauces, be seized with a sense of suffocation suddenly, it is a mortal symptom.

This is evidently *cyanoche laryngitis*, which is frequently noticed in the Hippocratic treatises. See Aph. iv, 25; Prænot. xxiii, 3, 4; Coac. i. 90, ii, 201, 202, 203, iii, 96; also PAULUS ÆGINETA, B. III, 27, Syd. Soc. edit. Galen gives a very interesting Commentary on this passage, in which he discusses the nature of the affection noticed in it. He distinctly refers it to inflammation spreading from the fauces to the larynx, and obstructing the passages to the lungs, that is to say, the bronchi. Theophilus gives briefly the same account of it.

35. If in a person affected with fever, the neck become suddenly distorted, and he cannot swallow unless with difficulty, although no swelling be present, it is a mortal symptom.

Allusion is evidently made here to dislocation of the upper vertebrae, an affection which we have had occasion to notice previously more than once. See Articulations, § 41; Epidem. ii, 24; Aphor. iii, 26; Pronhet. i, 87; and Coac. 261. See also our analysis of Epid. ii, and Commentary on Aph. iii, 26. Galen's Commentary on this Aphorism is very interesting. He describes the affection as a form of dislocation forwards of the upper vertebrae from an inflammatory complaint about the fauces. Theophilus and Damascius give a similar account of the disease, which the

former of these calls a species of cynanche, in which the vertebræ of the spine are affected sympathetically. It is noticed by Celsus in the following terms: "Cuive in eodem febris corporisque habitu cervix convertitur, sic ut devorare æque nihil possit." (ii, 6.)

36. Sweats, in febrile diseases, are favorable, if they set in on the third, fifth, seventh, ninth, eleventh, fourteenth, seventeenth, twenty-first, twenty-seventh, and thirty-fourth day, for these sweats prove a crisis to the diseases; but sweats not occurring thus, indicate pain, a protracted disease, and relapses.

The prognostics from sweats, and the critical days, are treated of in various parts of our author's works. See *Prænot.* v, 1, 2, 3; *Coac.* iv, 36, &c. See also the Commentary on *PAULUS ÆGINETA*, B. II, 7, *Syd. Soc. edit.*

37. Cold sweats occurring along with an acute fever, indicate death; and along with a milder one, a protracted disease.

The truth of this, Galen says, has been often proved by experience; and the rationale of it he explains at considerable length, in this way, that cold sweats are occasioned by the innate heat being nearly overpowered by the humours which engender the fever. Theophilus gives a similar explanation. Compare *Judicat.* vi, 9, 10, viii, 1, 8; *Prænot.* v, 4, 5; *Coac.* iv, 40.

38. And in whatever part of the body there is a sweat, it shows that the disease is seated there.

That is to say, as Heurnius justly remarks, affections of the brain are indicated by sweats about the head, and those of the lungs by sweats about the chest. He treats here of symptomatic and partial sweats. See *Aph.* ii, 5, and Celsus, ii, 2.

39. And in whatever part of the body heat or cold is seated, there is disease.

All the ancient commentators explain this upon the principle that the disease is connected with an unequal distribution of the innate heat in the body, or, as they express, to a departure from the proper temperature (*ἐκκρασία*). Compare *Judicat.* viii, 3.

40. And wherever there are changes in the whole body, and if the body be alternately cold and hot, or if one colour succeed another, this indicates a protracted disease.

From the varied characters of the affections, as the commentators remark, Nature—meaning the *vis medicatrix nature*—cannot accomplish the removal of them in a short time. Celsus renders this Aphorism as follows: "Aut ubi corpus modo frigidum, modo calidum est, et color alius ex alio fit." (ii, 5.) Compare *Aph.* vii, 60; *Humor.* iii, 22, 53; *Judic.* viii, 4; *Prædict.* vi, 4; *Coac.* i, 77, 177.

11. A copious sweat after sleep occurring without any manifest cause, indicates that the body is using too much food. But if it occur when one is not taking food, it indicates that evacuation is required.

As Galen and Theophilus explain his meaning, Hippocrates infers that a copious

sweat must be occasioned by an effort of Nature to expel a superfluity from the system, which, as he states, is likely to be, either the consequence of too much food, or of humours in the system requiring to be purged. Aph. vii, 61; Coac. iv, 36; V Epid. xxv, 15; Aph. iii, 8.

42. A copious sweat, whether hot or cold, flowing continually, indicates, the cold a greater, and the hot a lesser disease.

Copious, and more especially colliquative and cold sweats, are well known to be a very unfavorable symptom in fevers. See further Judicat. viii, 9; Coac. i, 21; Aphor. vii, 61; also PAULUS ÆGINETA, B. II, 47, Syd. Soc. edit.

43. Fevers, not of the intermittent type, which are exacerbated on the third day, are dangerous; but if they intermit in any form, this indicates that they are not dangerous.

Our author here evidently draws the distinction between remittent and intermittent fevers, pronouncing of the former that they are dangerous, and of the latter that they are not so. Celsus seems to have had this Aphorism in view, when he gives in his list of dangerous diseases, "quæve sic continent, ut per accessiones increscant, per decessiones tantum molliantur, nec unquam integrum corpus demittant." (ii, 1.) I need scarcely remark, that remittent fevers, which are the same as the continual fevers of the ancients, are well known to be of a very intractable nature. See further Aph. vii, 62; Coac. i, 166; I Epid. iii, 16; III Epid. iii, 109; VII Epid. xl, 19; Viet. Acut. iii, 3.

44. In cases attended with protracted fevers, tubercles (*phymata*) or pains occur about the joints.

That protracted fevers are apt to terminate in collections of matter, or pains in joints, must be well known to every one who is familiar with medical practice. They are noticed in several of the Hippocratic treatises, as, Aph. vii, 63; Humor. iii, 98; Prænot. xxiv, 9, 10, 11; II Prorrhet. x, 7; Coac. i, 168, 169. By *phymata* in this place, our author evidently means *deposits*, of which I need scarcely say that he treats in various parts of his works, more especially in the Epidemics.

45. When tubercles (*phymata*) or pains attack the joints after fevers, such persons are using too much food.

This seems a very natural inference if confirmed by experience; namely, that Nature being overloaded, endeavours to relieve herself, either by these tubercles, or effusion in the joints. See Aph. vii, 64.

46. If in a fever not of the intermittent type a rigor seize a person already much debilitated, it is mortal.

That a rigor attacking a patient reduced by fever is a very fatal symptom cannot be unknown to any person who is familiar with the treatment of these diseases. See Coac. ii, 65.

47. In fevers not of the intermittent type, expectorations which are livid, bloody, fetid, and bilious, are all bad; but if evacuated properly, they are favorable. So it is with the alvine

evacuations and the urine. But if none of the proper excretions take place by these channels, it is bad.

We have here prognostics derived from the sputa, the alvine and the urinary discharges. Upon reference to the Commentary of Galen and the Notes of Littré, it will be seen that very anciently there was a different reading of the last clause of this Aphorism. The subjects to which it relates are treated of in several of the Hippocratic treatises, as Aph. vii, 69; Coac. ii, 161, iii, 241; 2 Prorrhét. xv, 10.

48. In fevers not of the intermittent type, if the external parts be cold, but the internal be burnt up, and if there be thirst, it is a mortal symptom.

This Aphorism is thus rendered by Celsus: "Aut cui, febre non quiescente, exterior pars friget, interior sic calet, ut etiam sitim faciat." (ii, 6.) Galen accounts for the case here noticed in the following manner: when an inflammation or erysipelas is seated in the internal parts, blood from all parts of the body is attracted to the part, and hence the surface of the body is congealed. He gives the name of lipyria to a fever of this character. See PAULUS ÆGINETA, B. II, 27, Syd. Soc. edit. Compare Aph. vii, 69; Coac. ii, 161, iii, 241; Prænot. xv, 10; Aph. i, 25.

49. In a fever not of the intermittent type, if a lip, an eyebrow, an eye, or the nose, be distorted; or if there be loss of sight or of hearing, and the patient be in a weak state—whatever of these symptoms occur, death is at hand.

This is partly derived from Coac. 72, ed. Littré. The most of the features here drawn are copied by Celsus, in his admirable chapter "On the evident symptoms of death:"—"eademque labra, et nares, oculique, et palpebræ, et supercilia, aliquæ ex his pervertuntur." (ii, 6.) As Theophilus remarks, the symptoms here noted indicate a loss both of the powers of motion and of sensibility.

50. Apostemes in fevers which are not resolved at the first crisis, indicate a protracted disease.

Galen does not hesitate to declare, that this is a self-evident truth, which it probably did not require an Hippocrates to announce. See Celsus, ii, 5.

51. When in a fever not of the intermittent type dyspnoea and delirium come on, the case is mortal.

In this case, as Galen remarks, both the brain and the lungs being affected, the danger must be of an urgent nature; in fact, either of them is a very unfavorable symptom, and a combination must necessarily be very mortal. Compare Judicat. viii, 17; Prænot. iv, 10, xiv, 9, xv, 3.

52. When persons in fevers, or in other illnesses, shed tears voluntarily, it is nothing out of place; but when they shed tears involuntarily, it is more so.

Celsus ranks it among the unfavorable symptoms "sine voluntate lachrimare." (ii.) This Aphorism is repeated Epidem. iv, 27, and Prognost. ii, 15, ed. Linden.

53. In whatever cases of fever very viscid concretions form about the teeth, the fevers turn out to be particularly strong.

The appearance here noted is a well-known symptom of malignant fevers. See Coac. ii, 153; IV Epidem. xxvii, 13. Celsus renders it thus: "Gravis morbi periculum est,—habere humorem glutinosum dentibus inhaerentem." (ii, 4.)

54. In whatever cases of ardent fever dry coughs of a tickling nature with slight expectoration are long protracted, there is usually not much thirst.

Celsus gives the following version of this Aphorism: "Si quis autem in hujusmodi febre leviter tussit, is neque vehementi siti conflictatur, neque bibere aquam frigidam debet." (iii, 7.) According to Heurnius, the object of our author in this Aphorism is to warn the physician not to be deceived in a case of latent fever by the absence of thirst. See also VI Epid. ii, 43.

55. All fevers complicated with buboes are bad, except ephemerals.

I have touched upon this important subject in my Annotations on the Epidemics, and elsewhere. See Epidem. ii, 3; also, in particular, Galen. ad Glauc. ii, and De Diff. Feb. 6.

56. Sweat supervening in a case of fever without the fever ceasing, is bad, for the disease is protracted, and it indicates more copious humours.

This prognosis is repeated, Judicat. viii, 6; Coac. iv, 36; II Morb. xxxvi, 12; I Prorrh. vii, 8; Aphor. vii, 61. Galen considers it obvious that the repetition of the sweats in this case is an effort of Nature to get rid of a greater than usual amount of humours.

57. Fever supervening in a case of confirmed spasm, or of tetanus, removes the disease.

The truth of this prognosis is confirmed by many of the ancient authorities, but is denied by Caelius Aurelianus. See PAULUS AEGINETA, B. iii, 20, Syd. Soc. edit. See further, Aph. ii, 26, v, 70; Loc. in Hom. xlvi, 6; Judic. xii, 10; Coac. i, 231, iii, 80, 84; I Morb. vi, 13, 14.

58. A rigor supervening in a case of ardent fever, produces resolution of it.

The fact here announced can be tested only by those who are familiar with the fevers of hot countries. See further, Judicat. xi, 9, 16; Coac. i, 188; also Celsus, ii, 8.

59. A true tertian comes to a crisis in seven periods at furthest.

Galen is at great pains to explain the rationale of this statement, but his doctrine of crises and critical days applies only to Greece and Italy. See further, Judicat. iv, 10; Coac. i, 212; I Epid. iii, 26; II Epid. iii, 82.

60. When in fevers there is deafness, if blood run from the

nostrils, or the bowels become disordered, it carries off the disease.

Galen reverting to his Commentary on a preceding Aphorism, in which he states that deafness in this case is connected with the determination of bilious superfluities to the brain, finds in that hypothesis a natural explanation of the prognostic contained in this Aphorism. See further, Aph. iv, 28; Judicat. xi, 11, 12, 13; Coac. ii, 66, 99, 100, 103, vi, 77, 78; and Celsus, ii, 8.

61. In a febrile complaint, if the fever do not leave on the odd days, it relapses.

Galen doubts if Hippocrates actually wrote this Aphorism, since examples are related in the Epidemics, of fevers being resolved on even days, without a relapse. This opinion of our author's, however, is alluded to in general terms in different parts of his works, as Humor. iii, 91; Judicat. ix, 11; Prænot. xxiv, 8; Coac. i, 115, 210; I Epid. iii, 40; II Epid. v, 30, vi, 18; IV Morb. xix, 10, 11, xx, 8, 12, 15, 16; Celsus, iii, 4.

62. When jaundice supervenes in fevers before the seventh day, it is a bad symptom, unless there be watery discharges from the bowels.

All the Greek authorities confirm the truth of this prognostic, but the Arabians call it in question. See the Commentary on PAULUS ÆGINETA, B. II, 4. See further, Judicat. iii, 5, 18, 20; Coac. i, 172; I Morb. vi, 2; Vict. Acut. liv, 3, 4; also Pliny, II. N. xxvi, 16.

63. In whatever cases of fever rigors occur during the day, the fevers come to a resolution during the day.

The meaning appears to me somewhat ambiguous, after consulting all the commentators; I am inclined, however, to think with Theophilus, that the prognostic applies to quotidians, in which, as there is a cold fit every day, so is there also a complete apyrexia. See further Judicat. xi, 16.

64. When in cases of fever jaundice occurs on the seventh, the ninth, the eleventh, or the fourteenth day, it is a good symptom, provided the hypochondriac region be not hard. Otherwise it is not a good symptom.

Galen thinks this Aphorism should have been joined to the 62d. Celsus alludes to it in the following terms: "Quem (morbum arquatum) Hippocrates ait si post septimum diem febricitante agro supervenit, tutum esse, mollibus tantummodo præcordiis substantibus: Diocles, ex toto, si post febrem oritur, etiam prodesse, si post hunc febris, occidere." (iii, 24.) See Judicat. iii, 5, 18, iv, 11; Coac. i, 173; I Epid. ii, 120; I Morb. vi, 2; Aph. vi, 42.

65. A strong heat about the stomach and cardialgia are bad symptoms in fevers.

This Aphorism requires no illustration or comment. I may just mention that Damascius refers the heat in the stomach and heartburn to yellow bile in a heated state, which is lodged in the coats of the stomach.

66. In acute fevers, spasms and strong pains about the bowels are bad symptoms.

Galen remarks that the spasms and violent pains of the bowels may be connected with inflammation, erysipelas, a strong obstruction, or an abscess, and from whatever of these causes they proceed, must necessarily be a bad complication in fevers. See further, Coac. ii, 207; Aph. ii, 26; and Celsus, ii, 4.

67. In fevers, frights after sleep, or convulsions, are a bad symptom.

Galen informs us that, instead of frights (*φόβοι*), some read pains (*πόνοι*). This Aphorism is in accordance with Aph. ii, 1.

68. In fevers, a stoppage of the respiration is a bad symptom, for it indicates convulsions.

By stoppage of the respiration (*τὸ πνεῦμα προσκόπτου*) is meant a temporary suspension, or intermission, of the act of inspiration or expiration, or of both. See Galen, Comment. h. l. He justly ascribes it to an affection of the respiratory organs. We have seen it noticed in certain of the cases related in the First and Third Books of the Epidemics. Compare also Vict. Acut. xxi, 21; I Morb. Mul. v, 7. The expression means literally "the breath tripping," and is borrowed from the race-course. See Vossius, Etymolog. in voce *cespes*.

69. When the urine is thick, grumous, and scanty in cases not free from fever, a copious discharge of thinner urine proves beneficial. Such a discharge more commonly takes place when the urine has had a sediment from the first, or soon after the commencement.

Galen informs us that instead of grumous (*θραμβώδεια*), Numesianus and Dionysius read muddy, (*ζομβωρώδεια*). My necessary limits will not permit me here to treat upon the important subject of the indications drawn from the urine, as given by the ancient authorities. See a succinct account of them in the Commentary on PAULUS ÆGINETA, B. II, 14. Galen, in his Commentary, remarks that thick grumous urine may either be accompanied with fever or without it, and in either case it must be a favorable symptom when this secretion comes to its natural state. Compare Coac. v, 80, 81.

70. When in fevers the urine is turbid, like that of a beast of burden, in such a case there either is or will be headache.

Urine resembling that of cattle is noticed several times in the Epidemics. See the case of the wife of Dromedades, Epid. I; also Epid. vi, 5, 13, and vii; Epid. liv, 5, 6, 10, 11. In all these cases it appears to have been connected with an affection of the brain.

71. In cases which come to a crisis on the seventh day, the urine has a red nubecula on the fourth day, and the other symptoms accordingly.

That in estimating the critical days, the fourth is to be looked upon as an index of the seventh, is a doctrine held by all the authorities. See PAULUS ÆGINETA,

B. II, 9, Syd. Soc. edit.; and Galen's Comment. li. 1. The ancients paid great attention to the nubeculae, or cloudy appearances in the urine. On this Aphorism, see further Judic. vi, 2, ix, 8; Coac. i, 213, v, 5, 82; Aph. 1, 12.

72. When the urine is transparent and white, it is bad; it appears principally in cases of phrenitis.

Urine that is transparent and of a light colour was held to be indicative of a complete stoppage of the digestive powers, and it was thought to be more particularly fatal in phrenitic cases, which were considered to be of a bilious character. See the Commentaries of Galen and Theophilus.

73. When the hypochondriac region is affected with meteorism and borborygni, should pain of the loins supervene, the bowels get into a loose and watery state, unless there be an eruption of flatus or a copious evacuation of urine. These things occur in fevers.

Meteorism and borborygni are well-known symptoms in fever. The Commentators state that they arise from flatulence and fluids collected in the hypochondriac region, which may either pass downwards by the bowels, or be determined to the urinary organs. The Aphorism is thus rendered by Celsus: "Si inflatio in superioribus partibus dolorem tumoremque fecit, bonum signum est sonus ventris inde ad inferiores partes evolutus." (ii, 3.) These symptoms are alluded to in several parts of the Hippocratic treatises, as Coac. ii, 240, 241, 257; Prognost. x, 14; Aph. v, 64.

74. When there is reason to expect that an abscess will form in joints, the abscess is carried off by a copious discharge of urine, which is thick, and becomes white, like what begins to form in certain cases of quartan fever, attended with a sense of lassitude. It is also speedily carried off by a hemorrhage from the nose.

This Aphorism is founded on two prognostics in the Sixth Book of Epidemics, § 4. See also Humor. xi, 13, 16, and Judicat. x, 4-7. That a deposit, or abscess, commencing in a joint should be carried off by the urine or a hemorrhage from the nose appears very natural. Galen and Theophilus call attention to the remark that the crisis by epistaxis carries off the affection much more speedily than that by the urine. From this Aphorism being given individually in the Epidemics and generally in the Aphorisms, the learned Fuchsius, in his Commentary on the Epidemics, infers that it is the earlier production.

75. Blood or pus in the urine indicates ulceration either of the kidneys or of the bladder.

That bloody and purulent urine, generally, is connected with ulceration in the kidneys or bladder will be admitted at the present day. Galen further remarks correctly, that the ulceration is generally produced by a sharp calculus. This Aphorism is thus rendered by Celsus: "Si sanguis aut pus in urina est, vel vesica vel renes exulceratæ sunt." (ii, 7.) See further Aph. iv, 78, 81; Iut. Affect. xvi, 4, 5; Nat. Human. xxvi, 4; Prænot. xix, 11.

76. When small fleshy substances like hairs are discharged along with thick urine, these substances come from the kidneys.

The substances resembling hairs floating in the urine are described by Galen, Cælius Aurelianus, Avicenna, and other ancient authorities. See PAULUS ÆGINETA, B. III, 45, Syd. Soc. edit. Galen pays a high compliment to our author for having acutely remarked a morbid appearance, of which many practitioners in his time were ignorant. See further, Nat. Human. xxvi, 5; Aph. iv, 26. Celsus renders this Aphorism as follows: "Si hæc crassa, carneulas quasdam exiguas quasi capillos habet," &c. (ii, 7.)

77. In those cases where there are furfuraceous particles discharged along with thick urine, there is scabies of the bladder.

By scabies vesicæ, as Galen explains in his Commentary, was meant an affection of the inner membrane of the bladder. Furfuraceous sediments were looked upon by all the authorities as an unfavorable symptom. See PAULUS ÆGINETA, B. II, 14, Syd. Soc. edit.; and Nat. Human. xxvi, 6.

78. In those cases where there is a spontaneous discharge of bloody urine, it indicates rupture of a small vein in the kidneys.

This Aphorism is nearly allied to Aphor. 75. Galen, in his Commentary, remarks that the rupture of the vessel may either proceed from an external or an internal cause. By spontaneous is meant sudden.

79. In those cases where there is a sandy sediment in the urine, there is calculus in the bladder (or kidneys).

Galen informs us that there was no mention of the kidneys in the copies of Hippocrates then in use, whence he justly held that the Aphorism was not strictly correct. It is, of course, undeniable that sabulous urine may either be connected with disease of the bladder or of the kidneys. See further, IV Morb. xxix, 13; Int. Affect. xv, 10, 11.

80. If a patient pass blood and clots in his urine, and have strangury, and if a pain seize the hypogastric region and perineum, the parts about the bladder are affected.

This Aphorism is repeated word for word, Aphor. vii, 39. One, of course, can have no hesitation in admitting the truth of it, when we take into account that, as explained by Galen, under the expression "the parts about the bladder," are comprehended all the urinary organs, namely, the bladder, kidneys, and urethra.

81. If a patient pass blood, pus, and scales, in the urine, and if it have a heavy smell, ulceration of the bladder is indicated.

This, it will be remarked, is very little different from Aphor. iv, 75.

82. When tubercles form in the urethra, if these suppurate and burst, there is relief.

By *phymata* there can be no doubt that Hippocrates understood small and indolent abscesses; the term, I need scarcely say, is frequently used by him in this sense. By

urethra, in this place, according to Theophilus, was meant the neck of the bladder. I cannot, from my own personal information, give any account of these tubercles, but for a description of them I would refer the reader to the Commentary of Heurnius; and also to the works of Ambrose Paré, and, in particular, to Amatus Lusitanus, 4, cent. 19. See further, Coac. iii, 311, 312; and Celsus, ii, 8.

83. When much urine is passed during the night, it indicates that the alvine evacuations are scanty.

From this Aphorism it will be seen that our author regarded the urinary and alvine evacuations as vicarious, so that if the one was abnormally abundant, the other was of necessity deficient in as great a degree. Theophilus mentions that he says "during the night," because digestion takes place at that time. Compare II Diat. xl, 10-17; IV Morb. vii, 4.

SECTION V.

1. A spasm from taking hellebore is of a fatal nature.

We have had occasion repeatedly to remark that Hippocrates, in extreme cases, had recourse to the hellebore, that is to say, the white hellebore, as Galen, in his Commentary, remarks. It was undoubtedly the *veratrum album*. See PAULUS ÆGINETA, Vol. III, p. 107. He here states the danger of administering it unseasonably. As Theophilus remarks, it sometimes brings on convulsion from sympathy with the stomach. Heurnius, in his Commentary, relates a case in point, which occurred to his own knowledge. See further, Aph. vii, 25; Coac. iv, 24; and Celsus, ii, 6.

2. Spasm supervening on a wound is fatal.

That spasm, that is to say, a tetanic affection supervening on a wound, is highly dangerous all experienced surgeons are well aware. Galen, in his Commentary, remarks that the spasm is an affection of the nervous parts in connexion with the wound. He further remarks that by "fatal," (*θανάσιμον*.) in this place is merely meant "very dangerous." See further Coac. iii, 81, 382; Capit. Vuln. xxv, 5; Celsus, ii, 26. Tagaultius pointedly adverts to this interpretation of the Aphorism. Inst. Chirurg. ii.

3. A convulsion, or hiccup, supervening on a copious discharge of blood is bad.

Every person who is familiar with obstetrical practice will bear testimony to the truth of this Aphorism, as far as regards uterine hemorrhage; hence the danger of using violent remedies in such a case. Hiccup, as Galen remarks, is a spasm of the stomach. See further, Aph. vii, 9; Coac. iii, 57; Celsus, ii, 8.

4. A convulsion, or hiccup, supervening upon hypercatharsis is bad.

This is a natural inference from Aph. 1 and 3. See further, Aph. vii, 41; Coac. iv, 22; Verat. Us., i, 8; and Celsus, ii, 8.

5. If a drunken person suddenly lose his speech, he will die

convulsed, unless fever come on, or he recover his speech at the time when the consequences of a debauch pass off.

We have here a very important fact announced to us respecting the effects of intoxication, and it is to be regretted that of such cases modern physicians have much greater experience than Hippocrates can have had, intoxication, it is too well known, being much more common now than in the days of the Greeks and Romans. Galen, in his Commentary, remarks that there is no limit for the effects of intoxication to pass off, that in some this takes place next day, and in others they last till the third day. See II Morb. iv, 16, xxii, 2, 3, 4; Celsus, ii, 6.

6. Such persons as are seized with tetanus die within four days, or if they pass these they recover.

No doubt this prognosis is generally applicable in hot countries. See further, Judicat. viii, 19; III Morb. xiii, 11; Celsus, ii, 1.

7. Those cases of epilepsy which come on before puberty may undergo a change; but those which come on after twenty-five years of age, for the most part terminate in death.

The prognosis in this case is in accordance with Aphor. ii, 45. See further, II Prorrhet. xvi, and Morb. Sac.; also Celsus, ii, 8, and iii, 23. It is to be lamented that, at the present day, no more favorable prognosis can be made in this case.

8. In pleuritic affections, when the disease is not purged off in fourteen days, it usually terminates in empyema.

The subject of empyema after acute inflammations of the chest is treated of in the annotations on the Prognostics. On this interesting subject, see further, Apli. v, 15; Loc. in Hom. xxvii, 4; Coac. iii, 131, 132, 171; VII Epid. xvii, 16; I Morb. iii, 29, x, 12, xi, 6-11, xxiii, 15, 16, xxiv, 10; III Morb. xvi, 30; Affect. viii, 19, 20, ix, 13; Int. Affect. i, 26; Viet. Acut. vii, 1, 2. The Commentary of Heurnius on this Aphorism is interesting.

9. Phthisis most commonly occurs between the ages of eighteen and thirty-five years.

This agrees with Aphor. iii, 29. See further, viii, 7, and Coac. iii, 260; also Celsus, iii, 22. It is to be borne in mind that the terms here specified comprehend the age of puberty (*μετακίωρ*) and that of adults (*νεανίσκωρ*). See the Commentary of Galen. I beg to quote, under this head, the opinion of our great English authority on Phthisis, I mean Sir James Clark: "The opinion of Hippocrates on this subject corresponds still more clearly with the results obtained from our tables; that accurate observer fixed the age at which phthisis most frequently occurs between the 18th and 35th year" (On Tubercular Phthisis.) Louis, as is too frequently the case with him, is undecided on this point.

10. Persons who escape an attack of quinsy, and when the disease is turned upon the lungs, die in seven days; or if they pass these they become affected with empyema.

We have here clearly the case of ulcerous sore-throat referred to, in which the

disease passes down to the lungs. That such cases generally prove fatal in the course of a few days is well known; but that they terminate in empyema, according to the modern acceptance of that term, will not be so readily admitted. It is probable, however, that our author meant by the term any purulent expectoration from the lungs. In fact, the literal translation of the last clause would be, "they become purulent." Heurnius, by the way, relates a case in point. See his Commentary; also Prognost. xxiii, 15; Coac. iii, 100, 101, 105, 106; II Morb. xxvii, 15-19; and Celsus, ii, 6.

11. In persons affected with phthisis, if the sputa which they cough up have a heavy smell when poured upon coals, and if the hairs of the head fall off, the case will prove fatal.

The test of phthisis here proposed is taken from Coac. iii, 252. It is approved of by Galen, and most of the commentators, even down to Heurnius in the 17th century, who relates an instance in which he founded a correct diagnosis upon it. Arctæus, however, objects to it, Morb. Acut. i, 8. See further, II Morb. xlvi, 16-20, lv, 20-23; Affect. viii, 19; also Celsus, ii, 8, and iii, 22.

12. Phthisical persons, the hairs of whose head fall off, die if diarrhœa set in.

The two symptoms here mentioned, are very characteristic of the last stage of phthisis. See further, Aph. v, 14, vii, 78; Coac. iii, 144, 255; I Morb. x, 36; II Morb. xlvi, 12; also Celsus, ii, 8.

13. In persons who cough up frothy blood, the discharge of it comes from the lungs.

No doubt, as a general rule, this statement is true, and is confirmed by many of the ancient authorities. See those referred to in the Commentary on PAULUS ÆGINETA, B. III, 31; and further, Coac. iii, 216, 250, 254, 273; II Morb. li, 4. The Commentaries of Galen and Heurnius on this head are interesting, but too lengthy for my limits. The former of these informs us, that in some of the editions he found "vomit" (*ἐμέουσι*), instead of "spit" (*πτύουσι*).

14. Diarrhœa attacking a person affected with phthisis is a mortal symptom.

This symptom is already alluded to, Aph. v, 12. See further, vi, 17, vii, 78; Coac. iii, 244, 256; I Morb. vi, 5, x, 36, 39, xi, 41, xiv, 10; also Celsus, ii, 8, iii, 22.

15. Persons who become affected with empyema after pleurisy, if they get clear of it in forty days from the breaking of it, escape the disease; but if not, it passes into phthisis.

I need scarcely remark, that what is stated in this Aphorism strongly confirms the opinion expressed by me in my Annotations on the Prognostics, that our author applied the term empyema both to the purulent expectoration that follows inflammation of the lungs and pleurisy, and to that which proceeds from a cavity of the lungs in tubercular phthisis. See further, Aph. v, 12, vi, 16; Loc. in Hom. xxv, 10; Coac. iii, 141, 171, 209, 215; VII Epidem. xlvi, 16, 17; I Morb. x, 15, 17, 20; II Morb. lv, 23; III Morb. xvi, 35; also Celsus, ii, 7.

16. Heat produces the following bad effects on those who use it frequently: enervation of the fleshy parts, impotence of the nerves, torpor of the understanding, hemorrhages, deliquia, and, along with these, death.

Upon reference to my analysis of the work "De Usu Humidorum," in the second section of the Preliminary Discourse, it will be seen that the contents of it are in a great measure identical with the series of Aphorisms (16-25) upon which we are now entering. It will also be seen from the Commentary of Galen, that there was a variety of readings with regard to the last words of the sentence here translated, "and, along with these, death." By "heat" is meant "hot water," or "a hot fomentation." The effects here described apply, of course, only to the immoderate use of it. See further, Humid. Us. iii. 2, 3; Offic. Medic. viii, 14; Artic. lvii, 3; Aphor. 1-23. Celsus tersely renders it thus: "(Calor) si nimius est, corpus effœminat, nervos emollit, stomachum solvit." (i, 9.)

17. Cold induces convulsions, tetanus, mortification, and febrile rigors.

See Aph. v, 20; Humid. Us. iii, 4, iv, 5; Tract. xxxvii, 6; Artic. lxxiv, 10.

18. Cold is inimical to the bones, the teeth, the nerves, the brain, and the spinal marrow, but heat is beneficial.

See Humid. Us. iv, 1, 4, and Celsus. i, 9. The commentators, and especially Theophilus, explain that the parts of the body here mentioned are of a cold nature, as being possessed of little vascularity, and hence they are readily hurt by cold, and are benefited by heat.

19. Such parts as have been congealed should be heated, except where there either is a hemorrhage, or one is expected.

See further, Aph. ii, 22, v, 23; Humid. Us. i, 21, xi, 28. The practice here recommended is obviously founded on the rule "contraria contrariis."

20. Cold pinches ulcers, hardens the skin, occasions pain which does not end in suppuration, blackens, produces febrile rigors, convulsions, and tetanus.

The only expression here of ambiguous meaning is *ὀδύνην ἀνεκπύητον ποιεῖ*, the import of which would seem either to be, "that it aggravates pains not connected with suppuration," as explained by Theophilus, or "that it prevents painful parts from coming to suppuration," as explained by Heurnius. See Aph. v, 17; Humid. Us. iii, 4, ix, 5, xi, 15; Tract. xxxvii, 6; Artic. lxxiv, 10; also Celsus, i, 9.

21. In the case of a muscular youth having tetanus without a wound, during the midst of summer, it sometimes happens that the affusion of a large quantity of cold water recalls the heat. Heat relieves these diseases.

We have here as safe directions as can be well imagined for the application of the cold affusion in tetanus, and very different from the circumstances under which it was proposed by Dr. Currie, of Liverpool. It is only in the case of a muscular person, and

when unconnected with a wound, that he recommends the practice ; and even under these circumstances it was discontinued by succeeding authorities. See the Commentary on PAULUS ÆGINETA, Book III, 20. See further, Humid. Us. xi, 16 ; Aphor. v, 25 ; III Morb. xiv, 17 — xv. Galen, in his Commentary, explains that the cold acts in this place, not by extinguishing, but by rousing the vital heat.

22. Heat is suppurative, but not in all kinds of sores, but when it is, it furnishes the greatest test of their being free from danger. It softens the skin, makes it thin, removes pain, soothes rigors, convulsions, and tetanus. It removes affections of the head, and heaviness of it. It is particularly efficacious in fractures of the bones, especially of those which have been exposed, and most especially in wounds of the head, and in mortifications and ulcers from cold ; in herpes exedens, of the anus, the privy parts, the womb, the bladder, in all these cases heat is agreeable, and brings matters to a crisis ; but cold is prejudicial, and does mischief.

The important matters contained in this Aphorism are also treated of in the following parts of the Hippocratic Collection : Humid. Us. xi, 18-28, xi, 10, i, 10, 19, v, 13, vi, 2, 3 ; Uleer. v, 1 ; I Morb. vi, 14. Galen and Theophilus, among the ancients, and Heurnius, among the modern commentators, have given some very interesting observations on this Aphorism, but they are far too lengthy for my limits. Heat, it will be remarked, is said to be a test, as it were, of ulcers, whether they are of a mild nature or not ; for if it produce suppuration, they may be regarded as mild, but if otherwise, as malignant.

23. Cold water is to be applied in the following cases: when there is a hemorrhage, or when it is expected, but not applied *to* the spot, but *around* the spot whence the blood flows ; and in inflammations and inflammatory affections, inclining to a red and sub-sanguineous colour, and consisting of fresh blood, in these cases it is to be applied, but it occasions mortification in old cases ; and in erysipelas not attended with ulceration, as it proves injurious to erysipelas when ulcerated.

I need scarcely remark, that the good and bad effects of cold, when applied medicinally, are here given with admirable judgment. What a valuable fact is here stated with regard to the effects of cold in checking hemorrhage ! And how excellent the advice not to apply it *to* the wound, for this might occasion pain and increase vascular action, but to the parts *around* ! It will be remarked, that he further recommends cold applications to inflammation, and to erysipelas, when not ulcerated. Popular opinion is against the use of it in the latter case, but very probably without much cause. The substance of this Aphorism is given by Celsus, i, 9. No part of this Aphorism is to be found in the treatise De Humid. Us., and the only passage which is at all parallel to it is Aph. v, 19.

24. Cold things, such as snow and ice, are inimical to the

chest, being provocative of coughs, of discharges of blood, and of catarrhs.

The matter contained in this important Aphorism is also to be found at Humid. Us. iv, 8, v, 16; VI Epid. iii, 22. Although intensely cold applications to the chest are condemned by all the ancient authorities, moderately cold applications are recommended by many of them. But even these, Galen affirms, have sometimes the contrary effect to what they are intended to produce. (Meth. Med., v, 6.) See the Commentary on PAULUS ÆGINETA, Book III, 26, Syd. Soc. edition. I would remark in this place, as confirmatory of the views laid down by our author in this and the preceding Aphorism, that, in my opinion, snow and ice, when applied in uterine hemorrhage, often do harm rather than good. I am confident that the hemorrhage is to be checked, not by intensely cold, but by cooling things; for I verily believe, with Hippocrates, that ice and snow, by creating pain and bringing on a violent reaction, may often increase the hemorrhage rather than allay it. "Ubi dolor ibi fluxus."

25. Swellings and pains in the joints, without ulceration, those of a gouty nature, and sprains, are generally improved by a copious affusion of cold water, which reduces the swelling, and removes the pain; for a moderate degree of numbness removes pain.

See further, Humid. Us. x, 14, 15. With the exception of gouty swellings, it will scarcely be questioned, at the present day, that the practice advocated in this Aphorism is sound and judicious; and even in the gout there have not been wanting modern authorities who have advocated the practice of Hippocrates, including Kinglake, the celebrated Harvey, and Mason Good. See Dr. Copland's Dictionary of Practical Medicine, under *Gout*, § 65. It should be kept in mind, moreover, that it is not cold applications, but the affusion of cold water which our author recommends in these cases; and that all the commentators hold that it acts, not by producing cold, but by rousing the vital heat of the part. See, in particular, the very interesting commentaries published by Dietz, *Anecdota Græca*, tom. ii, 458.

26. The lightest water is that which is quickly heated and quickly cooled.

See *Aër.*, Aq., Loc., xvii, 1; II Epid. ii, 29; Celsus, ii, 18.

27. When persons have intense thirst, it is a good thing if they can sleep off the desire of drinking.

This I believe to be a very judicious rule of practice, whether the thirst be occasioned by drinking wine or by the presence of fever. As Galen remarks, if the thirst be intense, a moderate quantity of liquids is to be taken; and if less so, drink is to be abstained from altogether, and the person should be left to sleep off his thirst. See the Comment. of Galen; also VI Epid. iv, 42.

28. Fumigation with aromatics promotes menstruation, and would be useful in many other cases, if it did not occasion heaviness of the head.

This agrees with what is said, *Natur. Mulieb.* xix, 161-187. All the ancient authorities

trusted much to fomentations and pessaries, consisting principally of aromatics, for the cure of amenorrhœa. See the Commentary on PAULUS ÆGINETA, Book III, 71. The aromatics, being of a diffusible nature, affect the heads of delicate women when so applied. Those mentioned by Galen are costus, cassia, cinnamon, and animum, on which see Dierbach, as to the medicinal articles used by Hippocrates, and PAULUS ÆGINETA, Vol. III, Syd. Soc. edit.

29. Women in a state of pregnancy may be purged, if there be any urgent necessity (*or*, if the humours be in a state of orgasm?), from the fourth to the seventh month, but less so in the latter case. In the first and last periods it must be avoided.

Galen, in his Commentary, remarks, that this Aphorism occurs previously, among those relating to purging, and is here repeated among those devoted to female complaints. He adds, however, that some had suppressed it. See Celsus, ii, 6.

30. It proves fatal to a woman in a state of pregnancy, if she be seized with any of the acute diseases.

How often have I seen the truth of this prognosis verified! Galen instances epilepsy, apoplexy, spasm, and tetanus; and Theophilus, phrenitis and pleurisy, as diseases particularly fatal when they attack a pregnant woman. See further, I Morb. iii. 9; I Epidem. ii, 111; also Celsus, ii. 6.

31. If a woman with child be bled, she will have an abortion, and this will be the more likely to happen, the larger the fœtus.

That a large evacuation of blood, by depriving the fœtus of its pabulum, should prove fatal to it, seems very natural, and accordingly most of the ancient authorities, as a general rule, forbid pregnant women to be bled. Celsus mentions it as a recent discovery, that a vein might be opened even in a woman with child. (ii, 10.) Heurnius accounts for the difference between modern views and those of Hippocrates on this head, from the difference in the mode of living, which he supposes must have been very simple in the age of Hippocrates, and consequently persons could not bear the loss of blood so well as they do in modern times, when the diet is more full and luxurious. Perhaps this is the proper way of reconciling the rules of Hippocrates and Celsus.

32. Hæmoptysis in a woman is removed by an eruption of the menses.

The very same prognosis occurs at I Morb. vi, 11. Galen explains the relief obtained in this case upon the principle of revulsion, and states that, in imitation of this natural cure, he had often opened a vein with the same intention, and with good effects.

33. In a woman when there is a stoppage of the menses, a discharge of blood from the nose is good.

See, in like manner, Virgin. Morb. iii, 2. This also looks like a natural cure of the plethora induced by the suppression of the menstrual discharge. Galen remarks, that it points out the propriety of letting blood from other parts of the body in such a case.

34. When a pregnant woman has a violent diarrhœa, there is danger of her miscarrying.

See, in like manner, II Prædicit. xxx, 14; Coac. iii, 416; I Morb. Mulier. xxxvii, 5; xli, 3, 6. The danger of abortion when a woman is seized with a violent discharge from the bowels is well known.

35. Sneezing occurring to a woman affected with hysterics, and in difficult labour, is a good symptom.

The meaning of hysterics in this Aphorism is somewhat ambiguous. Damascius understands by it (*ὀσπερικῶν*) "the secundines," and refers the case to retention of the placenta. Galen rejects this interpretation, and also that of those commentators who applied it to all diseases of the uterus, whereas he contends it is only applicable to uterine suffocation, that is to say, the hysterical fit. That in it, and in certain cases of tedious labour, sneezing, by rousing the natural powers, may prove useful, can be well conceived. On this subject, see further, Aph. v, 49; Prænot. xiii, 11; Coac. iii, 175; Morb. Mulier. xciii, 1, 6, 7.

36. When the menstrual discharge is of a bad colour and irregular, it indicates that the woman stands in need of purging.

It appears from Galen, that in his time both the reading and meaning were considered doubtful. From the nature of the remedy, one may conjecture that it means to apply to deficient menstruation, the discharge being deficient both in quantity and quality. The term purging may also apply either to purgatives of the bowels, or to those which act upon the uterus, that is to say, emmenagogues. In these cases hellebore was used by the Hippocratists. (De Verat. Us. i, 11.) Emmenagogues, in the form of a pessary, were usually administered in like manner. See the Commentary on PAULUS ÆGINETA, Book III, 61, Syd. Soc. edit.

37. In a pregnant woman, if the breasts suddenly lose their fulness, she has a miscarriage.

The prognostic contained in this Aphorism no doubt generally holds true, and is still much relied upon by females themselves. See further, in connexion with this Aphorism, Aph. v, 53; II Epid. i, 42; I Morb. Mulier. xlv, 1, 2, 3.

38. If, in a woman pregnant with twins, either of her breasts lose its fulness, she will part with one of her children; and if it be the right breast which becomes slender, it will be the male child, or if the left, the female.

This Aphorism is founded on the physiological notion which generally prevailed in antiquity, that the uterus consists of two cavities, a right and a left, and that the male fetus was contained in the former, and the female in the latter. See, in particular, Theophilus, ed. Dietz., ii, p. 469. However, Moschion, Soranus, and Galen would appear to have been better informed. See Comment. on PAULUS ÆGINETA, Book III, 65, Syd. Soc. edit.

39. If a woman who is not with child, nor has brought forth, have milk, her menses are obstructed.

Galen and Theophilus enter into a physiological explanation of the reason of the fact here stated, the summary of which amounts to this, that there is a strong sympathy between the uterus and mammae, according to Theophilus, owing to a vascular connexion between them. Galen's Commentary is very interesting, but too lengthy for my limits. See further, II *Prorrh.* xxxv, 5.

40. In women, blood collected in the breasts indicates madness.

This prognosis is repeated, *Epidem.* ii, at the end. Galen, however, states, that he had never seen such a case, and declares that if ever such do occur, it must be very rarely. But supposing it true, he attempts to explain the rationale of it. A commentary published by Dietz (tom. ii, p. 465) states, that Galen rejected this Aphorism, as being false and supposititious. I can well believe, however, that it refers to some rare cases of puerperal mania, which is often connected with disorders of the mammae.

41. If you wish to ascertain if a woman be with child, give her hydromel to drink when she is going to sleep, and has not taken supper, and if she be seized with tormina in the belly, she is with child, but otherwise she is not pregnant.

This test is founded on the nervous irritability which is so common in the state of pregnancy. See also *Steril.* vi, 6, 7, 8, 11. There is some incongruity, as M. Littre remarks, between the text and the Commentary of Galen, which would lead to the supposition that the text may be corrupted.

42. A woman with child, if it be a male, has a good colour, but if a female, she has a bad colour.

Women, in some parts of the country, still repose confidence in this diagnostic rule, and it was admitted by all the commentators which have come down to us. It is repeated, *Steril.* vii, 1. Ambrose Paré quotes it with approbation. (xxiii, 12.)

43. If erysipelas of the womb seize a woman with child, it will probably prove fatal.

Galen remarks that not only erysipelas, but also inflammation, when it attacks the impregnated uterus, generally proves fatal. In fact, as stated formerly, all acute diseases which attack pregnant women are usually fatal. See *Aph.* v, 30; *I Morb.* iii, 9; *Natur. Mul.* xii, 17, 27; *II Morb. Mul.* lviii, 12, 29.

44. Women who are very lean, have miscarriages when they prove with child, until they get into better condition.

It will be seen by the Commentary of Galen, that this Aphorism had been differently interpreted. That in women who are much emaciated, the fœtus should perish for want of food is a very natural supposition, and yet I know from experience that it does not always happen. None of the ancient authorities, however, venture to question the truth of this prognostic.

45. When women, in a moderate condition of body, miscarry in the second or third month, without any obvious cause, their

cotyledones are filled with mucosity, and cannot support the weight of the fœtus, but are broken asunder.

The term cotyledones was originally applied to the uterine glandulæ of the sheep, with which their placentalæ are connected. It was afterwards applied also first to the ruminants and then to the tufts of the human placenta. All the ancient physiologists believed that the band of connexion between the mother and the fetus, in ruminants and in women, is analogous. It was supposed, then, that abortion was occasioned by the weakness and softness of the parts which connect the uterus and fetus. See further, Nat. Mulier. xxvii, 1-5; I Morb. Mulier. lxxxiv, 1, 2, 3.

46. Such women as are immoderately fat, and do not prove with child, in them it is because the epiploon (*fat?*) blocks up the mouth of the womb, and until it be reduced, they do not conceive.

Our author would seem to use epiploon here as being synonymous with fat, as is stated in the Commentary of Theophilus. See further, Ær., Aq., Loc., ix, 12; II Prædict. xxxiii, 12; Nat. Mulieb. xix, 4, 5, 7; Steril. x, 7.

47. If the portion of the uterus seated near the hip-joint suppurate, it gets into a state requiring to be treated with tents.

Our author evidently treats of chronic abscess of the womb, which, as I have seen, is apt to end in a sinous ulcer. This is what he means by an ulcer requiring to be treated by tents. See Nat. Mulier. vi, 5; I Morb. Mulier. xci, 32.

48. The male fœtus is usually seated in the right, and the female in the left side.

I have referred to the anatomical opinions of the ancients with respect to the uterus at Aph. v, 38.

49. To procure the expulsion of the secundines, apply a sternutatory, and shut the nostrils and mouth.

This is the popular practice in the north of Scotland at the present day. The object evidently is to rouse the action of the uterus and abdominal muscles to expel the placenta. Theophilus, in his Commentary, remarks, that if the placenta be not expelled, it becomes putrid, and occasions much mischief. See further, Aph. v, 35; Coac. iii, 175; Prænot. xiii, 11; II Epid. v, 42; I Morb. Mulier. lxxvi, 6, 7, xciii, 1, 6, 7; II Morb. Mulier. xliii, 6, 7.

50. If you wish to stop the menses in a woman, apply as large a cupping instrument as possible to the breasts.

I need scarcely remark that we have here given a most important rule of practice, founded on the connexion and sympathy between the uterus and mammæ. Upon this principle, as Heurnius in his Commentary remarks, we may see the advantage of determining to the mammæ in uterine hemorrhage after delivery. It is well known that, in modern practice, the child is generally applied, which often proves very efficacious, by producing a rush of fluids to the breasts. On this head, see further, II Epid. vi, 33; II Morb. Mulier. i, 4, 11, 17.

51. When women are with child, the mouth of their womb is closed.

The great anatomical authority, Herophilus, stated, that in pregnancy the mouth of the womb is so closely shut up, that it cannot admit the end of a probe. See Dietz, &c., tom. ii, p. 470.

52. If in a woman with child, much milk flow from the breasts, it indicates that the fœtus is weak; but if the breasts be firm, it indicates that the fœtus is in a more healthy state.

This Aphorism is also evidently founded on the same principle. See further, II Epid. vi, 35, 36.

53. In women that are about to miscarry, the breasts become slender; but if again they become hard, there will be pain either in the breasts, or in the hip-joints, or in the eyes, or in the knees, and they will not miscarry.

The drift of this Aphorism is somewhat obscure to me, after reading the elaborate Commentaries of Galen, Heurnius, and others, both ancient and modern. I am much inclined to adopt one of the interpretations given by Galen, namely, that of supposing that "again" (*παλιν*), in this place, signifies "on the contrary," and that the swelling up of the mamme announces that the danger of abortion is over, while the pains mentioned in other organs indicate that the mischief had passed to them. On the connexion between pain in the hip-joint and pregnancy, see further, II Epid. ii, 42.

54. When the mouth of the uterus is hard, it is also necessarily shut.

Allusion seems to be here made to amenorrhœa connected with organic disease of the uterus. See the Commentaries of Galen and Theophilus. Heurnius holds this to be a very important Aphorism, as it indicates the source of the many bad consequences which women experience from retention of the menses connected with a cause which the obstetric practitioner has it in his power to remove. See further, II Morb. Mulier. xlv, 11, 12, xlvi, 1, 2, 1, 1, 2.

55. Women with child who are seized with fevers, and who are greatly emaciated, without any (other?) obvious cause, have difficult and dangerous labours, and if they miscarry, they are in danger.

Upon reference to Galen, Theophilus, Heurnius, and Littré, it will be seen that there is considerable uncertainty respecting the meaning of this Aphorism. I am inclined to think that what is meant is this, that pregnant women who are greatly emaciated by fevers are apt to have either dangerous deliveries or abortions. Compare Aph. v, 30, 43; Coac. iii, 408.

56. In the female flux (*immoderate menstruation?*), if convulsion and deliquium come on, it is bad.

The term "female flux" was applied by the ancient authorities to any vitiated state of the menstrual discharge. See the Commentary on PAULUS ÆGINETA,

Book III, 63, Syd. Soc. edit. The danger from convulsions and delirium, in such cases, is well understood. See, in connexion with this Aphorism, Aph. v, 3; Coac. iii, 424; II Morb. Mulier. xiii, 7, 9.

57. When the menses are excessive, diseases take place, and when the menses are stopped, diseases from the uterus take place.

This Aphorism is rather ambiguously expressed, as may be seen on reference to the Commentaries of Galen and Theophilus. Perhaps all that is meant is, that diseases are engendered both by immoderate menstruation and by a stoppage of the same. There are many parallel passages in the Hippocratic Collection, such as Nat. Mul. xiii, 5, xxxix, 1, 2, 5, 6, xl, 2, 5, 6; I Morb. Mulier. xiv, 1, 12; II Morb. Mulier. iii, v, vi, &c; Nat. Puer. vi, 14, xiii, 1; Virg. Morb. ii, 5-14; Nat. Mul. iii, 1, x, 1-5.

58. Strangury supervenes upon inflammation of the rectum, and of the womb, and strangury supervenes upon suppuration of the kidney, and hiccup upon inflammation of the liver.

This important Aphorism is so plain as not to stand in need of any comment. See further, in connexion with it, Hemorrhoid. iii, 1, iv, 1; Aph. vii, 13; Int. Affect. xli, 6.

59. If a woman do not conceive, and wish to ascertain whether she can conceive, having wrapped her up in blankets, fumigate below, and if it appear that the scent passes through the body to the nostrils and mouth, know that of herself she is not unfruitful.

This practice of fumigating the uterus, either on account of the state of the menstrual discharge, or for the purpose here indicated, is adverted to in various parts of the Hippocratic treatises; as Nat. Mul. vii, 9; I Morb. Mul. cvii, 1; II Morb. Mul. xl, 20, 21; Steril. vi, 3; Superfet. ix, 3, x, 9, 11. Theophilus describes the process very minutely, but it will readily be understood that it consisted in introducing the fumes of strong-smelling things, such as frankincense, spikenard, cassia, and storax, into the vagina by means of a funnel. As a remedial means in certain diseases of the uterus, I can think of nothing more likely to prove efficacious. Whether or not it would prove a suitable test of a woman's capability for conceiving, I am not able either to affirm or deny. As Galen remarks, Plato refers to this practice in his Theætetus.

60. If woman with a child have her courses, it is impossible that the child can be healthy.

See, in connexion with this Aphorism, Nat. Puer. v, 3; I Morb. Mul. xl, 2, 5, 9, 11, xlv, 4, 5, 6, xcix, 2. Theophilus has a very interesting Commentary on this head, in which he states that it is a fact ascertained by experience, that, during pregnancy, there is sometimes a discharge up to the fifth or sixth month; but, he properly remarks, in such a case the blood does not come from the inside of the uterus, but from the veins situated in the neck of it. Galen expresses himself to the same effect, but not so fully.

61. If a woman's courses be suppressed, and neither rigor nor fever has followed, but she has been affected with nausea, you may reckon her to be with child.

I need scarcely remark that, as a general rule, what is here stated by our author holds good. See further, Aph. v, 41; I Morb. Mulier. xcix, 2; Steril. vi, 9, 10.

62. Women who have the uterus cold and dense (*compact?*) do not conceive; and those also who have the uterus humid, do not conceive, for the semen is extinguished, and in women whose uterus is very dry, and very hot, the semen is lost from the want of food; but women whose uterus is in an intermediate state between these temperaments prove fertile.

The principal cause of sterility, it will be remarked, is here held to be the intemperaments of the uterus. Galen has given a very lengthy dissertation on this subject in his Commentary, and the subsequent authorities all adopt the views of our author. See PAULUS ÆGINETA, Book III, 74, Syd. Soc. edit. Compare I Morb. Mulier. xxvi, 27, xxxiii, 5, xxxiv, 1; II Prædict. xxxiii, 2-6.

63. And in like manner with respect to males; for either, owing to the laxity of the body, the pneuma is dissipated outwardly, so as not to propel the semen, or, owing to its density, the fluid (*semen?*) does not pass outwardly; or, owing to coldness, it is not heated so as to collect in its proper place (*seminal vessels?*), or, owing to its heat, the very same thing happens.

Galen finds many things in this Aphorism altogether foreign to the doctrines of Hippocrates, and, in a word, does not hesitate to pronounce it to be supposititious. Theophilus and Damascius adopt the same views as Galen regarding it.

64. It is a bad thing to give milk to persons having headache, and it is also bad to give it in fevers, and to persons whose hypochondria are swelled up, and troubled with borborygmi, and to thirsty persons; it is bad also, when given to those who have bilious discharges in acute fevers, and to those who have copious discharges of blood; but it is suitable in phthical cases, when not attended with very much fever; it is also to be given in fevers of a chronic and weak nature, when none of the aforementioned symptoms are present, and the patients are excessively emaciated.

I need scarcely call attention to this Aphorism as containing most excellent rules for the use of a very important article, both in regimen and medicine. Milk, it will be seen, is said to be prejudicial in febrile and bilious complaints; but is beneficial in phthical cases, and when there is much emaciation without any acute fever. See, in connexion with this subject, III Epid. iii; Ægr. xiii, 7; I Morb. Mulier. lxxxviii, 22;

Aph. iv, 73; Int. Affect. iv, 35, xi, 2; II Morb. Mul. viii, 21; also the Commentaries of Galen and Theophilus, which are interesting, although they contain no new views on the subject.

65. When swellings appear on wounds, such cases are not likely to be attacked either with convulsions or delirium, but when these disappear suddenly, if situated behind, spasms and tetanus supervene, and if before, mania, acute pains of the sides, or suppurations, or dysentery, if the swellings be rather red.

This Aphorism evidently relates to the consequences of metastasis in wounds, or ulcers. It is founded on II Epidem. iii, 129, and is thus translated by Celsus: "Si tumores super ulcera subito esse desierunt, idque a tergo incidit, vel distensio nervorum, vel rigor timeri potest; et si a priori parte id evenit, vel lateris acutus dolor, vel insania expectanda est; interdum etiam ejusmodi casum, quæ tutissima inter hæc est, profusio alvi sequitur." (ii, 7.) The greatest difficulty about it is the distinction which is recognised among the affections according as the wound is situated in the fore or back part of the body. Galen says, in explanation, that the back parts are nervous, and hence the affections are spasm and tetanus; while the fore parts are vascular, that is to say, contain many arteries and veins; and hence, when the metastasis is upwards, it produces mania; when to the chest, pleurisy and empyema; and when to the bowels, bloody dysentery, that is to say, an evacuation of pure blood by the bowels. See PAULUS ÆGINETA, B. III, 42. See the Annotations of M. Nasse on this passage in M. Littré's edition, tom. iv, p. 550, which, however, do not appear to me to throw much light on the subject of this Aphorism.

66. When no swelling appears on severe and bad wounds, it is a great evil.

See II Epidem. iii, 128, xxiii, 1. Galen, in his Commentary, explains that by "bad" is meant, in this place, wounds situated in nervous and muscular parts, wounds of which, it is well known, are apt to prove dangerous. This Aphorism is evidently connected with the preceding one.

67. In such cases, the soft are favorable; and crude, unfavorable.

This Aphorism is also clearly connected with the two preceding. By "crude" is meant tumours which are hard, and have not come to a suppuration.

68. When a person is pained in the back part of the head, he is benefited by having the straight vein in the forehead opened.

This practice is also alluded to at Loc. in Homine, xlix, 10; VI Epid. ii, 48; Affect. ii, 10, 11. The practice here recommended is founded on the principle of evacuation by revulsion. Galen, in his Commentary, mentions, that, from analogy, he had often bled by cupping the back part of the head in the affections of the eye. By "the straight vein in the forehead" our author evidently means either the temporal vein or artery; but which of these, it is impossible to say, as he applies the term

vein ($\phi\lambda\epsilon\psi$) in the modern sense of "blood-vessel." See the Commentary on PAULUS ÆGINETA, B. VI, 5, Syd. Soc. edit.

69. Rigors commence in women, especially at the loins, and spread by the back to the head; and in men also, rather in the posterior than the anterior side of the body, as from the arms and thighs; the skin there is rare, as is obvious from the growth of hair on them.

See II Epid. iii, 111; VI Epid. iii, 30-35; Nat. Puer. xvii, 2, 3, 14, xviii, 1. There is considerable ambiguity in this sentence, on which compare the Commentaries of Galen and Theophilus with the Annotations of M. Littré (tom. iv, p. 561). In my opinion the meaning is this:—rigors commence in those parts of the body which are coldest, as the back in women, and back parts of the arms and legs in men; that the back parts are coldest is evident from their rarity, as not being covered with hair so much as the anterior parts.

70. Persons attacked with quartans are not readily attacked with convulsions, or if previously attacked with convulsions, they cease if a quartan supervene.

This Aphorism is founded upon a highly important principle which our author announces elsewhere, namely, that a quartan fever is not only free of danger itself, but often carries off other serious diseases of the system, I Epidem. iii, 18. In connexion with this important fact in therapeutics, consult further, Aph. ii, 26; VI Epid. vi, 16, viii, 96, 97; San. Tuend. 12; Aph. iv, 57. The commentator Damascius by convulsions here understands epilepsy, and all the commentators explain the cure in this case upon the principle, that the viscid and pituitous humour which occasions the convulsion is excreted and concocted by the fever. In a word, our author means that the fever proves an alterative of the system. I need scarcely remark, that this subject, that is to say, the removing of fatal diseases by the substitution of others less dangerous, has been lately attracting the attention of the profession.

71. In those persons in whom the skin is stretched, and parched and hard, the disease terminates without sweats; but in those in whom the skin is loose and rare, it terminates with sweats.

Theophilus applies this observation both to favorable and fatal crises, but Galen restricts it to the latter. Heurnius and Littré follow Galen. See further, VI Epidem. vi, 29.

72. Persons disposed to jaundice are not very subject to flatulence.

The reason of this, assigned by Galen, is, that flatulence is engendered by a pituitous humour, whereas icterus is of a bilious nature. Heurnius understands the Aphorism to refer to persons of a bilious temperament.

SECTION VI.

1. In cases of chronic lientery, acid eructations supervening when there were none previously, is a good symptom.

See further II Epid. 49, 50, 51; I Morb. vi, 10. By lientery was meant a rapid passage of undigested food through the bowels, as is fully explained by Galen in his elaborate Commentary, which contains a great variety of interesting matters regarding the opinions of Erasistratus, Herophilus, Diocles, and other of the ancient commentators, but little that bears on the subject in question. The rationale of the fact stated in this Aphorism would appear to be, as stated by Jacobus Forliviensis in his Commentary, that lientery being a preternatural determination of the matters downwards, acid eructations indicate that the stomach is resuming its tone. On lientery, see further, PAULUS ÆGINETA, Book III, 50, Syd. Soc. edit.

2. Persons whose noses are naturally watery, and their seed watery, have rather a deranged state of health; but those in the opposite state, a more favorable.

That is to say, as Galen in his Commentary explains, persons of a humid temperament are subject from slight causes to catarrhal affections in the head, throat, and lungs, and perhaps to dysenteries. He adds, that this subject is treated of in the work, On Airs, Waters, and Places, and in those On Diseases, and On Affections. See further, VI Epid. vi, 37.

3. In protracted cases of dysentery, loathing of food is a bad symptom, and still worse, if along with fever.

As Galen, in his Commentary, remarks, the anorexia indicates that the intestinal derangement extends upwards as far as the stomach. A fever of course adds an additional feature to the unfavorable aspect of the case. See further, VI Epid. viii, 1; Coac. vi, 100.

4. Ulcers, attended with a falling off of the hair, are *mali moris*.

The falling off of the hair, as Galen remarks, indicates that the humours causing the ulcer are of a very vitiated nature. See further, VI Epid. viii, 2.

5. It deserves to be considered whether the pains in the sides, and in the breasts, and in the other parts, differ much from one another.

I need scarcely remark, that the question here put is one of vital importance in the treatment of diseases. It is previously alluded to, as Galen remarks, in the work On Regimen in Acute Diseases. See lii, I, 2, 3, ed. Linden; also VI Epid. vi, 83; and II Prædic. xvii, 4, xix, 6, 7, xx 4. Galen under this head has many interesting observations on the nature of pain, and the different kinds of it, but they are too lengthy for my limits. Theophilus remarks, that Hippocrates evidently recognised diagnosis as the foundation of therapeutics. See further Littré.

6. Diseases about the kidneys and bladder are cured with difficulty in old men.

Galen remarks, that the office of the kidneys and bladder being incessant, these parts, if diseased, having no rest, can scarcely get well when in state of ulceration, or when inflamed, especially in old persons. The fact here stated is but too well known. See further, VI Epid. viii, 4.

7. Pains occurring about the stomach, the more superficial they are, the more slight are they; and the less superficial, the more severe.

The meaning seemingly is, that in diseases about the epigastric region, the more superficial they are, that is to say, the nearer to the surface, they are in so far less serious. Galen remarks, that all diseases situated external to the peritoneum are held to be superficial. No practical physician will doubt the importance of the fact indicated in this Aphorism; for who has not seen an incipient abscess in the abdominal muscles confounded with serious disease of the deeper-seated parts?

8. In dropsical persons, ulcers forming on the body are not easily healed.

This is a well-known fact, and the Aphorism needs no comment. Heurnius, however, properly remarks, that this should render the physician cautious in forming artificial ulcers in dropsical patients, as he had known such terminate in gangrene.

9. Broad exanthemata are not very itchy.

It is difficult to determine what disease is here meant by exanthema; most probably, however, it was a pustular disease, as understood by Jacobus Forliviensis and Heurnius. The former of these insinuates that it was scabies; and this conjecture is in so far applicable, that the kind of itch in which the pustules are small, is known to be attended with more tingling than when the pustules are broader. The Commentaries of Galen, Theophilus, and Damascius supply no information of any interest. See further, VI Epid. ii, 52.

10. In a person having a painful spot in the head, with intense cephalalgia, pus or water running from the nose, or by the mouth, or at the ears, removes the disease.

This Aphorism occurs again at Judicat. xii, 3. See further, Coac. ii, 25, 26, 27, 59. Three natural modes of cure in severe cephalalgia are here indicated, namely, a discharge by the nose, the ears, and the mouth. Heurnius remarks, that this fact has furnished a hint towards the artificial modes of cure now adopted.

11. Hemorrhoids appearing in melancholic and nephritic affections are favorable.

The truth of the fact announced in this Aphorism is not questioned by any of the ancient authorities, and is further attested by many modern, such as Plater, Obs. i, 1; A. Vega, de Art. Med. ii, 4; Zacut. Lusit. Prax. Hist. ii, 6; Primros. de Vulg. Error. iv, 51; Horstius, ii, 7; Salmuth. i, 72; River. Prax. xi, 6; Albertus de Hæmorrh. See further, in confirmation of our author's opinion, Copland's Dictionary, art. Hæmorrhoids, p. 128.

12. When a person has been cured of chronic hemorrhoids, unless one be left, there is danger of dropsy or plithisis supervening.

See the authorities quoted under the preceding Aphorism; also Humor. xi, 3; IV Epid. xxxi, 1, 2; V Epid. x, 18-21; VI Epid. iii, 65. The ancient commentators explain the fact, upon the hypothesis that the hemorrhoidal discharge is an effort of Nature to relieve the system of impurities, and that when the outlet is entirely stopped, they are determined either to the liver, and produce dropsy, or to the lungs, and produce plithisis. See Galen and Theophilus.

13. Sneezing coming on, in the case of a person afflicted with hiccup, removes the hiccup.

See further Prænot. xiii, 11; Coac. iii, 175; Celsus, ii, 8. The ancient commentators state, that hiccup is a spasmodic affection of the stomach, connected either with repletion or inanition. The present Aphorism refers to it when connected with plethora. The fact here stated is notorious.

14. In a case of dropsy, when the water runs by the veins into the belly, it removes the disease.

I need scarcely remark, that the fact here stated is a most important one, namely, that dropsy is cured naturally by a spontaneous discharge of water from the bowels. As stated by Galen, the cure of dropsy by hydragogues is founded on it. Of these, the most efficacious are said by Herminus to be elaterium and euphorbium. See his Commentary on this Aphorism. Compare Aph. vii, 29; Flat. xvii, 8, 9; Judicat. xi, 10; Coac. iii, 285, 289; I Morb. vi, 7; II Morb. lxxix, 11, 12.

15. In confirmed diarrhœa, vomiting, when it comes on spontaneously, removes the diarrhœa.

As Galen states in his Commentary, this is an example of a natural cure, upon the principle of revulsion. See further, II Diæt. xxvi, 15, 16; Loc. in Hom. xlv, 8; Coac. iii, 7; I Morb. vi, 10; vii, 7; also Celsus, ii, 8.

16. A diarrhœa supervening in a confirmed case of pleurisy or pneumonia is bad.

Galen, in his Commentary, makes the acute remark, that although in an incipient attack of pleurisy or pneumonia a diarrhœa may prove critical, in a case where the patient is mastered by the disease, a diarrhœa may be set down as being occasioned by the liver's sympathising with the organs of respiration, and the process of sanguification being thus deranged, Nature makes an effort to expel the depraved humours by the intestines. The explanation given by the other commentators, ancient and modern, is to the same effect. See further, Aph. v, 12, 14; Loc. in Hom. xxix, 15, 16, 17; I Morb. vi, 5, x, 41; III Morb. xvii, 59.

17. It is a good thing in ophthalmy for the patient to be seized with diarrhœa.

Every experienced physician must be able to confirm the truth of this remark. Galen, in his Commentary, states that, in imitation of this natural method of cure, physicians were in the practice of determining to the bowels by clysters and purgatives. See further, Judicat. xii, 9; Coac. ii, 130, 133.

18. A severe wound of the bladder, of the brain, of the heart, of the diaphragm, of the small intestines, of the stomach, and of the liver, is deadly.

Galen, in his Commentary on this Aphorism, gives a variety of interesting remarks, which I regret that my limits do not admit of my copying entire. He states, in the first place, that the term used by our author in this place signifies a great or severe wound, and that the epithet "deadly" is often applied in the sense of "very dangerous." He further remarks, that although wounds of the heart and diaphragm be necessarily fatal, those of the brain, the liver, the bowels, and the bladder are not necessarily so. In proof of this, he mentions cases of wounds of the brain which he had known not to prove fatal, and refers to the operation of lithotomy, as a proof that the muscular part of the bladder, that is to say, its neck, may be cut without occasioning death. The other commentators add nothing of much interest. See further, Aph. vi, 24; II Prædict. xix, 2-6, 11, 12, xxii, 1; Coac. iii, 387, 388, 389; I Morb. iii, 4, vii, 21; and Celsus, v, 26. This commentary is well illustrated by Tagaultius, De Vulner. ii, and also by Dinns de Garbo, in his Commentary on Avicenna, ed. Venet. p. 59.

19. When a bone, cartilage, nerve, the slender part of the jaw, or prepuce, are cut out, the part is neither restored, nor does it unite.

Galen, Theophilus, and Damascius understand the meaning of this Aphorism to be, that when any portion of a bone, or other part here enumerated, is fairly taken away, the substance by which the loss is supplied is not exactly the same as the part which is lost. For example, callus is not exactly bone. Still Galen admits that there is some difficulty in reconciling the terms used by our author with the facts of the case. See further, Aph. vii, 28; Coac. iii, 379-382; II Prædict. xxiv, 1; I Morb. iii, 32, 33; vii, 21; Celsus, ii, 10; Aristot. II. N. i, 13. Tagaultius makes some good remarks on this Aphorism. He holds that it is meant that a part is fairly cut out. (Inst. Chirurg. ii.)

20. If blood be poured out preternaturally into a cavity, it must necessarily become corrupted.

By cavity in this place is to be understood, as elsewhere, not only the stomach, but the chest, the ventricles of the brain, &c. Our author, like all the ancient authorities, holds that pus is corrupted blood. See further, Aph. vii, 38; Flat. xvii, 3; I Morb. iii, 37, x, 42-48, xii, 4, xv, 4; Celsus, ii, 7.

21. In maniacal affections, if varices or hemorrhoids come on, they remove the mania.

All the commentators are agreed that by maniacal affections in this place our author understands melancholy. The cure is to be referred to the principle of metastasis. See further, Aph. vii, 5; Humor. xi, 1.

22. Those ruptures in the back which spread down to the elbows are removed by venesection.

By *ruptures* in this place Galen understands *pains*; and Theophilus has this

reading. That these severe pains will be removed by bleeding, on the principle of revulsion, seems very likely. See further, II Morb. lix, 22; Celsus, ii, 10.

23. If a fright or despondency last for a long time, it is a melancholic affection.

That mental emotions, when long protracted, are morbid, may generally be concluded; and in such cases, the ancients ascribed the disease to the melancholic humor. See Galen and the other commentators.

24. If any of the small intestines be transfixed, it does not unite.

This is a mere repetition of the general statement made in Aph. vi, 18; and Galen thinks the present Aphorism deserves to be erased.

25. It is not a good sign for an erysipelas spreading outwardly to be determined inwards; but for it to be determined outwards from within is good.

This is an important and now generally admitted fact. Consult, in particular, Copland's Dictionary of Medicine, under Erysipelas, § 33. See further, Prænot. xv, 3, xviii, 9; Coac. iii, 103; I Morb. vi, 8, 9; and Aph. vi, 37.

26. In whatever cases of ardent fever tremors occur, they are carried off by a delirium.

Galen is not at all satisfied with this Aphorism, and hints at its being an interpolation. At all events, he states that it is well known that a delirium coming on after shivering in fevers, does not carry off the fever, so that he holds the meaning must be understood to be that the tremors are replaced by the delirium, that is to say, delirium succeeds to the tremors. He and Theophilus attempt to explain the rationale of this rule physiologically. Henrius entertains the notion (but it appears to me fanciful) that Hippocrates in this case uses the words "carries off" (*ἀφαιρέσει*) ironically, and that he means that the delirium carries off the patient, not the disease.

27. Those cases of empyema or dropsy which are treated by incision or the cautery, if the water or pus flow rapidly all at once, certainly prove fatal.

This, I need scarcely remark, is a most important rule in practical surgery. By empyema, as Galen remarks, our author *principally* means a collection of matter between the thorax and the lungs. (See the Annotations on the Prognostics.) He and Theophilus account for the fatal termination, upon the principle that a great evacuation of the fluids is attended with a fatal loss of the animal and vital spirits. On the subject of empyema and ascites, see further, Aph. ii, 51, vii, 44; Coac. iii, 91, 92; II Morb. xlv, 24-28; III Morb. xxvii, 1, 8, 11; Int. Affect. iv, 30, x, 20-23, xxv, 30-36, xxvii, 5; VI Epid. vii, 62; also Celsus, ii, 8.

28. Eunuchs do not take the gout, nor become bald.

According to Galen, the reason is, that eunuchs, by being emasculated, become of cold temperament like women. He states, however, that although it was true that in the age of Hippocrates eunuchs did not take the gout, they were exposed to the disease in his time, owing to their indolence and effeminacy. He gives a most ingenious

and philosophical explanation of the origin of the disease, which he ascribes to debauchery, intemperance, and an hereditary taint. The freedom of eunuchs from baldness, the commentators ascribe in like manner to the coldness of their temperament. See further, *Nat. Puer.* xviii, 4, 5, 6, xix, 1; *Celsus*, iv, 24.

29. A woman does not take the gout, unless her menses be stopped.

Galen, in his Commentary, states that, in his age, women, from excess of luxury, had become subject to the gout; and Seneca affirms the same of his age. (*Epid.* xcv.) See V *Epid.* xxxiii, 4; VI *Epid.* viii, 98-101; VII *Epid.* xlix, 12; I *Morb. Mulier.* xiii, 6, 11.

30. A young man does not take the gout until he indulges in coition.

This will still be generally admitted to be true. All the ancient authorities hold that venery is a great predisposing cause of gout.

31. Pains of the eyes are removed by drinking pure wine, or the bath, or a fomentation, or venesection, or purging.

This Aphorism contains, as Galen remarks, an empirical enumeration of the various means used for the cure of ophthalmy. He gives some most interesting observations on the subject in his Commentary, which, however, is so lengthy, that I cannot introduce its contents in this place. He relates a most instructive case, in which he immediately succeeded in appeasing the pains of the eyes by the warm bath, after an oculist had failed to relieve them by cooling applications. When the pain is connected with plethora, he says it is to be cured by venesection, when with cacochymy, by purging, and when with debility, by drinking wine, which attenuates and dissolves thick humours in the eye. The commentaries published by Dietz are also well deserving of being consulted on this head. See further *Aph.* vii, 46; II *Epid.* vi, 26; *Celsus*, vi, 26.

32. Persons whose speech has become impaired are likely to be seized with chronic diarrhœa.

The commentators explain this Aphorism as follows:—An impediment in the speech is occasioned by a fulness of the brain (as is illustrated in the case of a drunken man), and Nature often endeavours to relieve this state by a determination downwards. Compare *Præcept.* xii, 1-5; *Coac.* ii, 147; *Veratr. Us.* i, 12; and see *Foës*, *Annot.* h. 1.

33. Persons having acid eructations are not very apt to be seized with pleurisy.

Galen and the other commentators account for this fact from acidities of the stomach being connected with phlegm, whereas pleurisy is connected with yellow bile; and, moreover, acidity of the stomach is of a cold nature, whereas pleurisy is an inflammation. As Galen remarks, Hippocrates has stated in his work, *On Airs, Waters, and Places*, that persons who have a humid stomach are not subject to pleuritic diseases.

34. Persons who have become bald are not subject to large

varices; but should varices supervene upon persons who are bald, their hair again grows thick.

Taken literally, as Galen states, this Aphorism is ridiculous and inadmissible; for who does not know that baldness is not cured by the supervention of varices in the limbs? He supposes, however, that allusion may be made to the diseases alopecia and ophiasis (*porrigo decalveus?*), and that these may be cured by the determination of the humours which occasion them to the veins of the limbs.

35. Hiccup supervening in dropsical cases is bad.

The hiccup supervening in an advanced stage of dropsy is attributed, by the commentators, to the increase of the watery humours, so as to intercept the trachea, and hence hiccup, and danger lest the patient be suffocated. From whatever cause it originate, there can be no doubt of the fact that hiccup in dropsy, and other diseases of a like nature, is a fatal symptom. See further, Aph. vii, 47; II Prædict. xi, 1-16; II Epid. v, 28; Celsus, ii, 8.

36. Venesection cures dysuria; open the internal veins of the arm.

Galen is not at all satisfied with this Aphorism, and hints that it is interpolated. In the first place, it is not true that venesection will remove dysuria, unless connected with inflammation and a redundance of humours. Then he holds that bleeding in the arm is not applicable in diseases below the diaphragm, but in the ankle. Theophilus in the present instance supposes that it is the inner vein of the arm, but Damascius of the ankle.

37. It is a good symptom when swelling on the outside of the neck seizes a person very ill of quinsy, for the disease is turned outwardly.

As Galen remarks, the reason of this fact is obvious, namely, a determination outwardly of the humours which necessarily relieves the internal complaint. See Aph. vii, 49, and Celsus, iv, 4. This rule holds good frequently, but not universally, in epidemical sore throat.

38. It is better not to apply any treatment in cases of occult cancer; for, if treated, the patients die quickly; but if not treated, they hold out for a long time.

All the ancient commentators explain, that by "occult" may be meant either "not ulcerated" or "deep seated." The latter seems the better interpretation, and then the meaning will be, that when the cancer is superficial, it admits of being removed by an operation, that is to say, by the knife or the cautery; but when the disease is deep seated, it is better to let it alone. Galen's Commentary contains many interesting remarks on cancer. See further, II Prædict. xviii, 5, 9, xxi, 5; II Morb. xxiii, 25.

39. Convulsions take place either from repletion or depletion; and so it is with hiccup.

I need scarcely remark, that this is a most important fact both in therapeutics and prognostics. How important is it, for example, in puerperal convulsions! The

whole treatment turns upon the question whether the convulsion be connected with plethora or inanition. It is evidently the same with liceup.

40. When pains, without inflammation, occur about the hypochondria, in such cases, fever supervening removes the pain.

The commentators hold that it is by attenuating and dissipating the flatus or humour causing the obstruction, that a fever operates the cure in this case. Aph. vii, 52; Coac. iii, 272; Celsus, ii, 8.

41. When pus formed anywhere in the body does not point, this is owing to the thickness of the part.

According to Galen, some of the commentators read thickness of the pus (*πύου*) and some of the place (*τόπον*). See further, Coac. iii, 238, 239; II Morb. xlv, 14; III Morb. xxvii, 1.

42. In cases of jaundice, it is a bad symptom when the liver becomes indurated.

It is a well-known pathological fact, that jaundice attended with scirrhous of the liver is necessarily all but hopeless. See further, Aph. iv, 641; Coac. ii, 223, 225-229; also Celsus, ii, 8.

43. When persons having large spleens are seized with dysentery, and if the dysentery pass into a chronic state, either dropsy or lientery supervenes, and they die.

There can be no doubt as to the fatal nature of dropsy or lientery supervening upon dysentery complicated with enlarged spleen. The ancient authorities generally hold that enlargement of the spleen is a common cause of dropsy. See further, Aph. vi, 48; Coac. iii, 295, 296; I Morb. iii, 27; Affect. xxi, 23.

44. When ileus comes on in a case of strangury, they prove fatal in seven days, unless, fever supervening, there be a copious discharge of urine.

This Aphorism is of ambiguous meaning, and Galen finds so many things in it which he cannot admit to be true, that he hesitates whether he should sustain it as genuine. Celsus seems to understand the meaning to be, that a fever alleviates ileus connected with difficulty of water, if by its heat it promotes the flow of urine. M. Lallemand, as quoted by Littré (h. l.), understands our author to mean, that when fever sets in, the case proves fatal, unless an abundant flow of blood take place. This seems the most likely explanation. It is reported *totidem verbis* at Coac. iii, 314.

45. When ulcers continue open for a year or upwards, there must necessarily be exfoliation of bone, and the cicatrices are hollow.

There can be no doubt that, as here stated, the majority of ulcers which are slow of healing are complicated with disease of a bone, which must be cast off before the sore can heal, and in that case there must necessarily be a hollow in the place from which the bone has separated. See further Fract. xxx, 2; Ulcer. v, 4.

46. Such persons as become hump-backed from asthma or cough before puberty, die.

The subject of spinal disease is treated of at Articuli. xxxvii, xxxviii, and Moch. xxi, 6. Galen and Theophilus give interesting commentaries on this Aphorism, but they contain little or nothing that is not to be found in the part of the Articulations referred to. Whether derangement of the spine be occasioned by external violence, or by disease, it must prove fatal when it occasions pressure on the chest and difficulty of breathing.

47. Persons who are benefited by venesection or purging, should be bled or purged in spring.

See further Aph. vii, 53. Galen, in his interesting Commentary on this head, gives an account of various cases of confirmed disease, such as gout, epilepsy, elephantiasis, and so forth, which were greatly benefited by being put under a course of treatment by bleeding and purging in the spring. That this, in fact, is the season of plethora both in vegetables, and in animals, is well known; and hence Virgil, describing spring, truly says, "Superat tener omnibus humor." I may here remark that the month of April is the time when birch trees are bled (so to speak) in order to procure their juice for making birch wine. Spring also is the season at which the temperature is intermediate between the extremes of cold and heat, when all great evacuations are to be avoided. The soundness of the rule of practice here laid down cannot be doubted. See Sanctorius, ii, 48, 49; Fernel, ii, 1, de Ven. Sect.; Fallopius de Med. Purg. 24.

48. In enlargement of the spleen, it is a good symptom when dysentery comes on.

See under Aph. vi, 43; also Coac. iii, 295; I Morb. vi, 7; and Celsus, ii, 8.

49. In gouty affections, the inflammation subsides in the course of forty days.

This Aphorism evidently refers to prognostics and the critical days. See Prædict. vi, 3; and Celsus, iv, 24. Forty days are meant as the utmost limit, provided no error in treatment be committed.

50. When the brain is severely wounded, fever and vomiting of bile necessarily supervene.

As Galen remarks, the vomiting of bile is evidently produced by the stomach's sympathising with the brain, in consequence of its connexion with that organ by means of a pair of considerable nerves. Fever is no doubt a likely consequence of a severe wound of the brain, and the term used by our author implies a severe injury. See II Prædict. xxii, 12, 16, xxiii, 5-11; Coac. iii, 271, 383, 384; I Morb. iii, 35; Celsus, v, 26.

51. When persons in good health are suddenly seized with pains in the head, and straightway are laid down speechless, and breathe with stertor, they die in seven days, unless fever come on.

The state here described is evidently apoplectic. Stertor, as Galen remarks, is indicative of strong apoplexy, and is occasioned by debility of the nervous energy. Galen

says, when it proceeds from a pituitous (*or* serous) humour, it is dissipated by the heat of the fever. Theophilus gives the same explanation of this Aphorism. See further, *Judicat.* xii, 4; *Coac.* ii, 6, iii, 320-323; *II Morb.* vi, 1, 2, 3, 4, 7, xxi, 2-12; *III Morb.* viii, 2; *I Prædict.* x, 13, xii, 8.

52. We must attend to the appearances of the eyes in sleep, as presented from below; for if a portion of the white be seen between the closed eyelids, and if this be not connected with diarrhœa or severe purging, it is a very bad and mortal symptom.

This Aphorism is entirely taken from the Prognostics. See § 2 of this edition; also *Prorrhët.* xi, 2; *Coac.* ii, 121; *Celsus*, ii, 6. In the edition of the Aphorisms published by Dietz, with the Scholia of Theophilus and Damascius, this and the preceding Aphorism are joined together.

53. Delirium attended with laughter is less dangerous than delirium attended with a serious mood.

According to Galen, delirium attended with laughter is connected with yellow bile, and the same attended with despondency is produced by black bile. See further, *Coac.* i, 141; *Celsus*, iii, 18.

54. In acute diseases, complicated with fever, a moaning respiration is bad.

Galen gives several conjectural explanations of the cause of this moaning respiration; such as that it proceeds from coldness of the nerves, hardness of the muscles about the chest, or a spasmodic movement of the chest;—at the present time we would suspect valvular disease of the heart.

55. For the most part, gouty affections rankle in spring and in autumn.

In Aphorism iii, 20, arthritic diseases are enumerated among those of spring. In autumn, exacerbations take place, owing to the inequality of temperature and unhealthiness of that season. Theophilus explains the autumnal exacerbation as being occasioned by an effort of Nature to expel to the extremities the cacochymy, *or* peccant humour, engendered during the summer. See *Celsus*, ii, 1, 16, iii, 24.

56. In melancholic affections, determinations of the humour which occasions them produce the following diseases: either apoplexy of the whole body, or convulsion, or madness, or blindness.

This Aphorism contains a statement of the diseases which were supposed by the ancients to be connected with the prevalence of black bile, namely, apoplexy, spasm, mania, and blindness. The subject is treated of in an interesting manner by Galen, in his work, *On Black Bile*. See further, *Aph.* vii, 10; *Viet. Acut.* xlv, 3; *II Prædict.* xiii, 3; *Coac.* iii, 316, 317.

57. Persons are most subject to apoplexy between the ages of forty and sixty.

That apoplexy is a disease most common in declining years, is a fact quite well

known and admitted by the best of our modern authorities. Hippocrates ranks it among the diseases of old age, at Aph. iii, 31. All the ancient commentators ascribe the frequency of the disease in old age to the prevalence of black bile.

58. If the omentum protrude, it necessarily mortifies and drops off.

Galen and all the other commentators understand this Aphorism as referring to protrusion of the epiploon through a wound. When a piece of it, then, has protruded, and has been allowed to remain so for some time, and has become much cooled, it will necessarily mortify, and should be cut off before having recourse to the *gastrohaphé*; but, as stated by Galen and the others, if reduced immediately, the Aphorism does not hold true. Galen remarks, that in this, as in many other of the Aphorisms, our author states the common results as the general rule, but does not think it necessary to mind the exceptions. Compare *Coac.* iii, 378; *1 Morb.* iii, 36.

59. In chronic diseases of the hip-joint, if the bone protrude and return again into its socket, there is mucosity in the place.

The subject of dislocation at the hip-joint from disease is fully treated of in the work, *On the Articulations*. See the Argument. Compare *1 Morb.* iii, 16; *Int. Affect.* lviii, 2; *Aër, Aq., Loc.*, xlviii, 5; *Affect.* xxx, 12; and *Celsus*, iv, 23.

60. In persons affected with chronic disease of the hip-joint, if the bone protrude from its socket, the limb becomes wasted and maimed, unless the part be cauterized.

This also is treated of in the same work; in fact, as Galen states, this Aphorism and the preceding should have been joined together.

SECTION VII.

1. In acute diseases, coldness of the extremities is bad.

I need scarcely remark that coldness of the extremities is a symptom often noticed in the febrile cases related in the Epidemics. All the ancient commentators account for the coldness of the extremities, from the congestion of the febrile heat in the internal viscera. See further, *Aph.* iv, 48, vii, 26; *Prenot.* xv, 9; *Coac.* i, 165; *VI Epid.* viii, 93; *Celsus*, ii, 4, 6.

2. Livid flesh on a diseased bone is bad.

This Aphorism would seem to refer to gangrene along with disease of the bone. The case, however, is not quite clear, and the commentators do not supply much information under this head.

3. Hiccup and redness of the eyes, when they supervene on vomiting, are bad.

The commentators ascribe the hiccup either to inflammation of the stomach or an affection of the brain, with which the stomach sympathises. The redness of the eyes they hold to be symptomatic of a cerebral affection. See also, *Coac.* iv, 20; *Celsus*, ii, 4.

4. A chill supervening on a sweat is not good.

This is a well-known fact. Galen explains it as indicating that Nature is overpowered by the disease. See *Prædiet.* vii, 14, 15; *Celsus*, ii, 4.

5. Dysentery, or dropsy, or ecstacy coming on madness is good.

The commentators explain, that by dysentery or dropsy supervening in a case of mania, a metastasis of the disease takes place. By ecstacy, they understand a violent exacerbation of the maniacal symptoms, which brings the disease to a crisis.

6. In a very protracted disease, loss of appetite and un-mixed discharges from the bowels are bad symptoms.

That loss of appetite is a bad symptom in protracted diseases can admit of no doubt. By "unmixed discharges" our author probably means "colliquative diarrhœa," which, of course, is also a very bad symptom in all such cases. In the edition of Dietz often referred to above, the reading would signify "unmixed vomitings and bilious dejections," but it does not appear to have been recognised by Galen.

7. A rigor and delirium from excessive drinking are bad.

This seems clearly a case of *delirium tremens*. The chill is explained by Damascius as being occasioned by the extinction of the innate heat, induced by the immoderate drinking of wine.

8. From the rupture of an internal abscess, prostration of strength, vomiting, and deliquium animi result.

The term *phyma* is explained by the Greek commentators to signify, in this place, an internal abscess either in the chest or in the belly. The symptoms of collapse here enumerated are said by Galen to be superinduced by an escape of the vital pneuma (or breath). No one can question the fact, however it may be explained.

9. Delirium or convulsion from a flow of blood is bad.

This is nearly allied to Aphor. v, 3. See also *Coac.* iii, 57. Galen remarks, that this is an important Aphorism, as intimating to us that delirium may be connected with inanition, like tremors in the limbs, which are produced by weakness of the motor powers.

10. Vomiting, or hiccup, or convulsion, or delirium, in ileus, is bad.

The symptoms here mentioned are known to be very fatal in ileus. See *Coac.* iii, 303; *Celsus*, ii, 8.

11. Pneumonia coming on pleurisy is bad.

That it is a bad symptom when the disease extends from the pleura to the lungs, cannot be doubted. See *Coac.* iii, 172; *Affect.* ix, 12; *Celsus*, ii, 7.

12. Phrenitis along with pneumonia is bad.

No one will question the truth of this prognosis. Damascius remarks that the fumes of the disease in this case ascend from the lungs to the brain.

13. Convulsion or tetanus, coming upon severe burning, is bad.

There are different readings and interpretations of this Aphorism, as may be seen

on consulting Galen. By burning may either be meant exposure to great heat, or burning by the cautery.

14. Stupor or delirium from a blow on the head is bad.

This also will be admitted as an unquestionable fact. See Coac. ii, 8; Cap. Vuln. xv, 1; and Celsus, ii, 7.

15. From a spitting of blood there is a spitting of pus.

That hæmoptysis is frequently either the cause or the index of consumption is now well ascertained. Still, as Galen remarks, spitting of blood is not always followed by consumption. Compare Nat. Hum. xxiii, 1; II Prædict. xiv, 13.

16. From spitting of pus arise phthisis and a flux; and when the sputa are stopped, they die.

The phenomena of phthisis here stated are now well known and admitted. Compare Coac. iii, 257; I Morb. x, 17, 20, xi, 40.

17. Hiccup in inflammation of the liver is bad.

Perhaps, in this case, as suggested by Galen, the enlarged liver presses on the stomach, and occasions the hiccup. See Aph. v, 58.

18. Convulsion or delirium supervening upon insomnolency is bad.

Insomnolency, according to Galen, is connected with a dry intemperament of the brain, and hence convulsion or delirium supervening on such a condition of it is necessarily bad. He states, however, that in some of the copies, "delirium" was omitted. Compare Celsus, ii, 7.

18.* Trembling upon lethargus is bad.

This Aphorism is omitted in the editions of Galen, but occurs in the edition of the Aphorisms published by Dietz, with the Commentaries of Theophilus and Damascius. Theophilus states that the lethargus is attended with a low fever, and a disposition not to be roused. A trembling in such a febrile disease would now be suspected to be connected with a typhoid form of the affection.

19. Erysipelas upon exposure of a bone (is bad?).

This Aphorism is to be understood as referring principally to the bones of the cranium, and in that case I need not say that erysipelas is a very serious affair. See Cap. Vuln. xxvii, 4.

20. Mortification or suppuration upon erysipelas is bad.

This Aphorism needs no comment, as everybody will admit that either gangrene or suppuration is a most untoward termination of erysipelas.

21. Hemorrhage upon a strong pulsation in wounds is bad.

By pulsation in this place is evidently meant a violent throbbing of the arteries; or, as the commentators explain it, a painful feeling connected with the action of the arteries. It applies then to hemorrhage connected with increased action of the vessels, and it is now well known that in such cases the flow of blood is violent.

22. Suppuration upon a protracted pain of the parts about the bowels is bad.

The ancient commentators naturally understand this Aphorism as referring to inflammation terminating in suppuration.

23. Dysentery upon unmixed alvine discharges is bad.

See Aph. vii, 6. Galen remarks, that in such a case, there is danger lest a portion of the intestine may be corroded. I need scarcely remark, that it is now well known, that in dysentery, there is danger of the gut being completely ulcerated, so as to allow of the escape of its contents.

24. Delirium upon division of the cranium, if it penetrate into the cavity of the head, is bad.

There is a good deal of uncertainty as to the reading and meaning of this Aphorism. See Galen, Littré, and Foës. Most probably it refers to a severe fracture of the skull extending its violence to the membranes.

25. Convulsion upon severe purging is mortal.

This is little else than a repetition of Aph. v, 1.

26. Upon severe pain of the parts about the bowels, coldness of the extremities coming on is bad.

Without doubt this Aphorism refers to inflammation of the bowels ending in mortification. In this case, as it is well known, the fatal termination is preceded by coldness of the extremities. See Aph. iv, 48, vii, 1, 22.

27. Tenesmus coming on in a case of pregnancy causes abortion.

Damascius remarks that this proceeds from sympathy of the uterus with the rectum.

28. Whatever piece of bone, cartilage, or nerve (*tendon?*) is cut off, it neither grows nor unites.

This is a repetition of Aph. vi, 19.

29. When strong diarrhœa supervenes in a case of leucophlegmatia, it removes the disease.

By leucophlegmatia was understood incipient anasarca. See Galen's Commentary, h. l., and Celsus, iii, 21. It will readily be understood that a violent diarrhœa may carry off such a disease. See further Flat. xviii, 8, 9; Judicat. xi, 21; Coac. iii, 285, 326; I Morb. vi, 7; II Morb. lxxix, 11, 12; Int. Affect. xxiii, 12.

30. In those cases in which frothy discharges occur in diarrhœa there are defluxions from the head.

There is not perhaps in the whole collection an announcement so difficult to reconcile with modern ideas, and so thoroughly based on hypothesis, as that contained in the present Aphorism. It is altogether founded on the humoral pathology, of which traces may be recognised in many other parts of our author's work. We shall see a pretty distinct explanation of it in the work, On the Sacred Disease. See Vol. II, 353,

ed. Linden. It also occurs in the *Coacæ Prænotiones*, v, 13, 14. I cannot afford room for an exposition of its principles in this place. See the Commentary of Galen, h. l.; and the note of Littré, h. l., and tom. i, p. 193; also PAULUS ÆGINETA, Book III, 29, Syd. Soc. edit.

31. When there is a farinaceous sediment in the urine during fever, it indicates a protracted illness.

Farinaceous sediments were held to be unfavorable by all the authorities on the subject. See PAULUS ÆGINETA, Book II, 14. Galen, in his Commentary, pronounces the most of these cases to be fatal. Compare *Prænot.* xi, 7; *Coac.* ii, 199, v, 12, 64, 65.

32. In those cases in which the urine is thin at first, and the sediments become bilious, an acute disease is indicated.

It will be seen, upon reference to the Commentaries of Galen and Theophilus, and also to those of Marsilius and Littré in modern times, that there is an ambiguity in this Aphorism; that the words (*ἄνωθεν δε λεπτά*), which are here rendered "thin at first," may also signify "thin above." I incline to adopt the former interpretation, which is also favoured by Galen and Theophilus. I have repeatedly desired to call the attention of the profession to the state, and in particular to the specific gravity, of the urine in febrile diseases. Compare *Coac.* v, 6, 8; *I Morb.* xxvii, 28; *Viet. Acut.* liv, 5.

33. In those cases in which the urine becomes divided there is great disorder in the body.

Galen and the modern expositors, Heurnius and Marsilius, feel at a loss how to explain this Aphorism; but for my own part I see no difficulty about it, for I believe it to refer to a condition of the urine which I have seen in cases of organic disease of the liver, where the sediment is so thick that there is a strongly-marked line of separation between it and the watery part. Such a state of the urine would no doubt be much more common in warm climates, where intermittent and remittent fevers prevail, and consequently it was not likely to escape the acute observation of Hippocrates.

34. When bubbles settle on the surface of the urine, they indicate disease of the kidneys, and that the complaint will be protracted.

It can scarcely admit of a doubt, that our author here refers to *albuminous* urine, which it is well known is also *frothy*, and is now generally admitted to be connected with disease of the kidneys. See PAULUS ÆGINETA, Vol. I, p. 352, and the authorities there quoted.

35. When the scum on the surface is fatty and copious, it indicates acute diseases of the kidneys.

It appears from Galen, that in some copies he found *epistasis*, and in others *hypostasis*; the one evidently referring to the scum on the surface, and the latter to the sediment: he favours the former reading, and understands it to refer to melting of the fat in the neighbourhood of the kidneys. Compare *Prænot.* xii, 1, 2; *Coac.* v, 43; *IV Epid.* vi, 12, 13.

36. Whenever the aforementioned symptoms occur in nephritic diseases, and along with them acute pains about the muscles of the back, provided these be seated about the external parts, you may expect that there will be an abscess; but if the pains be rather about the internal parts, you may also rather expect that the abscess will be seated internally.

This Aphorism evidently refers to what is supposed by our author to be abscess in the region of the kidneys; the symptoms by which it may be ascertained whether the abscess will point externally or internally are clearly given. On Renal Abscess, see in particular Ruffus Ephesius. (*De Ves. Ren. Affect.*) Galen and Theophilus both state that the matter sometimes points behind, and sometimes in the direction of the psoas muscle. I am inclined therefore to believe that lumbar abscess may be comprehended under this head.

37. Hæmatemesis, without fever, does not prove fatal, but with fever it is bad; it is to be treated with refrigerant and styptic things.

As a general rule, no doubt, as stated by our author, hæmatemesis unattended with fever is not often dangerous; whereas, when it occurs in the last stage of fevers, danger may be inferred. Compare the prognosis in hemorrhage from the stomach, as given by Dr. Copland in the *Dictionary of Practical Medicine*, vol. iv, p. 97. Cooling and astringent things are recommended, evidently under the impression that the disease is connected with relaxation of the exhalents of the stomach.

38. Defluxions into the cavity of the chest suppurate in twenty days.

In this Aphorism we recognise traces of the humoral pathology referred to above. See further Aph. vi, 20; *Loc. in Homin.* xviii, 7; *I Morb.* xi, 2, 3. The doctrine that catarrhs are defluxions from the head to the chest is sanctioned by the great discoverer of the system of auscultation, Laennec. See PAULUS ÆGINETA, Vol. I, p. 474.

39. When a patient passes blood and clots, and is seized with strangury and pain in the perineum and pubes, disease about the bladder is indicated.

This Aphorism is nearly word for word the same as Aph. iv, 80.

40. If the tongue suddenly lose its powers, or a part of the body become apoplectic, the affection is of a melancholic nature.

By apoplectic, in this place, our author evidently means paralysed. (See PAULUS ÆGINETA, Book III, 18.) Even Galen admits that he is at a loss to account for Hippocrates setting down apoplexy as a disease connected with melancholy or black bile; for, he says, cancer, elephantiasis, leprosy, psora, and black alphas are known to be diseases which originate in black bile, but apoplexy has seemingly no alliance to them. Compare *II Prediet.* xvi, 12; *Coac.* iii, 87, 88, 315, 317. Damascius the commentator also says that he cannot account for the disease being called melancholic.

41. In hypercatharsis, of old persons, hiccup supervening is not a good symptom.

Hypercatharsis being dangerous in persons of all ages, must be peculiarly so in the case of old men, owing to their infirmities. Hence, as Heurnius remarks, we see the propriety of being guarded in administering drastic purgatives to old men.

42. In a fever, which is not of a bilious nature, a copious affusion of hot water upon the head removes the fever.

We have seen from the work, *On Regimen in Acute Diseases*, that our author used the affusion of hot water on the head in febrile diseases; here he speaks favorably of it, unless when the fever originates in bile. According to Damascius, he is to be understood as pointing to ephemeral fevers, excepting those connected with inflammation of important parts, and those from putrefaction of the humours. Galen's elaborate Commentary comes to the same conclusion. Celsus speaks of this practice as being equivocal in the treatment of tertian fevers. These, we know, are connected with bile.

43. A woman does not become ambidexterous.

The only reason for women not having a dexterous use of both arms is, that being of a feeble constitution, they do not exercise both arms. The fact, however, may be questionable.

44. When empyema is treated either by the cautery or incision, if pure and white pus flow from the wound, the patients recover; but if mixed with blood, slimy and fetid, they die.

We have seen on several previous occasions that the ancients opened the chest in empyema either by the cautery or perforator. I have also stated in the Commentary on the Prognostics, that the ancients applied the term empyema not only to the collection of pus between the chest and the lungs, but also to cavities of the lungs arising from tubercular ulceration. It is worth remarking, that a few years ago a London surgeon attempted to introduce the operation of opening cavities in the lungs which form in tubercular consumption. This, then, was but a revival of the ancient practice in such cases; but both in empyema, properly speaking, and in cavities of the lungs, paracentesis thoracis is a very equivocal operation.

45. When abscess of the liver is treated by the cautery or incision, if the pus which is discharged be pure and white, the patients recover, (for in this case it is situated in the coats of the liver;) but if it resemble the lees of oil as it flows, they die.

The account here given of the operation of opening an abscess in the liver is sufficiently intelligible of itself. One can readily believe that the result of the operation will depend upon whether the pus be good or not, and whether it be situated in the membrane or in the substance of the liver. Compare Celsus, ii, 8. For the results of modern experience on the subject of hepatic abscesses, see the *Cyclopædia of Anatomy, Abnormal Anat. of the Liver*.

46. Pains of the eyes are removed by drinking undiluted wine, plenteous bathing with hot water, and venesection.

This is an abridgment of Aphor. vi, 31. Galen makes some very interesting remarks on this Aphorism, and the application of the various methods of treatment here enumerated, in the second chapter of the Third Book of Therapeutics.

47. If a dropsical patient be seized with hiccup the case is hopeless.

This is nearly the same as Aph. vi, 35. Theophilus does not hesitate to pronounce this, and all the Aphorisms which are repeated, to be supposititious, and not the work of Hippocrates.

48. Strangury and dysuria are cured by drinking pure wine, and venesection : open the vein on the inside.

The ancient commentators explain this Aphorism as follows : When the diseases in question are connected with inflammation in the bladder, or a congestion of humours which obstruct the passage, the remedy is bleeding in the vein of the inner ankle or ham ; but when produced by flatulent and viscid humours, they are best dispelled by drinking pure wine.

49. It is a good sign when swelling and redness on the breast seize a person very ill of quinsy, for in this case the disease is diverted outwardly.

This Aphorism is nearly the same as Aph. vi, 37. Galen suggests that it is supposititious.

50. When the brain is attacked with sphacelus, the patients die in three days ; or if they escape these, they recover.

I have given my opinion regarding sphacelus of the brain previously in this work, and at PAULUS ÆGINETA, Book III, 7. The commentators are all agreed that it signifies incipient mortification ; it can mean nothing else in this place seemingly but *ramollissement* of the brain. See II Morb. v, 2, 21, xx, 2, 8, 9, 10 ; VII Epid. xxx, 7. It is proper to mention, however, that Heurnius and Littré prefer referring it to caries of the bone.

51. Sneezing arises from the head, owing to the brain being heated, or the cavity (*ventricle*?) in the head being filled with humours ; the air confined in it then is discharged, and makes a noise, because it comes through a narrow passage.

Galen gives an elaborate discussion on the subject of sneezing, but it contains little worth taking notice of. He held it to be a natural effort to expel substances which are creating irritation in the nasal passages, in like manner as coughing is for the like purpose in the respiratory.

52. Fever supervening on painful affections of the liver removes the pain.

The commentators are agreed that this Aphorism is not generally applicable in diseases of the liver ; for example, in cases of inflammation, but that it is to be restricted to those cases which are of a flatulent nature, or connected with obstruction.

53. Those persons to whom it is beneficial to have blood taken from their veins, should have it done in spring.

This is a repetition of Aph. vi, 47, with a slight omission. Galen contends that it must be supposititious.

54. In those cases where phlegm is collected between the diaphragm and the stomach, and occasions pain, as not finding a passage into either of the cavities, the disease will be carried off if the phlegm be diverted to the bladder by the veins.

We learn from Galen that Marinus, the celebrated anatomist, found difficulty in deciding where the phlegm was supposed to be lodged, and it does not appear quite clear what place is meant. Galen describes it as being below the diaphragm, and within the peritoneum of the epigastric region. It will be readily perceived from this Aphorism, that our author looks upon the veins as being the great instruments of absorption.

55. When the liver is filled with water and bursts into the epiploon, in this case the belly is filled with water and the patient dies.

Galen understands this case to refer to hydatids of the liver, but finds difficulty in explaining how they can burst into the epiploon unless by ulceration. It would seem as if our author meant the cavity of the peritoneum. See Galen and Littré. Compare Praenot. viii, 6; Coac. iii, 276, 278; Affect. xxiii, 3-10; Int. Affect. xxvi, 2.

56. Anxiety, yawning, rigor,—wine drunk with an equal proportion of water, removes these complaints.

This Aphorism is based on the humoral pathology: the symptoms here mentioned are supposed to be connected with the prevalence of a flatulent humour, which is attenuated and dispelled by the hot wine. The construction of the sentence, as Galen remarks, resembles a solecism. Compare II Epid. vi, 45; II Morb. xxxviii, 6; Int. Affect. v, 14; II Morb. Mul. lxxxviii, 2.

57. When tubercles (*phymata*) form in the urethra, if they suppurate and burst, the pain is carried off.

This is a repetition of Aph. iv, 82.

58. In cases of concussion of the brain produced by any cause, the patients necessarily lose their speech.

That a severe concussion of the brain, by occasioning a rupture of the nerves, will superinduce loss of speech cannot be doubted. The term here used (*σεισθη*), implies that the concussion was supposed to be violent. Compare Coac. iii, 370; I Morb. iii, 34.

59. In a person affected with fever, when there is no swelling in the fauces, should suffocation suddenly come on, and the patient not be able to swallow, except with difficulty, it is a mortal symptom.

Galen remarks that this Aphorism is nearly the same as Aph. iv, 40. It therefore does not stand in need of any commentary.

59.*¹ In the case of a person oppressed by fever, if the neck be turned aside, and the patient cannot swallow, while there is no swelling in the neck, it is a mortal sign.

This is nearly the same as Aph. iv, 35.

60. Fasting should be prescribed for those persons who have humid flesh; for fasting dries bodies.

By humid flesh is meant flesh abounding with humours. That fasting produces desiccative effects on the body is generally held by our author. Compare II Diet. xxxviii, 1, 2; III Diet. xvi, 12, 11; II Prædict. viii, 8, 13; Insomn. xv, 14, 15; Affect. xxviii, 2, xli, 7, 8, 11, 12.

61. When there are changes in the whole body, and the body becomes sometimes cold and sometimes hot, and the colour changes, a protracted disease is indicated.

This is the same as Aph. iv, 40.

62. A copious sweat, hot or cold, constantly flowing, indicates a superabundance of humidity; we must evacuate then, in a strong person upwards, and in a weak, downwards.

This Aphorism is nearly allied to Aph. iv, 42. On febrile sweats, see further Aph. iv, 41, 46, i, 21. It will be remarked that the treatment is founded on our author's favorite principle of revulsion; that is to say, of determining, in the present instance, from the skin to the internal viscera. Galen, however, inclines to think that it is interpolated.

63. Fevers, not of the intermittent type, if they become exacerbated every third day are dangerous; but if they intermit in any form whatever, this shows that they are not dangerous.

This is the same as Aph. iv, 43. Galen thinks it an interpolation here.

64. In cases of protracted fever, either chronic abscesses or pains in the joints come on.

This is the same as Aph. iv, 44. Galen thinks it an interpolation here.

65. When chronic abscesses (*phymata*) or pains in the joints take place after fevers, the patients are using too much food.

This is the same as Aph. iv, 45. Galen thinks it an interpolation here.

66. If one give to a person in fever the same food which is given to a person in good health, what is strength to the one is disease to the other.

This most important principle in Therapeutics is strongly brought forth in the treatise On Ancient Medicine; indeed, our author, in that work, holds that it is the foundation of the whole art of medicine. See further, the treatise On Regimen in Acute Diseases, and more especially what is said in the Argument and notes, on the

¹ *Bis.* It is so in Littré's edition.

administration of food in fevers. Galen is of opinion that the text has been tampered with; but it is not easy to make out exactly in what way, as the text of his commentary would appear to have undergone alterations. Compare Aph. ii, 10, vii, 67; Vet. Med. xii, 11.

67. We must look to the urinary evacuations, whether they resemble those of persons in health; if not at all so, they are particularly morbid, but if they are like those of healthy persons, they are not at all morbid.

Galen states certain verbal objections to this Aphorism, which make him suppose that the language is not that of Hippocrates; it is evidently derived, however, from the great principle upon which the Hippocratic system of prognostics was founded, namely, the comparison of morbid with healthy appearances.

68. When the dejections are allowed to stand and not shaken, and a sediment is formed like scrapings (of the bowels), in such a case it is proper to purge the bowels; and if you give ptisans before purging, the more you give the more harm you will do.

Galen holds decidedly that this Aphorism is supposititious. His Commentary contains many interesting things, but as they principally relate to verbal criticism, I shall not think of introducing them in this place.

69. Crude dejections are the product of black bile; if abundant, of more copious, and if deficient, of less copious collections of it.

This Aphorism is evidently supposititious, as maintained by Galen. It would appear, however, to be of very ancient date, since the very earliest of the commentators, namely, Herophilus, Baccius, Heraclides, and Zeuxis had found it in the copies which they used. Compare Aph. i, 22; and Judicat. viii, 12. Although I wish to avoid discussions on the text as much as possible, I cannot omit saying in this place, that I have not adopted the emendation of M. Littré, on the text of Galen, and that I prefer reading the passage relating to the earliest commentators as follows: ὧν ἐστὶν ὁ Ἡρόφιλος, Βακχῆϊος, Ἡρακλεῖδησ, κ. τ. λ. The article is joined to the name of Herophilus, to mark his greater celebrity than the others. Galen was in the practice of prefixing the article to the name of Herophilus. See the preface to his work, entitled *Explanatio vocum Hippocratis*. This, in fact, is in accordance with the classical usage of the article as a prefix to proper names. I have stated my opinions on this subject, in *Hermes Philologicus*, p. 58, and *English and Greek Lexicon*, Edinburgh, 1840, under *Master*.

70. The sputa in fevers, not of an intermittent type which are livid, streaked with blood, and fetid, are all bad; it is favorable when this evacuation, like the urinary and alvine passes freely; and whenever any discharge is suppressed and not purged off it is bad.

This Aphorism is nearly the same as Aph. iv, 47.

71. When you wish to purge the body, you must bring it into

a state favorable to evacuations ; and if you wish to dispose it to evacuations upwards, you must bind the belly; and if you wish to dispose it to evacuations downwards, you must moisten the belly.

The first part of this Aphorism is taken from Aph. ii, 9; the remainder is supposed by Galen to be supposititious.

72. Sleep and watchfulness, both of them, when immoderate, constitute disease.

This Aphorism is repeated from Aphor. ii, 3. It would appear from Galen that he found it wanting in some of the copies which he had consulted.

73. In fevers which do not intermit, if the external parts be cold, and the internal burning hot, and fever prevail, it is a mortal sign.

This aphorism is copied from Aph. iv, 48, with certain alterations which are anything but improvements, as Galen has remarked.

74. In a fever which does not intermit, if a lip, the nose, or an eye be distorted, if the patient lose his sense of sight or of hearing, while now in a weak state,—whatever of these symptoms occurs it is mortal.

This aphorism is repeated from Aph. iv, 49, which is founded on Prognost. iii.

75. Upon leucophlegmatia dropsy supervenes.

By leucophlegmatia, as formerly stated by me, was understood that state of the health which often precedes dropsy. See Aph. vii, 29.

76. Upon diarrhœa dysentery.

This is a repetition of Aph. vii, 6, but evidently, as Galen holds, much altered for the worse.

77. Upon dysentery lientery.

This, as remarked by Galen, is a portion of Aph. vi, 43.

78. Upon sphacelus exfoliation of the bone.

As Galen remarks, the word "supervenens" (*επιγιγινεται*) is to be understood in this as in the three preceding Aphorisms. He further remarks that there is an ambiguity in the term sphacelus, which may either apply to disease of the bone (that is to say caries or necrosis), or to that of the soft parts (meaning gangrene).

79 and 80. Upon vomiting of blood consumption, and a purging of pus upwards; upon consumption a defluxion from the head; upon a defluxion diarrhœa; upon diarrhœa a stoppage of the purging upwards; upon the stoppage of it death.

As is remarked by Galen in his Commentary, the present Aphorism is evidently made up from Aph. vii, 15, 16, incorrectly put together.

81. In the discharges by the bladder, the belly, and the flesh (*the skin?*) if the body has departed slightly from its

natural condition, the disease is slight; if much, it is great; if very much, it is mortal.

This, according to Galen, is the last of the Aphorisms in most of the copies, and yet, he adds, some of them have certain others composed from the genuine Aphorisms of our author, with more or fewer additions. The present Aphorism, he states, is composed of several of the preceding Aphorisms, which embody our author's doctrines respecting the evacuations.

82. Persons above forty years of age who are affected with frenzy, do not readily recover; the danger is less when the disease is cognate to the constitution and age.

This Aphorism is founded on Aph. ii. 34, and Aph. ii. 39.

83. In whatever diseases the eyes weep voluntarily, it is a good symptom, but when involuntarily, it is a bad.

This is a repetition of Aph. iv. 52. It is thus rendered by Celsus, "sine voluntate lacrimare," ii. 4. By "voluntarily" is meant seemingly "from a motive."

84. When in quartan fevers blood flows from the nostrils it is a bad symptom.

This Aphorism is legitimately founded on the following passages: Coac. ii. 37, 38, iii. 433; VI Epid. ii. 10. I see no reason, then, why it should not be received as genuine.

85. Sweats are dangerous when they do not occur on critical days, when they are strong, and quickly forced out of the forehead, either in the form of drops or in streams, and if excessively cold and copious; for such a sweat must proceed from violence, excess of pain, and prolonged squeezing (*affliction*?)

This Aphorism is doubtfully formed from the following passages: Judicat. vi. 9; Pranot. v. 4; I Prædict. v. 7; Coac. iii. 91, iv. 38, 39; Vict. Acut. liii. 8, 9.

86. In a chronic disease an excessive flux from the bowels is bad.

I know not whence this Aphorism is derived, and the language creates a suspicion as to its genuineness. The expression here used for "an excessive flux of the bowels" (*κοιλίης καταρροή*), does not occur elsewhere, as far as I am aware.

87. Those diseases which medicines do not cure, iron (*the knife*?) cures; those which iron cannot cure, fire cures; and those which fire cannot cure, are to be reckoned wholly incurable.

This Aphorism is celebrated in modern literature, but as far as I can recollect, it is nowhere alluded to by any ancient author, and being transferred to this place from Section viii, there must be admitted to be considerable reason to question its genuineness. It is valuable, however, as containing a striking classification of the remedial means used in the practice of medicine. The only passage in the Hippocratic treatises at all parallel to it, is contained in the work De Arte, xiii, 12-18.

THE OATH.

THE OATH.

THE ARGUMENT.

THIS piece, as was stated in the Preliminary Discourse, is often referred to by ancient authors, and there seems little or no reason for questioning its authenticity. It is an interesting document, as exhibiting the practitioners of medicine in a very remote age, already formed into a regular corporation, bound by an oath to observe certain regulations, and having regular instructors in the art. The present piece would seem to be an indenture between a physician and his pupil; and it is most honorable to the profession, that so ancient a document pertaining to it, instead of displaying a narrow-minded and exclusive selfishness, inculcates a generous line of conduct, and enjoins an observance of the rules of propriety, and of the laws of domestic morality.

There are few things in it which require either illustration or comment. M. Littré finds some difficulty in accounting for the circumstance that the noviciate in the art is interdicted from the practice of lithotomy. It is certain, however, that this operation was in antiquity always practised by a separate class of operators, and that the regular members of the profession never meddled with it, on any account. Hence, in the whole compass of ancient medical literature, there is not a single description of the operation by a person who himself had actually performed it. Thus no mention of it is made in the Hippocratic treatises, although there is the clearest evidence that our author used to perform all the regular operations then recognised by the profession as legitimate. Galen also speaks of bold operations performed by him on the head and chest, but he never once hints that he meddled with the operation of lithotomy. The descriptions of the operation given by Celsus and Paulus Ægineta are evidently copied. The Arabians were, if possible,

still more prejudiced against lithotomy; for Avenzoar pronounces the operation to be one, which no respectable physician would witness, and far less perform.¹ And even in this country, at least in the North of Scotland, not perhaps much more than a hundred years ago, it was common for lithotomy to be performed by non-professional persons. Thus I remember having been told in my youth, by an old man residing in the district of Aberdeenshire, called Cromar, that in his younger days there was a miller in that part of the country who was very famous for cutting persons for the stone. In many parts of the East the operation is still cultivated as a separate branch of the profession. See the Commentary on PAULUS ÆGINETA, Vol. II, p. 363. One, therefore, need not be at all surprised at our author's interdicting his pupils from the performance of an operation which, at that time, was not reckoned *respectable*. It is true that, as will be seen in our notice of the Books on Diseases, he makes mention there of the process of sounding a patient for the purpose of discovering whether or not there was a stone in the bladder; we can well suppose, however, that the general practitioner might be called upon to pronounce upon the nature of a case, although he had nothing to do with a particular operation practised for the relief of it. At all events, there can be no doubt that, in ancient times, lithotomy was intrusted to a set of operators separate from the general profession. Why this operation in particular was proscribed, cannot indeed be satisfactorily ascertained; but the fact is as I have stated, that, through all antiquity, the higher medical authorities had nothing to do with it. The conjecture then advanced by René Moreau,² that castration, and not lithotomy, was meant in this place, appears to me utterly inadmissible, and is rejected by M. Littré in his Argument to this piece.

¹ ii. 27.

² Th. Bartholini Epist., Cent. I, epist. lxxvi.

THE OATH.

I SWEAR by Apollo the physician, and Æsculapius, and Health, and All-heal,¹ and all the gods and goddesses, that, according to my ability and judgment, I will keep this Oath and this stipulation—to reckon him who taught me this Art equally dear to me as my parents, to share my substance with him, and relieve his necessities if required; to look upon his offspring in the same footing as my own brothers, and to teach them this art, if they shall wish to learn it, without fee or stipulation; and that by precept, lecture,² and every other mode of instruction, I will impart a knowledge of the Art to my own sons, and those of my teachers, and to disciples bound by a stipulation and oath according to the law of medicine, but to none

¹ Every person who is at all acquainted with ancient literature must be aware that Apollo, in the mythology of the Greeks and Romans, was regarded as the healing god. In this capacity he appears in the very beginning of the Iliad, as the divinity who causes and removes the pestilence; and in the Homeric Hymn to Apollo he is introduced in the same capacity. Hence the epithet “healing” (*ἰήτιος*) is applied to him by Sophocles (Ed. Tyr., 154); and its synonyme, “the healer” or “the physician” (*ἰητροδός*), by our author in this place. The beautiful lines of Ovid, in reference to the healing powers of Apollo, are in everybody’s mouth:

“Inventum Medicina meum est; opiferque per orbem
Dicor, et herbarum subiecta potentia nobis.” (Met. i, 521.)

Æsculapius was universally represented as the son of Apollo, according to Pindar, the contemporary of our author, by the nymph Coronis (Pyth. iii); but according to the later myths, by Arsinoë (Apollodor. Bibl. iii, 10). I need scarcely say that he was the patron-god of the Asclepiadæ, or priest-physicians, to which order Hippocrates belonged. In the ancient systems of mythology he is described as having two sons, Podalirius and Machaon, and four daughters, Ægle, Jaso, Hygeia, and Panacea. Of these it will be remarked that our author notices only the two last, whose names are here rendered Health and All-heal. Sprengel (Hist. de la Méd. tom. i, p. 468, and ix, 208), argues from this invocation of Apollo as a healing divinity, along with Hygeia and Panacea, that this treatise must have emanated from the school of Alexandria; I can see no force, however, in this argument.

² There has been considerable difference of opinion what the two kinds of instruction are which Hippocrates adverts to here. See Zuinger, Foës, and Littré. The most probable supposition appears to be, that the former applies to general precepts, and the latter to professional lectures. Of the one we have a good specimen in the Hippocratic treatise entitled the Præcepts (*παραγγελία*), and of the other in the Auscultationes Naturales (*ἀκρόασεως φυσικαῖ*) of Aristotle. That our author delivered public lectures in the cities he visited there can be no doubt, for he is so represented by his contemporary, Plato, in his Protagoras. It will be seen, however, from this piece, that he confined his instruction to his own family and that of his teachers, and to such pupils as were bound by a regular stipulation or indenture.

others. I will follow that system of regimen which, according to my ability and judgment, I consider for the benefit of my patients, and abstain from whatever is deleterious and mischievous. I will give no deadly medicine to any one if asked, nor suggest any such counsel; and in like manner I will not give to a woman a pessary to produce abortion.¹ With purity and with holiness I will pass my life and practise my Art. I will not cut persons labouring under the stone, but will leave this to be done by men who are practitioners of this work. Into whatever houses I enter, I will go into them for the benefit of the sick, and will abstain from every voluntary act of mischief and corruption; and, further, from the seduction of females or males, of freemen and slaves. Whatever, in connexion with my professional practice, or not in connexion with it, I see or hear, in the life of men, which ought not to be spoken of abroad, I will not divulge, as reckoning that all such should be kept secret. While I continue to keep this Oath unviolated, may it be granted to me to enjoy life and the practice of the art, respected by all men, in all times! But should I trespass and violate this Oath, may the reverse be my lot!

¹ We have here another notable instance how much our author was superior to his age in humanity as well as in intelligence; for his contemporary, or rather his immediate successor, Aristotle, though the son of a physician, and although there be some reason to suppose that he was a dabbler in drugs before he betook himself to philosophy, treats very gravely of the practice of procuring abortion, and does not at all object to it, if performed before the child had quickened. (Polit. vii, 21.) Plato also alludes to the practice. (Theætetus.) Juvenal, in his Sixth Satire, speaks of artificial abortion as being a very common practice among the higher class of females in his time. The mode of procuring abortion is regularly described by Avicenna (iii, xxi, 212), and by Rhases (Contin. vii, 2),—not, however, to be applied for any wicked purpose, but in the case of women of small stature who had proved with child. The means recommended by these authors are, severe bleeding, especially from the ankle; leaping from a height; the administration of emmenagogues; the application of pessaries medicated with hellebore, stavisacre, mezereon, and the like; but more especially forcible dilatation of the os tincæ with a roll of paper, or a tube made of polished wood, or a quill. There can be no doubt, in short, that the ancients had anticipated all our modern methods of inducing premature delivery. Avicenna, moreover, also speaks of accomplishing the same purpose by fumigations, a mode which I believe has not been thought of in recent times since this operation was revived, but which one can readily suppose well calculated to destroy the fetus when that was the intention. I may mention, by the way, that fumigation of the uterus was freely practised by the medical authorities of the sixteenth century. An excellent drawing of an apparatus for this purpose is given in the works of Ambrose Paré, xxiii, 48.

THE LAW.

THE LAW.

THE ARGUMENT.

It is not easy to define accurately what the object of this little tract is, nor the exact sense in which the term "Law" is to be here taken. The writer, apparently, wishes to sketch the *beau ideal* of a perfect physician, and in this point of view the title of the work would rather deserve to be rendered "the Standard" than "the Law." Zuinger, in his annotations on it, remarks that, as in civil society there is an universal precept, applying to all the citizens, the arbiter of right and wrong, so in the medical commonwealth, there is a certain law which serves as a rule, or gnomon, by which true physicians are distinguished from the false. This piece, then, as I have said, is apparently meant as an ideal sketch of what a true physician ought to be, and it gives the traits by which the real are to be distinguished from the false. No one will venture to deny that the outline is drawn with great ability, and therefore the work cannot fail to be read with interest, whether it be regarded as the production of Hippocrates himself or of one of his immediate successors.

THE LAW.

1. MEDICINE is of all the Arts the most noble ; but, owing to the ignorance of those who practise it, and of those who, inconsiderately, form a judgment of them, it is at present far behind all the other arts. Their mistake appears to me to arise principally from this, that in the cities there is no punishment connected with the practice of medicine (and with it alone) except disgrace,¹ and that does not hurt those who are familiar with it. Such persons are like the figures² which are introduced in tragedies, for as they have the shape, and dress, and personal appearance of an actor, but are not actors, so also physicians are many in title but very few in reality.

2. Whoever is to acquire a competent knowledge of medicine, ought to be possessed of the following advantages: a natural disposition; instruction; a favorable position for the study; early tuition; love of labour; leisure. First of all, a natural talent is required; for, when Nature opposes, everything else is vain; but when Nature leads the way to what is most excellent, instruction in the art takes place, which the student must try to appropriate to himself by reflection, becoming an early pupil in a place well adapted for instruction. He must also bring to the task a love of labour and perseverance, so that the instruction taking root may bring forth proper and abundant fruits.³

¹ In this passage it would seem to be asserted, that in the time of the writer there was no punishment of *mala praxis* except the disgrace which it entailed. Many other passages in the Hippocratic treatises would lead to the inference that a more severe responsibility attached to the physician for unfortunate practice; as we often find the practitioner warned not to have anything to do with certain cases. Here the author of this treatise seems to regret the want of a proper medical police.

² It is not quite clear what is meant by figures (*προσώποισι*) in this place. Zuinger understands by it the mutes introduced on the stage along with the real actors who spoke their parts. Foës rather understands it as applying to masks, or inanimate figures, and this seems to me the most natural interpretation of the term.

³ The requisite advantages towards acquiring eminence in the art of medicine are here given with much precision. There is a manifest resemblance between this passage and the description given by Quintilian of the requisites which the student of rhetoric ought to possess in order to attain eminence in his art. The passage in question is so striking, that I shall not scruple to introduce it here, and shall only remark beforehand, that as Quintilian was certainly not unacquainted with the works

3. Instruction in medicine is like the culture of the productions of the earth. For our natural disposition is, as it were, the soil; the tenets of our teacher are, as it were, the seed; instruction in youth is like the planting of the seed in the ground at the proper season; the place where the instruction is communicated is like the food imparted to vegetables by the atmosphere; diligent study is like the cultivation of the fields; and it is time which imparts strength to all things and brings them to maturity.¹

4. Having brought all these requisites to the study of medicine, and having acquired a true knowledge of it, we shall thus, in travelling through the cities,² be esteemed physicians not only in name but in reality. But inexperience is a bad treasure, and a bad fund to those who possess it, whether in opinion or reality,³ being devoid of self-reliance and contentedness, and the nurse both of timidity and audacity. For timidity betrays a want of powers, and audacity a want of skill. There are, indeed, two things, knowledge and opinion, of which the one makes its possessor really to know, the other to be ignorant.

5. Those things which are sacred, are to be imparted only to sacred persons; and it is not lawful to impart them to the profane until they have been initiated in the mysteries of the science.

of Hippocrates (Inst. Orat. III, 6), he may have had the present tract in view when he wrote as follows: "Illud tamen in primis testandum est, nihil præcepta atque vires valere, nisi adjuvante natura. Quapropter ei cui decrit ingenium, non magis hæc scripta sunt, quam de agrorum cultu sterilibus agris. Sunt et alia ingenita quidem adjuncta, vox, latus patiens laboris, valetudo, constantia, decor: quæ si modica obtigerunt, possunt ratione ampliari; sed nonnunquam ita desunt, ut bona etiam ingenii studiique corrumpant: sicut et hæc ipsa sine doctore perito, studio pertinaci, scribendi, legendi, dicendi multa et continua exercitatione, per se nihil prosunt." Inst. Orat. Proem. (6.)

¹ The points of comparison in this paragraph are placed in a striking point of view, but the style of writing rather savours of a later age than that of our author.

² The author here evidently refers to the practice of the *periodontæ*, or travelling physicians.

³ See Foc's, *Æc. Hipp.* in voce *ἄπαρ*.

ON ULCERS.

ON ULCERS.

THE ARGUMENT.

I HAVE stated in the Second Section of the Preliminary Discourse, the reasons which determined me to allow this treatise a place among the genuine works of Hippocrates, and I need only add further here, that a careful reconsideration of the subject has confirmed me in the judgment on it which I then announced. When we take into account the positive manner in which Galen, on very many occasions, dwells upon its contents with the fullest confidence that they are the opinions of our author, and reflect that all the subsequent authorities, including those of the Arabian and Roman periods, and the learned restorers of ancient surgery in the fifteenth and sixteenth centuries, agreed in recognising it as authentic, I cannot see how, consistently with the principles upon which it is now generally admitted that questions regarding the genuineness of ancient works should be settled, we could be at all warranted in rejecting it without disputing the claims of the greater number of treatises contained in the small list of the Hippocratic works which are still acknowledged as genuine. Certain it is, at all events, that the evidence in support of this treatise, is far greater than that upon which the treatises 'On Ancient Medicine,' and 'The Law,' have been sustained as being the productions of Hippocrates. We shall be better able, however, to judge whether the external evidence in this case be confirmed or neutralised by the internal, when we have taken a careful inspection of its contents.

In the beginning of it there is given an exposition of the principles upon which ulcers are to be treated. Agreeably to the great rule of medical practice, so often inculcated in the Hippocratic treatises, namely, that "diseases are to be cured by their contraries," he argues that as a sound part of the body is dry, and an ulcerated, moist, drying *or* desiccant

things are indicated in the cure of wounds, and sores, and consequently we must avoid using all liquid things, with the exception of wine, for which he claims an especial indulgence, owing, no doubt, to its being possessed of desiccant powers. A low diet is particularly enjoined when a sore shows any tendency to gangrene, and especially in ulcers of the joints and thigh, when there is danger of spasm (tetanus?), and in injuries of the head, when complicated with fracture. Rest is particularly enjoined, and all severe exercise proscribed. Two opposite modes of practice are mentioned in the treatment of recent wounds,—either to promote a healthy suppuration or to use means for preventing the formation of pus. The discharge of blood from a fresh wound is to be encouraged, and in old ulcers the callous edges are to be scarified in order to evacuate the unhealthy blood. After the discharge of the blood, the part is to be covered with a piece of sponge, and some slender leaves placed over it. As a general rule, oil, and all greasy things, are to be avoided in the treatment of ulcers. But, if used at all, they answer best in cold and hot weather. (See § 1.)

Gentle purging is recommended for most ulcers, and in wounds of the head, belly, and joints, in gangrenous and other intractable sores, and in those requiring sutures. The sore is to be frequently wiped with a sponge, and a dry piece of clean cloth is to be applied. Mild weather is favorable to the healing of wounds, and heat is preferable to cold. Ulcers which are foul, will not heal until they are cleansed. When the parts adjoining to a sore are inflamed or gangrenous, or when there is a varix in a part, the sore will not heal. (§ 2.)

Circular sores are to be treated by having their edges scarified. When erysipelas supervenes, emetics or purgatives are to be administered. When the parts around the sore are swollen, a cataplasm is to be applied to the adjoining parts, but not to the sore itself, in order to allow a free discharge of the pus. After the swelling has subsided, a bandage is to be applied, so as to bring the separated parts close to one another. Any piece of flesh which prevents the lips from coming close together, is to be removed. Sponges, with leaves above them, as formerly directed, are to be placed on the sore. (§ 3.)

In the next paragraph our author gives minute directions for

preparing cataplasms, consisting of various ingredients of a desiccative and emollient nature, such as mullein, linseed, and the like. These are either to be laid on the sore, or with a clean piece of cloth wetted in wine and oil, applied next to the sore. (§ 4.)

In the next paragraph are described several preparations, mostly of a desiccative and caustic nature, for the treatment of ulcers. The object is sometimes not very accurately defined, but it is impossible not to see, in certain cases, that they are prescribed for the purpose of producing a superficial slough or scab, in order to imitate one of Nature's modes of effecting a cure. Of the articles entering into the composition of these medicinal preparations, the flowers of copper, myrrh, pomegranate rind, and galls are some of the most important. (§ 5.)

In the sixth paragraph there are two prescriptions for the purpose of preventing inflammation, and for cleansing foul ulcers. They are strongly discutient and detergent.

In the seventh there are also some very important prescriptions, evidently meant to act upon the principle of producing a scab upon the sore: of these, one, to which I would direct attention, consists of the impure sulphate of copper, alum, and elaterium. (See the Annotations.) It is said to be very efficacious in removing warts from the genital member.

The eighth contains some prescriptions for medicines which are represented as being sarcotic, or incarnative, that is to say, calculated to promote the filling up of hollow sores. They are mostly of a detergent and desiccative nature, such as linseed, the fatty part of a fig, horchound, and the like. The principle upon which they are applied, is not stated by our author.

In the ninth paragraph is described the composition of a medicinal preparation called *caricum*, consisting of strong escharotic and septic articles, such as hellebore, the flakes of copper, arsenic, and cantharides. It is evidently meant to be used for the purpose of removing the morbid parts of indolent and malignant ulcers, and with this view, it would be difficult, even at the present day, to find ingredients more likely to be efficacious.

In the tenth paragraph, likewise, there are given various prescriptions, consisting of articles mostly of a corrosive nature, such as *misy* and *chalcitis*, which, as explained in the Annota-

tions, there is every reason to regard as having been mere varieties of the *chalcanthos*, or impure native sulphate of copper. In the text these applications are designated as being adapted to fresh wounds, but, as stated in the Annotations, there is reason to suppose that there is some mistake about this title.

In the eleventh is described an application for old ulcers and sections of tendons, consisting of melilot, myrtle, and a herb which probably was some species of the *Tormentilla* or *Potentilla*.

In the twelfth there are various prescriptions for preparations designated as emollient, and the term, although questioned by some of the earlier commentators in modern times, seems not so very inappropriate, as they all consist, in a great measure, of axunge, oil, ceruse, wax, the grease of a goose, and so forth.

The thirteenth treats of burns; for these are recommended things of a cooling and digestive nature without pungency. The roots of the *ilex* boiled in wine or water until of the consistence of a liniment, are particularly mentioned. The squill is an ingredient in the composition of several of these prescriptions.

In the fourteenth paragraph is laid down the treatment of œdemata, or swellings in the feet, the particular nature of which, however, is not sufficiently defined. Scarifications are much recommended in the treatment of them.

The treatment of varix by puncture is briefly noticed in the fifteenth paragraph.

The operation of venesection, and the various circumstances relating to it, are briefly noticed in the sixteenth.

The last paragraph is devoted to the description of the operation of cupping. As the contents of the last two paragraphs are foreign to the subject on hand, there is some reason for suspecting them to be an appendix to the treatise.

From this brief outline of its contents, it will be readily admitted that the work is one of considerable importance, and it appears to me that, when fairly regarded, there is nothing in it at all derogatory to the high reputation of our author. That it is in some respects defective, and contains matters foreign to the professed object of the treatise, must, perhaps, be admitted, but the same objections apply to certain other treatises which are generally recognised as being genuine.

That it contains much valuable matter will scarcely be questioned by any practical surgeon; indeed, one cannot fail to remark with astonishment, how many of the general principles upon which ulcers of all descriptions are now treated, may be traced out in the present work. In particular, it will be remarked that the mode of treating ulcers by the formation of a scab, which was much approved of by Hunter and his friend, Sir Everard Home, and also that the method of curing indolent ulcers by applications which produce sloughing of their callous edges are recommended in this treatise.

Rest, and a spare diet, it will further be remarked, are held by our author to be the best remedial means for promoting the cure of an ulcer, and he particularises gangrenous sores as being more especially benefited by this plan of treatment. This is a rule of practice about which there is great difference of opinion among our surgical authorities at the present time, some of them, in gangrene of the toes, contending for the stimulant, and others for the opposite plan of treatment. It will be seen, then, that the latter have Hippocrates on their side, and along with him a whole host of ancient authorities.¹ While upon this subject I may take the opportunity of mentioning that the stimulant plan of treatment is not at all of long standing, for, as far as I am aware, all the earlier modern authorities in surgery are advocates for the mild plan of cure. I shall only take time to refer to one of the best authorities of the sixteenth century—Tagault.²

The views of our author in directing the choice of incarnants, or sarcotic medicines are not very clear, and yet such as they are, they guided the practice of the profession for full two thousand years. For example, Galen expounds the principle fully, professing to have adopted it from Hippocrates, in the fourth book of his work, 'On Therapeutics,' and gives his most decided adherence to it. The same principles are expounded and advocated by Avicenna,³ and Haly Abbas.⁴ In like manner, Tagault contends that an incarnant medicine should consist of articles which are moderately desiccative and detergent.⁵ Very similar views are also advocated by Holler, another surgical

¹ See in particular, Avicenna, I, iv, 28.

² Inst. Chirurg. i, 7.

³ I, iv, 28.

⁴ Pract. iv, 18.

⁵ De Vulner. i.

authority of about the same age.¹ Like Tagault, he holds that the best sarcotics consist of articles which are moderately detergent and desiccative. Much the same principles are laid down by Marianus Sanctus.²

ON ULCERS.

I. WE must avoid wetting all sorts of ulcers except with wine,³ unless the ulcer be situated in a joint. For, the dry is nearer to the sound, and the wet to the unsound, since an ulcer is wet, but a sound part is dry. And it is better to leave the part without a bandage unless a cataplasm be applied. Neither do certain ulcers admit of cataplasms, and this is the case with the recent rather than the old, and with those situated in joints. A spare diet and water agree with all ulcers, and with the more recent rather than the older; and with an ulcer which either is inflamed or is about to be so; and where there is danger of gangrene; and with the ulcers and inflammations in joints; and where there is danger of convulsion; and in wounds of the belly; but most especially in fractures of the head and thigh, or any other member in which a fracture may have occurred.⁴ In the case of an ulcer, it is not expedient to stand; more especially if the ulcer be situated in the leg; but neither, also, is it proper to sit or walk.⁵ But quiet and rest are particularly expedient.⁶ Recent ulcers, both the ulcers themselves and the surrounding parts, will be least exposed to inflammation, if one

¹ De Med. Chirurg., vi, 8.

² De Uleer., iii.

³ Dr. Hosack mentions the use of wine as a dressing to wounds among the improvements in surgical practice, which the profession might derive from a study of Hippocrates. It is, in fact, often used in this way by the French surgeons. Galen, adhering to the principle here laid down, extends in so far the application of it: he says, the most proper thing to be used is wine, or oxycerate, or the decoction of an austere herb; that is to say, things possessed of a desiccant power. (Meth. Med., iv.) Upon the whole, however, he prefers wine. (iii. 4.)

⁴ It will be remarked that our author in this work, as in the preceding one, On the Articulations, is a decided advocate for a low diet and very mild treatment in the management of recent ulcers.

⁵ Galen comments upon this rule of practice in his work, On Trembling.

⁶ Celsus renders this sentence as follows: "Optimum etiam medicamentum quies est; moveri et ambulare nisi sanis alienum." (v.)

shall bring them to a suppuration as expeditiously as possible, and if the matter is not prevented from escaping by the mouth of the sore; or, if one should restrain the suppuration, so that only a small and necessary quantity of pus may be formed, and the sore may be kept dry by a medicine which does not create irritation.¹ For the part becomes inflamed when rigor and throbbing supervene; for ulcers then get inflamed when suppuration is about to form. A sore suppurates when the blood is changed and becomes heated; so that becoming putrid, it constitutes the pus of such ulcers.² When you seem to require a cataplasm, it is not the ulcer itself to which you must apply the cataplasm, but to the surrounding parts, so that the pus may escape and the hardened parts may become soft. Ulcers formed either from the parts having been cut through by a sharp instrument, or excised, admit of medicaments for bloody wounds (*ἐραιμα*), and which will prevent suppuration by being desiccant to a certain degree.³ But, when the flesh has been

¹ Vidus Vidius understands the last clause of this sentence (*ζυαρμάκω μὴ περισκελεῖ*) in a different sense; he reads and explains these words as follows: "*vinculum non postulant, jure autem ita Latinum fecimus. Nam περισκελος Græcè subligaculum significat, nec quidquam verisimilius nobis visum est, quam Hippocratem loqui de medicamento quod non alligetur.*" He understands it, then, to mean an application which does not require to be kept on the place by a tight bandage. The reader will remark that, in this place, our author mentions two opposite modes of treating fresh ulcers, namely, either by promoting moderate suppuration, or by using means to check it. The text, indeed, is in an equivocal state, but I can make no more of it. In the work, *On Female Complaints*, the author lays down the principles for managing the treatment of ulcers as follows: "In order to cure ulcers they are to be kept free of inflammation, and cleansed, and filled up, and brought to cicatrization; water is to be given for drink, but not wine; little food, and by no means a full diet." (*Lib. i.*) These rules, in the main, it will be remarked, agree with those here laid down, only no mention is made of any means being used to promote suppuration; but every person acquainted with practice is aware that a healthy suppuration is one of the best means of preventing inflammation.

² Our author here, as elsewhere, assumes that pus is nothing else but vitiated blood. Vidus Vidius holds that this is a fact so evident as not to require any proof. It certainly must be admitted to be highly probable, and yet the chemical authorities of the day are not agreed on this point. See Simon's *Chemistry*, vol. ii, p. 86; and Berard, *Diet. de Méd.*, tom. xxvi. The French physiologists seem to deny that pus is a direct transformation of the blood.

³ The class of applications here referred to are described more fully by Celsus than by any other ancient author. The object of them all would appear to be to effect a cure by the formation of a scab upon the sore. The words of Celsus are: "Ex empiastris autem nulla majorem usum præstant, quam quæ eruentis protinus

contused and roughly cut by the weapon, it is to be so treated that it may suppurate as quickly as possible; for thus the inflammation is less, and it is necessary that the pieces of flesh which are bruised and cut should melt away by becoming putrid, being converted into pus, and that new flesh should then grow up. In every recent ulcer, except in the belly, it is expedient to cause blood to flow from it abundantly,¹ and as may seem seasonable; for thus will the wound and the adjacent parts be less attacked with inflammation. And, in like manner, from old ulcers, especially if situated in the leg, in a toe or finger, more than in any other part of the body. For when the blood flows they become drier and less in size, as being thus dried up. It is this (*the blood?*) especially which prevents such ulcers from healing, by getting into a state of putrefaction and corruption. But, it is expedient, after the flow of the blood, to bind over the ulcer a thick and soft piece of sponge, rather dry than wet, and to place above the sponge some slender leaves. Oil, and all things of an emollient and oily nature, disagree with such ulcers, unless they are getting nearly well. Neither does oil agree with wounds which have been recently inflicted, nor yet do medicines formed with oil or suet, more especially if the ulcer stands in need of more cleansing. And, in a word, it is in summer and in winter that we are to smear with oil these sores that require such medicines.²

2. Gentle purging of the bowels agrees with most ulcers, and in wounds of the head, belly, or joints, where there is danger of gangrene, in such as require sutures, in phagedænic, spreading,

vulneribus injiciuntur; ἔλαια Græci vocant. Hæc enim reprimunt inflammationem, nisi magna vis eam cogit, atque illius quoque impetum minuunt; tum glutinant vulnera, quæ id patiuntur, cicatricem iisdem inducunt; constant autem ex medicamentis non pinguibus, ideoque ἀλιπάρωνη nominantur." He gives prescriptions for no fewer than twenty-eight ointments of this class. Of these, the first consists of verdigris, litharge, alum, dried pitch, dried pine-resin, with a portion of oil and vinegar. (v. 19.)

¹ Vidus Vidius remarks on this passage, that the rule of practice here stated by Hippocrates, namely, that a discharge of blood from a recent ulcer is highly beneficial, had been injudiciously departed from by surgeons in his time, who usually made haste to stop the flow of blood as quickly as possible. The same remark may apply to the surgical practice of the present age.

² What our author here remarks on oil as an application to sores, deserves to be seriously considered. I cannot but think that at the present time it is often very injudiciously applied to fresh wounds.

and in otherwise inveterate ulcers.¹ And when you want to apply a bandage, no plasters are to be used until you have rendered the sore dry, and then indeed you may apply them.² The ulcer is to be frequently cleaned with a sponge, and then a dry and clean piece of cloth is to be frequently applied to it, and in this way the medicine which it is supposed will agree with it is to be applied, either with or without a bandage. The hot season agrees better than winter with most ulcers, except those situated in the head and belly; but the equinoctial season agrees still better with them. Ulcers which have been properly cleansed and dried as they should be, do not usually get into a fungated state. When a bone has exfoliated, or has been burned, or sawed, or removed in any other way, the cicatrices of such ulcers become deeper than usual.³ Ulcers which are not cleansed, are not disposed to unite if brought together, nor do the lips thereof approximate of their own accord. When the points adjoining to an ulcer are inflamed, the ulcer is not disposed to heal until the inflammation subside, nor when the surrounding parts are blackened by mortification, nor when a varix occasions an overflow of blood in the part, is the ulcer disposed to heal, unless you bring the surrounding parts into a healthy condition.⁴

3. Circular ulcers, if somewhat hollow, you must scarify all along their edges, or to the extent of half the circle, according to the natural stature of the man.⁵ When erysipelas supervenes upon any sore, you must purge the body in the way most suitable to the ulcer, either upwards or downwards.⁶ When swelling

¹ Galen approves highly of this practice, the merits of which he discusses fully. (Meth. Med., iv, 6.)

² The text here is in a very unsatisfactory state. What I have given appears to be the most natural sense of the passage.

³ Compare Aph. vi, 45. It will readily be understood that there must be a depression at any place where the bone has been severely injured so as to exfoliate.

⁴ See Galen, Meth. Med., iv, 5. The ordinary causes which prevent an ulcer from healing are here stated very distinctly.

⁵ See Galen, Meth. Med., iv, 5. The medical *litterateurs*, Cassius Medicus and Alexander Aphodisiensis, in their Problems, discuss the question why circular sores are particularly difficult to heal. Every experienced surgeon must be aware of the fact, however it may be accounted for.

⁶ Galen, iv, 5. Galen remarks on this passage, that whoever reads the present work carefully will find that he always takes the indication from the affection, that is to say, that his practice is always rational, instead of being empirical. He reverts to this passage again in § 6.

arises around an ulcer, and if the ulcer remain free from inflammation, there will be a deposit of matter in process of time. And whatever ulcer gets swelled along with inflammation and does not subside as the other parts subside which became inflamed and swelled at the same time, there is a danger that such an ulcer may not unite. When from a fall, or in any other way, a part has been torn or bruised, and the parts surrounding the ulcer have become swelled, and, having suppurated, matter flows from the swelling by the ulcer, if in such cases a cataplasm be required, it should not be applied to the sore itself, but to the surrounding parts, so that the pus may have free exit, and the indurated parts may be softened. But when the parts are softened as the inflammation ceases, then the parts which are separated are to be brought towards one another, binding on sponges and applying them, beginning from the sound parts and advancing to the ulcer by degrees.¹ But plenty of leaves are to be bound above the sponge. When the parts are prevented from coming together by a piece of flesh full of humours, it is to be removed. When the ulcer is deep-seated in the flesh, it is swelled² up, both from the bandaging and the compression. Such an ulcer should be cut up upon a director (specillum) if possible, at the proper time, so as to admit a free discharge of the matter, and then the proper treatment is to be applied as may be needed. For the most part, in every hollow ulcer which can be seen into direct without any swelling being present, if there be putrefaction in it, or if the flesh be flabby and putrid, such an ulcer, and the parts which surround it, will be seen to be black and somewhat livid. And of corroding ulcers, those which are phagedænic, spread and corrode most powerfully, and, in this case, the parts surrounding the sore will have a black and sub-livid appearance.

4. Cataplasms for swellings and inflammation in the surrounding parts.³ Boiled mullein,⁴ the raw leaves of the

¹ This principle of bandaging is laid down in the work, On the Surgery.

² Vidus Vidius, instead of "it is swelled up" (*ὑποκρησσοῦται*), reads "forms into varix" (*ὑποκρησσοῦται*).

³ See Galen, Meth. Med., iv, 5. Galen remarks, that all the articles about to be mentioned are possessed of desiccative powers, as may be learned on reference to his work, On Simples.

⁴ The *φλόμος* of Hippocrates is generally admitted to have been some species of *Verbascum*; but Dierbach is undecided as to whether it was *V. thapsus*, *sinuatum*, or *plicatum*. See Arza. des Hippocrat., p. 70.

trefoil,¹ and the boiled leaves of the epipetrum,² and the poley,³ and if the ulcer stand in need of cleansing, all these things also cleanse; and likewise the leaves of the fig-tree, and of the olive, and the horehound, all these are to be boiled; and more especially the chaste-tree,⁴ and the fig, and the olive, and the leaves of the pomegranate are to be boiled in like manner. These are to be used raw: the leaves of the mallow pounded with wine, and the leaves of rue, and those of the green origany.⁵ With all these, linseed is to be boiled up and mixed by pounding it as a very fine powder. When there is danger of cypelas seizing the ulcers, the leaves of woad⁶ are to be pounded and applied raw in a cataplasm along with linseed, or the linseed is to be moistened with the juice of strychnos⁷ or of woad, and applied as a cataplasm. When the ulcer is clean, but both it and the surrounding parts are inflamed, lentil is to be boiled in wine and finely triturated, and, being mixed with a little oil, it is to be applied as a cataplasm; and the leaves of the hip-tree are to be boiled in water and pounded in a fine powder and made into a cataplasm; and apply below a thin, clean piece of cloth wetted in wine and oil; and when you wish to produce contraction, prepare the leaves of the hip-tree like the lentil, and the cress; wine and finely-powdered linseed are to be mixed together. And this is proper: linseed, and raw chaste-tree, and Melian alum,⁸ all these things being macerated in vinegar.

5. Having pounded the white unripe grape in a mortar of

¹ It is impossible to decide with any certainty what species of *Trifolium* is referred to.

² The *epipetrum* here mentioned is referred by Vidus Vidius to some species of *Sempervivum*. Sprengel, in his *Hist. Rei Herb.*, suggests that it may be *Sedum ochroleucum*. Dierbach inclines to the *Ocymum monachorum*. (Op. land., p. 178.)

³ The *Teucrium polium*, L. See PAULUS ÆGINETA, Vol. III, p. 305, Syd. Soc edition.

⁴ The *Agnus castus*, L. Ibid., p. 20.

⁵ Probably the *Origanum heracleoticum* and *creticum*. See Dierbach, &c., p. 174; and PAULUS ÆGINETA, Vol. III, p. 284.

⁶ Certainly a species of *Isatis* is here meant, probably the *tinctoria*. See Dierbach, &c., p. 123.

⁷ Dierbach inclines to refer it to the *Cucubalus bacciferus*, but there is great uncertainty on this head. See further PAULUS ÆGINETA, Vol. III, p. 359. I would incline to the *Solanum nigrum*, which long held a place in our *Mat. Med.*

⁸ The alum of Melos (now *Milo*), an island of the Ægean Sea, was always much sought after. See Dioscorid., *M. M.*, v, 122.

red bronze, and passed it through the strainer, expose it to the sun during the day, but remove it during the night, that it may not suffer from the dew; rub it constantly during the day, so that it may dry equally, and may contract as much virtue as possible from the bronze: let it be exposed to the sun for as great a length of time as till it acquire the thickness of honey; then put it into a bronze pot with the fresh honey and sweet wine, in which turpentine rosin has been previously boiled, boil the rosin in the wine until it become hard like boiled honey; then take out the rosin and pour off the wine: there should be the greatest proportion of the juice of unripe grape, next of the wine, and third of the honey and myrrh, either the liquid (*stacte*) or otherwise. The finest kind is to be levigated and moistened by having a small quantity of the same wine poured on it; and then the myrrh is to be boiled by itself, stirring it in the wine; and when it appears to have attained the proper degree of thickness, it is to be poured into the juice of the unripe grape; and the finest natron¹ is to be toasted, and gently added to the medicine, along with a smaller quantity of the flowers of copper (*flos æris*)² than of the natron. When you have mixed these things, boil for not less than three days, on a gentle fire made with fuel of the fig-tree or with coals, lest it catch fire. The applications should all be free from moisture, and the sores should not be wetted when this medicine is applied in the form of liniment. This medicine is to be used for old ulcers, and also for recent wounds of the glans penis, and ulcers on the head and ears. Another medicine for the same ulcers:—The dried gall of an ox, the finest honey, white wine, in which the shavings of the lotus³ have been boiled, frankincense, of myrrh an equal part, of saffron an equal part, the flowers of copper, in like manner of liquids, the greatest proportion of wine, next of honey, and least of the gall. Another:—Wine, a little cedar honey,⁴ of dried things, the flowers of copper, myrrh, dried pomegranate

¹ The native carbonate of soda. See PAULUS ÆGINETA, Vol. III. p. 232.

² See PAULUS ÆGINETA, Vol. III, pp. 404-6.

³ From the terms in which it is frequently mentioned by our author, there can be no doubt that it is the lote-tree, that is to say, the *Zizyphus lotus*, or *Celtis australis*. See Dierbach, &c., p. 92; and PAULUS ÆGINETA, Vol. III, p. 236; and the Appendix to the Edinburgh Greek Lexicon under this term.

⁴ A sweet exudation forming on the juniper-tree in hot countries. See Theophrast., Fragment.; Galen, de Alim. Facult., iii; and PAULUS ÆGINETA, Vol. I, p. 178.

rind. Another:—Of the roasted flower of copper half a drachm, of myrrh two half-drachms, of saffron three drachms, of honey a small quantity, to be boiled with wine. Another:—Of frankincense a drachm, of gall a drachm, of saffron three drachms; let each of these be dried and finely levigated, then, having mixed, triturate in a very strong sun, pouring in the juice of an unripe grape, until it become of a gelatinous consistence, for three days; then let them be allowed to macerate in an austere, dark-coloured, fragrant wine, which is gradually poured upon them. Another:—Boil the roots of the holm-oak¹ in sweet white wine; and when it appears to be properly done, having poured off two parts of the wine, and of the lees of wine as free of water as possible one part; then boil, stirring it, so that it may not be burnt, at a gentle fire, until it appear to have attained the proper consistence. Another:—The other things are to be the same; but, instead of the wine, use the strongest white vinegar, and dip into it wool as greasy as can be procured, and then, moistening it with the lees of oil, boil, and pour in the juice of the wild fig-tree, and add Melian alum, and natron, and the flowers of copper, both toasted. This cleanses the ulcers better than the former, but the other is no less desiccant. Another:—Dip the wool in a very little water; and then, having added a third part of wine, boil until it attain the proper consistence. By these, recent ulcers are most speedily prevented from getting into a state of suppuration.²

6. Another:—Sprinkle on it dried wakerobin,³ and add the green bark of the fig-tree, pounding it in the juice: do this with or without wine, and along with honey. Another:—Boiling the shavings of lotus with vinegar (the vinegar should be white); then mix the lees of oil and raw tar-water,⁴ and use it as a

¹ The *Quercus ilex*. See PAULUS ÆGINETA, Vol. III, p. 311; and Dierbach, &c., p. 27.

² The sense of this passage is ambiguous; the most probable meaning is, that these things check the formation of pus. Considering that the articles are all of an astringent nature, this might seem the more probable interpretation; but some of the interpreters understand it in the opposite sense.

³ Probably the *Arum maculatum*. See PAULUS ÆGINETA, Vol. III, p. 53; and Dierbach, &c., p. 106.

⁴ It is the same as the liquid pitch of Dioscorides (i, 79), and is mentioned by Paulus Ægineta, Vol. III, p. 74. The description of this preparation is rather ambiguous.

liniment or wash, and bandage above. These things in powder prevent recent wounds from suppurating, or they may be used for cleansing the sore along with vinegar, or for sponging with wine.

7. Another:—Sprinkle (*on the sore?*) lead finely triturated with the recement of copper; and sprinkle on it, also, the shavings of lotus, and the scales of copper, and alum, and chalcitis,¹ with copper, both alone, and with the shavings of lotus. And otherwise, when it is wanted to use these in a dry state, do it with the Illyrian spodos² triturated with the shavings, and with the shavings alone. And the flowers of silver alone, in the finest powder; and birthwort,³ when scraped and finely pounded, may be sprinkled on the part. Another, for bloody sores:⁴—Myrrh, frankincense, galls, verdigris,⁵ the roasted flower of copper, Egyptian alum roasted, vine flowers, grease of wool, plumbago;⁶ each of these things is to be diluted, in equal proportions, with wine like the former. And there is another preparation of the same:—The strongest vinegar of a white colour, honey, Egyptian alum, the finest natron; having toasted these things gently, pour in a little gall; this cleanses fungous ulcers, renders them hollow, and is not pungent. Another:—The herb with the small leaves, which gets the name of *Parthenium parviflorum*,⁷ and is used for removing thymia⁸ (*warts?*) from the

¹ A variety of the native sulphate of copper. See PAULUS ÆGINETA, Vol. III, pp. 399-402. I am fully satisfied, after the most mature deliberation and fullest investigation of the subject, that the *misy*, *sori*, and *chalcitis* were merely varieties of the *Chalcanthos*, and that it was an impure sulphate of copper.

² Probably an impure oxyde of zinc. See PAULUS ÆGINETA, Vol. III, p. 353.

³ Either the *Aristolochia longa* or *rotunda*. Ibid., p. 50.

⁴ By bloody sores is always to be understood fresh wounds. I cannot but think, however, that the text is in a doubtful state.

⁵ The ancient myrrh, frankincense, galls, and verdigris, were all the same as the modern articles which still retain these names.

⁶ On the *Molybdæna*, see PAULUS ÆGINETA, Vol. III, p. 254.

⁷ Neither Vidus Vidius nor any other of the authorities on the Flora of Hippocrates ventures to pronounce decidedly what plant this was. See also Galen, Exeges.; Foë's (h. l.); Dierbach, Arzn. des Hipp., p. 185. The most probable conjecture appears to be, that it is the *Pyrethrum parthenium*, W., or feverfew.

⁸ See Vidus Vidius, h. l. He holds it to be a sort of indurated tumour, or wart; and of this, I think, there can be little doubt, as it is well known that warts form on the genital member. See further, Celsus, v. 28; and PAULUS ÆGINETA, Book VI. 58.

glands penis, alum, chalcitis, a little crude Melian alum (?);¹ sprinkle a little dried elaterium,² and a little dried pomegranate rind in like manner.

8. The herb which has got the name of lagopyrus,³ fills up hollow and clean ulcers; (when dried it resembles wheat; it has a small leaf like that of the olive, and more long;) and the leaf of horehound, with oil. Another:—The internal fatty part, resembling honey, of a fig much dried, of water two parts, of linseed not much toasted and finely levigated, one part. Another:—Of the dried fig, of the flower of copper levigated a little, and the juice of the fig. The preparation from dried fig:—The black chameleon,⁴ the dried gall of an ox, the other things the same. Of the powders:—Of the slender cress in a raw state, of horehound, of each equal parts; of the dried fig, two parts; of linseed, two parts; the juice of the fig. When you use any of these medicines, apply above it compresses wetted in vinegar, apply a sponge about the compresses and make a little more pressure. If the surrounding parts be in an inflamed state, apply to them any medicine which may appear suitable.

9. If you wish to use a liquid application, the medicine called *caricum*⁵ may be rubbed in, and the bandages may be applied as formerly described upon the same principle. The medicine is prepared of the following ingredients:—Of black hellebore,

¹ There is some difficulty respecting the *alum* and *chalcitis* in this passage, as may be seen on consulting Vidus Vidius and Foës.

² Although this term be sometimes used rather vaguely in the Hippocratic treatises, there seems no reason to doubt that, in this place, it applies to the fecula of the *Momordica elaterium*. See PAULUS ÆGINETA, Vol. III, p. 102.

³ Nothing can be made of Galen's notice of this plant in his Exegesis, the text being obviously corrupt. From the resemblance of the names it may be supposed the same as the *λαγώπους* of Dioscorides, probably, then, the *Trifolium arvense*. The authorities subsequent to Hippocrates, in treating of medicines possessed of sarcoitic or incarnant properties, take no notice of this article, nor of any of the others recommended by our author in this paragraph. This is singular, when we consider how servilely they generally bow to the authority of Hippocrates. Galen treats of the nature of incarnant medicines with his wonted acumen and perspicuity of style (Meth. Med. iii, 2). On the same subject, see further, PAULUS ÆGINETA, Vol. II, p. 105.

⁴ It was the *Carthamus corymbosus*, L. See Dierbach, &c., p. 135.

⁵ The derivation of this term cannot be ascertained, the notice of it in the Exegesis of Galen being very corrupt. It has evidently nothing to do with nuts, as its name might imply.

of sandarach, of the flakes of copper, of lead washed, with much sulphur, arsenic, and cantharides. This may be compounded so as may be judged most proper, and it is to be diluted with oil of juniper. When enough has been rubbed in, lay aside the medicine, and apply boiled wakerobin in a soft state, either rubbing it in dry, or moistening it with honey. But if you use the caricum in a dry state, you must abstain from these things, and sprinkle the medicine on the sore. The powder from hellebore and sandarach alone answers. Another liquid medicine:—The herb, the leaf of which resembles the arum (wakerobin) in nature, but is white, downy, of the size of the ivy-leaf:¹ this herb is applied with wine, or the substance which forms upon the branch of the ilex, when pounded with wine, is to be applied. Another:—The juice of the unripe grape, the strongest vinegar, the flower of copper, natron, the juice of the wild fig-tree. Alum, the most finely levigated, is to be put into the juice of the wild grape, and it is to be put into a red bronze mortar and stirred in the sun, and removed when it appears to have attained its proper consistence.

10. These are other powders:²—Black hellebore, as finely levigated as possible, is to be sprinkled on the sore while any humidity remains about it, and while it continues to spread. The bandaging is the same as when plasters are used. Another, in like manner:—The driest lumps of salt are to be put into a copper, or earthen pot, of equal size, as much as possible, and not large, and the finest honey, of double the size of the salt, as far as can be guessed, is to be poured upon the lumps of salt, then the vessel is to be put upon coals and allowed to sit there until the whole is consumed. Then, having sponged the ulcer and cleaned it, bandage it as before, and compress it a little more. Next day, wherever the medicine has not been taken in, sprinkle it on, press it down, and bandage. But when you wish to remove the medicine, pour in

¹ Vidus Viduus suggests that it is the *tussilago*, but it cannot be determined with much certainty.

² These powders, in the original, are described as being applications for fresh or bloody wounds (*ἔραυα*). But, as Vidus Viduus states, there is evidently an error of the text, and he proposes to amend it by substituting *νερόμενα* in its place. The emendation is plausible; but when a passage in an ancient author is manifestly corrupt, it seldom happens that any ingenuity can amend it satisfactorily. It seems wiser, then, to reject the epithet altogether.

hot vinegar until it separate, and again do the same things, sponging it away, if necessary. Another corrosive powder:—Of the most finely-levigated misy,¹ sprinkle upon the moist and gangrenous parts, and a little of the flower of copper, not altogether levigated. Another powder equally corrosive:—Having sponged the ulcer, burn the most greasy wool upon a shell placed on the fire until the whole be consumed; having reduced this to a fine powder, and sprinkled it on the sore, apply the bandage in the same manner. Another powder for the same ulcers:—The black chameleon, when prepared with the juice of the fig. It is to be prepared roasted, and alkanet² mixed with it. Or, pimpernel,³ and Egyptian alum⁴ roasted, and sprinkle on them the Orchomenian powder.⁵ For spreading ulcers:—Alum, both the Egyptian roasted, and the Melian; but the part is to be first cleaned with roasted natron and sponged; and the species of alum called chalcitis⁶ roasted. It is to be roasted until it catch fire.

¹ A substance nearly allied to the chalcitis, probably an impure sulphate of copper containing a large admixture of iron. See PAULUS ÆGINETA, Vol. III, pp. 234, 402. These substances would appear to have been well known by the surgical authorities of the sixteenth and seventeenth centuries, and are recommended by them for the very purpose here indicated by our author. See in particular, Tagault (de Vulner., ii). He mentions both the misy and chalcitis as being very powerful escharotics. What he says, in another work, regarding the nature of the misy, sori, and chalcitis, is so much in accordance with my own views as published in the Commentary on PAULUS ÆGINETA (l. c.), that (since it may be said that *adhuc sub judice lis est*) I am induced to give his words in this place: "Misy autem et sori chalcitidi genere cognata sunt, ex una, ut ita eum Galeno dicam, radice producta. Itaque tria hæc (quæ sub vitreoli genere comprehenduntur) majoris tantum et minoris ratione differunt." (De Ulcibus, iii.)

² It may either be the *Achusa tinctoria*, or *Echium creticum*. See Dierbach, &c., p. 69.

³ Without doubt the *Anagallis arvensis*, L. See PAULUS ÆGINETA, Vol. III, p. 43; and Dierbach, &c., p. 150.

⁴ Galen informs us that the Egyptian alum was the same as the *τροιχίτης* of the Greeks; there can be no doubt, then, that it was the *hair salt* of Werner, and contained a large admixture of the sulphate of magnesia and iron. See PAULUS ÆGINETA, Vol. III, p. 361.

⁵ The Orchomenian powder cannot be determined with any certainty. Vidus Vidius and Foes suggest that it was the same as the *adarce*, for which see PAULUS ÆGINETA, Vol. III, p. 22.

⁶ The text is probably corrupt. Galen, in his Exegesis, supposes it to refer simply to the *Chalcitis*, for which see above. Others hold that both the chalcitis and the alum were ingredients in the composition. See Foes, h. l.

11. For old ulcers which occur on the fore part of the legs: they become bloody and black:—Having pounded the flower of the melilot and mixed it with honey, use as a plaster. For nerves (*tendons*?) which have been cut asunder:—Having pounded, sifted, and mixed with oil the roots of the wild myrtle, bind on the part; and the herb cinquefoil¹ (it is white and downy, and more raised above the ground than the black cinquefoil), having pounded this herb in oil bind it on the part, and then remove it on the third day.

12. *Emollients*² (?):—These medicines are to be used in winter rather than in summer. Emollient medicines which make the cicatrices fair:—Pound the inner mucous part of the squill and pitch, with fresh swine's seam, and a little oil, and a little rosin, and ceruse. And the grease of a goose, fresh swine's seam, and squill, and a little oil. The whitest wax, fresh clean grease, or squill and white oil, and a little rosin. Wax, swine's seam (old and fresh), and oil, and verdigris, and squill and rosin. Let there be two parts of the old grease to the fresh, and of the other things, *q. s.* Having melted the grease that is fresh, pour it into another pot; having levigated plumbago finely and sifted it, and mixed them together, boil and stir at first; boil until when poured upon the ground it concretes; then taking it off the fire, pour it all into another vessel, with the exception of the stony sediment, and add rosin and stir, and mix a little oil of juniper, and what has been taken off. In all the emollient medicines to which you add the rosin, when you removed the medicine from the fire, pour in and mix the rosin while it is still warm. Another:—Old swine's seam, wax, and oil, the dried shavings of the lotus, frankincense, plumbago,—namely, of the frankincense one

It cannot be positively determined; but Foes and Dierbach regard it as being some species either of the *Tormentilla* or *Potentilla*. The former, I need scarcely say, was lately restored to the *Mat. Med.* The *Potentilla anserina* would answer pretty well to our author's description.

² Foes suspects that this term is corrupt, and yet when one examines attentively the composition of the preparations contained in this paragraph, they will be found to consist very much of oily ingredients, so that, after all, the term does not appear so very objectionable. Galen, moreover, seems to sanction the word, only reading *μαλθώτεια* instead of *μαλθακώτεια*, as used in the text here. The reading, however, is uncertain in some parts of this paragraph, as may be seen on consulting Vidus Vidius, and Foes.

part, and of the other one part, and of the shavings of the lotus one part; but let there be two parts of the old grease, one of wax, and of fresh swine's seam one part. Another:—Or old swine's seam along with the fresh grease of a goat; when cleaned, let it retain as little as possible of its membrane: having triturated or pounded it smooth, pour in oil, and sprinkle the lead with the spodium and half the shavings of the lotus.¹ Another:—Swine's seam, spodium, blue chalcitis,² oil.

13. *For Burns*:—You must boil the tender roots of the ilex, and if their bark be very thick and green, it must be cut into small parts, and having poured in white wine, boil upon a gentle fire, until it appear to you to be of the proper consistence, so as to be used for a liniment. And it may be prepared in water after the same manner. Another, not corrosive:—Old swine's seam is to be rubbed in by itself, and it is to be melted along with squill, the root of which is to be divided and applied with a bandage.³ Next day it is to be fomented; and having melted old swine's seam and wax, and mixed with them oil, frankincense, and the shavings of lotus and vermilion, this is to be used as a liniment. Having boiled the leaves of the wakerobin in wine and oil, apply a bandage. Another:—When you have smeared the parts with old swine's seam, let the roots of asphodel be pounded in wine and triturated, and rubbed in. Another:—Having melted old swine's seam, and mixed with rosin and bitumen, and having spread it on a piece of cloth and warmed it at the fire, apply a bandage. When an ulcer has formed on the back from stripes or otherwise, let squill, twice boiled, be pounded and spread upon a linen cloth and bound on the place. Afterwards the grease of a goat, and

¹ The text of this prescription appears to be very corrupt. See Vidus Vidius and Foës.

² By *blue chalcitis* may either be meant the *cyanus*, that is to say, "the blue copper" of Jameson, or the *chalcanthos*, that is to say, "blue vitriol." Compare the note of Foës with PAULUS ÆGINETA, Vol. III, pp. 201, 102, Syd. Soc. edit.

³ Without doubt it was the *scilla maritima*. See Dierbach, and PAULUS ÆGINETA, Vol. III, p. 343. It will be remarked that our author would appear to have been fond of using it as a detergent application to burns. Dioscorides recommends it for fissures on the feet (ii, 202). Our author's applications are either emollient, consisting of vegetable and animal oils, or detergent and astringent, formed from the ilex and squills. For a digest of the ancient modes of treating burns, see PAULUS ÆGINETA, Book IV, 11, Syd. Soc. edit.

fresh swine's seam, spodium, oil, and frankincense are to be rubbed in.

14. Swellings which arise on the feet, either spontaneously or otherwise, when neither the swellings nor the inflammation subside under the use of cataplasms, and although sponges or wool, or anything else be bound upon the sound part;¹ but the swelling and inflammation return of themselves again, an influx of blood into the veins is the cause, when not occasioned by a bruise. And the same story applies if this happen in any other part of the body. But blood is to be abstracted, especially from the veins, which are the seat of the influx, if they be conspicuous; but if not, deeper and more numerous scarifications are to be made in the swellings; and whatever part you scarify, this is to be done with the sharpest and most slender instruments of iron. When you have removed the blood, you must not press hard upon the part with the specillum, lest you produce contusion. Bathe with vinegar, and do not allow a clot of blood to remain between the lips of the wounds, and having spread greasy wool with a medicine for bloody wounds, and having carded the wool and made it soft, bind it on, having wetted it with wine and oil. And let the scarified part be so placed that the determination of the blood may be upwards and not downwards; and do not wet the part at all, and let the patient be put upon a restricted diet and drink water. If upon loosing the bandages you find the scarifications inflamed, apply a cataplasm of the fruit of the chaste-tree and linseed. But if the scarifications become ulcerated and break into one-another, we must be regulated by circumstances, and otherwise apply whatever else appears to be proper.

15. When a varix is on the fore part of the leg, and is very superficial, or below the flesh, and the leg is black, and seems to stand in need of having the blood evacuated from it, such swellings are not, by any means, to be cut open; for, generally, large ulcers are the consequence of the incisions, owing to the influx from the varix. But the varix itself is to be punctured in many places, as circumstances may indicate.²

¹ The swellings or œdemata here described, are not very well defined, at least they appear so to us, probably from our unacquaintance with the diseases of Greece. See further, the Commentary on PAULUS ÆGINETA, Book IV, 27, Syd. Soc. edit.

² Allusion is made to this mode of treating varix, in the treatise De Medico. On

16. When you have opened a vein and abstracted blood, and although the fillet be loosed the bleeding does not stop, the member, whether the arm or leg, is to be put into the reverse position to that from which the blood flows; so that the blood may flow backwards, and it is to be allowed to remain in this position for a greater or less space of time.¹ Then bind up the part while matters are so, no clots of blood being allowed to remain in the opening. Then having applied a double compress, and wetted it with wine, apply above it clean wool which has been smeared with oil. For, although the flow of blood be violent, it will be stopped in this way. If a thrombus be formed in the opening, it will inflame and suppurate. Venesection is to be practised when the person has dined more or less freely and drunk, and when somewhat heated, and rather in hot weather than in cold.

17. When in cupping, the blood continues to flow after the cupping-instrument has been removed, and if the flow of blood, or serum be copious, the instrument is to be applied again before the part is healed up, so as to abstract what is left behind. Otherwise coagula of blood will be retained in the incisions, and inflammatory ulcers will arise from them. In all such cases the parts are to be bathed with vinegar, after which they are not to be wetted; neither must the person lie upon the scarifications, but they are to be anointed with some of the medicines for bloody wounds. When the cupping-instrument is to be applied below the knee, or at the knee, it should be done, if possible, while the man stands erect.²

the more formidable operation practised by the ancients for the cure of varix, see the Commentary on PAULUS ÆGINETA, Book VI, 82, Syd. Soc. edit.

¹ The last two paragraphs, on venesection and cupping, have little or no connexion with the subject of this treatise. Very likely they are an appendix added to the work. Both these operations are more fully treated of in the work *De Medico*.

² The object in directing the cupping-instrument to be applied while the patient stands erect would seem to be, as Foë's remarks, that the skin will thus be in its natural state, and the blood will flow the more freely. Yet, although the direction seems to be a very proper one, it is not attended to by modern practitioners of the art of cupping.

ON FISTULÆ.

ON FISTULÆ.

THE ARGUMENT.

THIS little tract is evidently a continuation of the work 'On Ulcers,' and is equally replete with interesting and important matters. As stated in the Preliminary Discourse, the ancient authority in support of its genuineness is very strong.

In the first paragraph, the author gives an account of the formation of *fistulæ in ano*, which he attributes to tubercles, or to injuries inflicted on the parts adjoining to the anus, in riding, rowing, or from any such act of violence.

His first advice is, that the surgeon should lose no time in making an incision, even before the matter is fully formed. If the fistula already exist, the surgeon is to examine it with a stalk of fresh garlic. Then the herb seseli is to be given as a diuretic, and the bowels cleared out by means of purgatives. (§ 2.)

In the third paragraph is described the first method of treating fistula in ano, namely, by introducing into it a tent formed from a strip of linen (or cotton) cloth, smeared with the caustic juice of one of the spurges (*euphorbia*); after which a round ball, resembling a modern pessary, is directed to be introduced per anum, the object of which, as stated by Foës, may have been to expand the sore, so as to allow the caustic to be well diffused over it; or, perhaps, it was merely meant to keep the tent secured in the fistula. On the sixth day the tent is to be removed, and, the ball being filled with alum, it is to be again introduced, and allowed to remain for a time. The object of this second introduction of the ball, is not to me sufficiently clear; perhaps it was to keep the sides of the fistula expanded while in the process of healing. Myrrh is to be applied, probably with the intention of cleansing the sore.

In the fourth paragraph, the apolinose, or operation by the ligature, is described in a very minute and circumstantial

manner. No one who reads the description can mistake the principle of the operation, whatever difficulty he may find in understanding certain expressions contained in it. The object evidently is to cut open the fistula by gradually tightening a thread which has been passed through both its orifices, and at the same time to raise up a healthy action in the part. When the fistula is fairly laid open, pieces of sponge, smeared with some gentle escharotic, such as the flos aeris, are to be applied with the view of consuming the callous flesh, and keeping the fistula expanded until it heal equally.

In the fifth is described the treatment when the disease consists of several sinuses which are not all fairly laid open by the preceding process; in which case our author directs the sinuss to be syringed with a stimulant and escharotic injection, so as to remove all the callous parts.

In the sixth, a most accurate description is given of an acute attack of phlegmon in the neighbourhood of the anus, with the treatment thereof by hip-baths, cataplasms, suppositories, and various other stimulant and soothing applications.

In the seventh, strangury is correctly described upon the principles of the humoral pathology.

In the eighth paragraph, another common and very serious aggravation of these complaints is minutely described, and the treatment is carefully laid down. In certain cases, astringent and escharotic applications of a powerful nature are to be made.

In the ninth is described the mode of procedure when great difficulty is experienced in accomplishing the reduction of the gut. The treatment in this case consists in rest and the application of suitable astringents.

In the tenth is explained the treatment of prociencia ani when attended with a discharge of blood. It consists either of astringent cataplasms, containing wakerobin, wild vine, &c., or narcotics, such as the seed of hemlock.

In the eleventh is described the treatment when inflammation comes on. The applications consist of cataplasms, formed principally of astringent and sedative articles, such as ivy, mandrake, and the like.

When the pain is unattended with inflammation, the applications recommended are of a stimulant nature, such as natron, alum, roasted salts, the green leaves of capers, and the like;

but they are to be varied according to the nature of the complaint. See the last paragraph.

From what has now been stated with regard to the contents of this treatise, it will be readily allowed, that the author of it had formed a very correct idea of the nature of the disease; and that the plans of treatment he lays down are all very rational, and bespeak an accurate acquaintance with the subject.

Gruner and Ackerman argue against the genuineness of this treatise, from the circumstance of its containing a manifest allusion to the humoral pathology in the seventh paragraph. But if this were sufficient reason for regarding it as spurious, we ought, on the same grounds, to reject the Aphorisms, in which, as we have seen, there are frequent and decided allusions to the hypothesis of the humours. And it is to be borne in mind, that Galen invariably represents Hippocrates as the founder of the humoral doctrine.¹ Moreover, it is to be remarked, that the doctrine is introduced here in quite a practical form, without any of the systematic parade which the later authorities display in dealing with it. Ackerman further pronounces against its authenticity, on the ground that it is written in a confused style. Now this may be doubted; but if it were true, the inference which Ackerman draws from it would not be warrantable, as the same objection might be started against the authenticity of the works 'On Fractures,' 'On the Articulations,' and 'The Epidemics,' none of these treatises being at all remarkable for methodical arrangement.

¹ Comment. I, in Lib. de Nat. Human., tom. v, p. 11, ed. Basil; De Elem. Sec. Hippocr., i; De Nat. Facult., i.

ON FISTULE.

1. FISTULE are produced by contusions and tubercles, and they are also occasioned by rowing, or riding on horseback, when blood accumulates in the nates near the anus. For, having become putrid, it spreads to the soft parts (the breech being of a humid nature, and the flesh in which it spreads being soft), until the tubercle break and corrupt below at the anus. When this happens, a fistula is formed, having an ichorous discharge, and fæces pass by it, with flatus and much abomination. It is produced, then, by contusions when any of the parts about the anus are bruised by a blow, or a fall, or a wound, or by riding, or rowing, or any such cause. For blood is collected, and it, becoming corrupted, suppurates; and from the suppuration the same accidents happen, as have been described in the case of tubercles.

2. In the first place, then, when you see any such tubercle formed, you must cut it open while still unripe, before it suppurate and burst into the rectum. But if a fistula be already formed when you undertake the case, take a stalk of fresh garlic,¹ and having laid the man on his back, and separated his thighs on both sides, push down the stalk as far as it will go, and thereby measure the depth of the fistula. Then, having bruised the root of seseli² to a very fine powder, and poured in some water, let it macerate for four days, and, mixing the water with honey, let the patient drink it, fasting, to the amount of three cyathi, and at the same time purge away the ascarides. Those who are left without treatment die.

3. In the next place, having moistened the strip of cotton cloth,³ with the juice of the great tithymallus,⁴ and sprinkling

¹ Instead of the stalk of fresh garlic, PAULUS ÆGINETA recommends a hog's bristle, or a sound to be used in exploring the fistula (B. VI, 78).

² Most probably the *Seseli tortuosum*. See Dierbach, &c. p. 187, and PAULUS ÆGINETA, Vol. III, p. 330. All the ancient authorities hold it to be a powerful diuretic, and probably it is here recommended for this purpose.

³ Ὀθόριον βύσσινον may either signify "cotton cloth," or "linen cloth." For although the βύσσοσ of Theophrastus (H. P. iv, 9) be unquestionably the ἐνδρον ἔριοφόρον, or cotton tree (*Gossypium arboreum*), it is now well ascertained that the mummy cloth to which Herodotus applies the name (βύσσοσ), (vii, 181), is linen. I need scarcely remark that either cotton or linen cloth will serve the purpose of forming a tent to be used as directed by our author.

⁴ Some species of the *Euphorbia*, probably the *characias*. See Dierbach, &c. p. 111; and PAULUS ÆGINETA, Vol. III, p. 374.

on it the flos æris, roasted and triturated, and having made it into a tent equal in length to the fistula, and having passed a thread through the ends of the tent and again through the stalk, and having placed the patient in a reclining position, and having examined the ulcerated parts of the rectum with a speculum, pass the stalk by it, and when it reaches the rectum, take hold of it and draw it out until the tent be pushed through, and be brought on a level above and below. When it (*the tent?*) has been pushed inwards, introduce a ball of horn¹ into the rectum (the rectum having been previously smeared with Cimolian chalk), and leave it there, and when the patient wants to go to stool, let it be taken out and again replaced, and let this practice be continued for five days. On the sixth day let it be removed, and drawing the tent out of the flesh, and afterwards pounding alum and filling the ball (*pessary?*) and introducing it into the rectum, leave it until the alum melts. Anoint the rectum with myrrh until the parts appear to be united.²

4. Another method of cure:—Taking a very slender thread of raw lint,³ and uniting it into five folds of the length of a span, and wrapping them round with a horse hair; then having made a director (specillum) of tin, with an eye at its extremity, and having passed through it the end of raw lint wrapped round as above described, introduce the director into the fistula, and, at the same time, introduce the index finger of the left hand *per anum*; and when the director touches the finger, bring it out with the finger, bending the extremity of the director and the end of the threads in it, and the director is to be withdrawn, but the ends of the threads are to be knotted twice or thrice, and the rest of the raw threads is to be twisted round

¹ Meaning perhaps a small pessary in the modern sense of that term.

² The method of treating fistulæ by tents, impregnated with some caustic, such as the juice of the spurge is here very circumstantially described, and although some parts of the description be somewhat obscure, the general import of it cannot be mistaken. Other corrosive substances are recommended by Paulus Ægineta, B. iv, 49; and Celsus, vi, 78.

³ The thread of raw lint (*ὀμόλινον*) was evidently a sort of flaxen thread, but in what manner it was prepared, and what was its exact texture, I cannot pretend to explain satisfactorily. As far as regards the principle of the operation, this, however, is not of much consequence; for a cotton, a flaxen, or a silk thread, would evidently serve the purpose.

and fastened into a knot. Then the patient is to be told that he may go and attend to his matters.¹ The rest of the treatment:—Whenever any part of the thread gets loose owing to the fistula becoming putrid, it is to be tightened and twisted every day; and should the raw thread rot before the fistula is eaten through, you must attach another piece of raw thread to the hair, pass it through, and tie it, for it was for this purpose that the hair was rolled round the raw lint, as it is not liable to rot. When the fistula has sloughed through, a soft sponge is to be cut into very slender pieces and applied, and then the flowers of copper, roasted, are to be frequently applied with a director; and the sponge smeared with honey is to be introduced with the index finger of the left hand, and pushed forwards; and another bit of sponge being added, it is to be bound on in the same manner as in the operation for hemorrhoids. Next day, having loosed the bandages, the fistula is to be washed with hot water, and cleaned, as far as possible, with the finger of the left hand by means of the sponge, and again the flos æris is to be applied. This is to be done for seven days, for generally the coat of the fistula takes that time to slough through. The same mode of bandaging is to be persevered in afterwards, until the cure be completed. For in this way, the fistula being forcibly expanded by the sponge will not fill up and heal unequally, but it will all become whole together. During the treatment, the part should be bathed with plenty of warm water, and the patient kept on a spare diet.²

¹ This seems to be our author's meaning, which is thus expressed by Celsus, "interdum autem licet negotia agere, ambulare, lavari, cibum capere perinde ac sanissimo."

² The operation called apolinose, that is to say, by the ligature, is very celebrated. It is described by Paulus Ægineta, in the words of our author, at Book vi, 78; and by Celsus in very distinct terms (vii, 4). It is now greatly fallen into disuse in this country; but as the operation with the scalpel sometimes, in the hands of the most experienced surgeons, is followed by fatal hemorrhage, I do not see why the ligature should be discarded in all cases. See the history of the operation in Sprengel's History of Medicine, tom. vii, French edition; and at PAULUS ÆGINETA, Book VI, 78, Syd. Soc. edit. The operation with the ligature is described by Malgaigne in his Operative Surgery, but he represents it as being tedious and painful. From our author's description, it would appear that his method consisted in introducing a small bundle of threads into the fistula for the purpose of raising an increased action of the vessels in the part. In principle, then, his plan would seem to have resembled that which is recommended by Laugenbeck in such cases. It is

5. When the fistula does not get eaten through, having first examined it with a sound, cut down as far as it passes, and sprinkle with the flos æris, and let it remain for five days. Then pour warm water upon it, and above lay flour mixed with water, and bind on it the leaves of beet. When the flos æris comes away, and the fistulous sore becomes clean, cure it as before described. But if the fistula be in a part which does not admit of this treatment, and if it be deep, syringe it with the flowers of copper, and myrrh, and natron, diluted with urine, and introduce a piece of lead into the orifice of the fistula so that it may not close. Syringe the fistula by means of a quill attached to a bladder, so that the injection may distend the fistula. But it does not heal unless it be cut open.

6. If the anus gets inflamed, and there is pain, fever, a frequent desire of going to stool without passing anything, and the anus appears to protrude, owing to the inflammation, and if at times strangury come on, this disease is formed, when phlegm, collected from the whole body, is determined to the rectum.¹ Warm things are beneficial in this case; for these, when applied, can attenuate and dissolve the phlegm, and dilute the acrid and salt particles, so that the heat subsides, and the irritation in the rectum is removed. Wherefore it is to be treated thus:—The patient is to be put into a hip-bath of hot water, and sixty grains of the grana guidia² are to be pounded and infused in a hemina of wine, with half a hemina of oil, and injected. This

thus described by Chelius: “In still longer continued fistulous passages, especially when their walls have become callous, we endeavour to excite a proper degree of inflammation of the walls of the passage, usually by the introduction of a seton, or of a bundle composed of many threads, which is tied together externally upon the fistulous passage, and daily drawn tighter. According to Langenbeck, the introduction of a ligature is, in many cases, preferable to incision, which oftentimes is impracticable, without injuring large vessels, and so on. By the ligature inflammation is produced, good consistent pus and granulations are produced, &c. As these symptoms come on, the ligature is to be gradually drawn tighter.” (English edition by South, vol. i, p. 93.) The operation with a single thread was strongly recommended lately by Luke of the London Hospital. See *Lancet*, vol. i, 1845, new series. It is also advocated by Mr. Bransby Cooper, *Med. Gaz.*, 1093.

¹ In this paragraph our author evidently describes a case of phlegmon, which usually precedes *fistula in ano*. See Pott, and Cooper's *Surgical Dictionary*, under this head, where very similar descriptions are given.

² The fruit of the *Daphne guidium*. See PAULUS ÆGINETA, Vol. III, 179. The grains are recommended in this case to form a stimulant injection.

brings away phlegm and fæces. When the patient does not take the hip-bath, boil eggs in dark-coloured fragrant wine, and apply to the anus, and spread something warm below, either a bladder filled with warm water, or linseed toasted and ground, and its meal stirred up and mixed equally with dark, fragrant wine, and oil, and thus applied very warm as a cataplasm; or, having mixed barley and Egyptian alum pulverized, form into an oblong ball (*suppository*?) and warming it gently at the fire, make it into a cataplasm, foment, form it into shape with the fingers, and then making it quite tepid, introduce it into the anus. The external parts are to be anointed with cerate, and a cataplasm of boiled garlic, with dark wine diluted, is to be applied. But if you remove these things, let him take the hip-bath of hot water, and having mixed together the juice of strychnos, the grease of a goose, swine's scam, chrysocolla,¹ rosin, and white wax, and then having melted in the same and mixed together, anoint with these things, and while the inflammation lasts, use the cataplasm of boiled garlic. And if by these means he be freed from the pain, it is enough; but if not, give him the white meconium (*Euphorbia pepulus*?), or, if not it, any other phlegmagogue medicine. While the inflammation lasts, the diet should be light.

7. The strangury comes on in this way:—The bladder being heated from the rectum, phlegm is attracted by the heat, and by the phlegm (*inflammation*?) the strangury is occasioned. If, then, as is frequently the case, it cease with the disease, well; but, if not, give any of the medicines for strangury.²

8. If proidentia ani take place, having fomented the part with a soft sponge, and anointed it with a snail,³ bind the man's hands together, and suspend him for a short time, and the gut will return. But if it still prolapse, and will not remain up, fasten a girdle round his loins and attach a shawl behind, and having pushed up the anus, apply to it a soft sponge, moistened with hot water in which the shavings of lotus have been boiled; pour of this decoction upon the anus by squeezing the sponge, then, bringing the shawl below between

¹ Probably an impure carbonate of copper. See PAULUS ÆGINETA, Vol. III, 416.

² On the complication of phlegmon of the rectum with strangury, see further, Aph. v, 58, vii, 13; Int. Affect. xli, 6.

³ No doubt the *Helix pomatia*.

the legs, fasten it at the navel. But if he wish to evacuate the bowels, let him do so upon a very narrow night-stool. Or, if the patient be a child, let him be placed on the feet of a woman, with his back reclined to her knees,¹ and when the bowels are evacuated, let the legs be extended. In this way the anus will be the least disposed to fall out. When a watery and ichorous discharge flows from the rectum, wash it out with burnt lees of wine,² and water from myrtle, and having dried maiden-hair,³ pound and sift it, and apply as a cataplasm. But if there be a discharge of blood, having washed with the same, and pounded chalcitis, and the shavings of cypress,⁴ or of juniper, or of stone-pine,⁵ or of turpentine, the latter in equal proportions with the chalcitis, apply as a cataplasm. Anoint the external parts with thick cerate.

9. When the gut protrudes and will not remain in its place, scrape the finest and most compact silphium (*assafœtida*?) into small pieces and apply as a cataplasm, and apply a sternutatory medicine to the nose and provoke sneezing; and having moistened pomegranate rind with hot water, and having powdered alum in white wine, pour it on the gut, then apply rags, bind the thighs together for three days, and let the patient fast, only he may drink sweet wine. If even thus matters do not proceed properly, having mixed vermilion with honey, anoint.

10. If procidentia ani be attended with a discharge of blood, pare off the rind of the root of wakerobin, then pound and mix flour with it, and apply it warm as a cataplasm. Another:—Having scraped off the rind of the most tender roots of the wild vine, which some call *psilothrion*, boil in a dark austere wine undiluted; then having pounded, apply as a tepid cataplasm; but mix also flour and stir it up with white wine and

¹ This singular substitute for a nursery night-table I have never seen mentioned by any other author, as far as I can recollect. The object of the contrivance here mentioned evidently is to prevent the child from straining hard, so as to bring down the gut.

² This, no doubt, was an impure caustic potass. See PAULUS ÆGINETA, Vol. III, 185, and II, 265.

³ The *Adiantum capillus Veneris*. See PAULUS ÆGINETA, B. III, 22; and Dierbach, &c. 86.

⁴ The *Cupressus sempervirens*, Vet. iii, 204, Dierbach, &c. 218.

⁵ Namely, the *Pinus pinea*. L. See PAULUS ÆGINETA, Vol. III, 302; and Dierbach, &c. p. 215.

oil in a tepid state. Another:—Having pounded the seed of hemlock, pour on it a fragrant white wine, and then apply in a tepid state as a cataplasm.

11. But if it be inflamed, having boiled in water the root of the ivy, finely powdered, and mixing the finest flour, and stirring it up with white wine, apply as a cataplasm, and mix up some fat with these things. Another:—Take the root of the mandrake, especially the green (fresh) root, but otherwise the dried, and having cleaned the green root and cut it down, boil in diluted wine, and apply as a cataplasm; but the dry may be pounded and applied as a cataplasm in like manner. Another:—Having bruised the inner part of a ripe cucumber to a soft state, apply as a cataplasm.¹

12. If there be pain without inflammation, having roasted red natron and pounded it to a fine powder, and added alum and roasted salts,² finely triturated, mix together in equal proportions; then having mixed it up with the best pitch and spread upon a rag, apply, and bind. Another:—Having pounded the green leaves of capers, put into a bag and bind on the part; and when it appears to burn, take it away and apply it afterwards; or, if you have not the leaves of capers, pound the rind of its roots, and having mixed it up with dark-coloured wine, bind on the part in the same manner. This is a good application also for pains of the spleen. Of these poultices, those which are cooling, stop the discharge; those which are emollient and heating, discuss; and those which are attractive, dry up and attenuate. This disease is formed when bile and phlegm become seated in the parts. When the anus is inflamed, it should be anointed with the ointment, the ingredients of which are rosin, oil, wax, plumbago, and suet, these being all melted and applied quite hot as a cataplasm.

¹ One cannot help being struck with the admirable judgment with which the ingredients in these cataplasms are selected. What articles so likely to soothe irritation and allay pain, as hemlock, mandragora, cucumber, and the like?

² The process of roasting salts is minutely described by Dioscorides (v, 125).

ON HEMORRHOIDS.

ON HEMORRHOIDS.

THE ARGUMENT.

THAT this little work is a continuation of the preceding one 'On Fistulæ,' is admitted by all the authorities, ancient and modern.

In the first paragraph is described the formation of hemorrhoids from bile or phlegm, which are determined to the rectum and inflame the blood in the veins, so that they become gorged, and the gut swells, and when the parts are injured by the passage of hard fæces, the vessels squirt out blood.

In the second, the author boldly declares that such operations as those of cutting, sewing, binding, and applying septics to the anus, although formidable in name, are by no means so much so in reality, as might be suspected. He then describes in very lucid terms the method of applying the actual cautery to the hemorrhoids. He directs the patient to be properly secured, and the piles having been made to protrude, are to be burnt by means of red-hot irons. The after-treatment is then distinctly laid down, first by cataplasms and by means of a soft sponge, secured with a shawl.

In the third, the operation of excising the hemorrhoids is described along with the subsequent management by means of astringent applications and a piece of sponge.

In the fourth, the condyloma is described, and the mode of operating upon it when it protrudes is most minutely described. He directs that the tumour should be torn away with the finger, and the decoction of galls applied to the place.

In the fifth is described the proper mode of procedure when the tumour is far up the rectum. The great principle of treatment which he lays down is to remove it by the roots, in which case, he says, there is no risk of bleeding, whereas, if it

be separated elsewhere, there will be a dangerous discharge of blood.

In the sixth is described the process of burning the hemorrhoid, first by means of an iron conducted within a canula, or if neither excision nor the actual cautery be practicable, with caustics, by means of which, he says, the pile will separate like a piece of burnt hide. The ingredients in his applications are sulphate of copper, alum, and the like.

In the last paragraph is given the treatment of what was described by the ancients as hemorrhoids of the female parts of generation. It consists in fomenting them with certain things of a soothing and stimulant nature.

What gives this treatise the most interest is the description contained in it of the method of curing hemorrhoids by the actual and potential cauterics. Neither of these methods are much known in this country, but both are often practised in France. The caustic most frequently used is the Vienna paste, which, I believe, is a preparation from the potassa fusa. It is applied by means of a forceps, *porte-caustique*. I have often applied successfully the simple caustic potass. The French surgeons also operate with the actual cautery. See the English edition of Malgaigne's Operative Surgery, p. 445.

ON HEMORRHOIDS.

1. THE disease of the hemorrhoids is formed in this way: if bile or phlegm be determined to the veins in the rectum, it heats the blood in the veins: and these veins becoming heated attract blood from the nearest veins, and being gorged the inside of the gut swells outwardly, and the heads of the veins are raised up, and being at the same time bruised by the feces passing out, and injured by the blood collected in them, they squirt out blood, most frequently along with the feces, but sometimes without feces. It is to be cured thus:

2. In the first place it should be known in what sort of a place they are formed. For cutting, excising, sewing, binding, applying putrefacient means to the anus,—all these appear to be very formidable things, and yet, after all, they are not

attended with mischief. I recommend seven or eight small pieces of iron to be prepared, a fathom in size, in thickness like a thick specillum, and bent at the extremity, and a broad piece should be on the extremity, like a small obolus.¹ Having on the preceding day first purged the man with medicine, on the day of the operation apply the cautery. Having laid him on his back, and placed a pillow below the breech, force out the anus as much as possible with the fingers, and make the irons red-hot, and burn the pile until it be dried up, and so as that no part may be left behind. And burn so as to leave none of the hemorrhoids unburnt, for you should burn them all up.² You will recognise the hemorrhoids without difficulty, for they project on the inside of the gut like dark-coloured grapes, and when the anus is forced out they spirt blood. When the cautery is applied the patient's head and hands should be held so that he may not stir, but he himself should cry out, for this will make the rectum project the more. When you have performed the burning, boil lentils and tares, finely triturated in water, and apply as a cataplasm for five or six days. But on the seventh, cut a soft sponge into a very slender slice, its width should be about six inches square. Then a thin smooth piece of cloth, of the same size as the sponge, is to be smeared with honey and applied; and with the index finger of the left hand the middle of the sponge is to be pushed as far up as possible; and afterwards wool is to be placed upon the sponge so that it may remain in the anus. And having girded the patient about the loins and fastened a shawl to the girdle, bring up this band from behind between the legs and

¹ I would direct the attention of my surgical readers to the form of the ancient cautery *or* burning iron; it resembled a small coin, that is to say, it was a disc. I have often thought that modern practitioners in surgery erred in making their cauteries globular, instead of making them flat discs like the ancient. Several of the burning irons delineated by Scultet are of this shape. See, in particular, Tab. xxxviii, f. 4. *Le cautère nummulaire* of the French surgeons is formed exactly upon the model of the ancient cautery here noticed by Hippocrates. See Malgaigne, Méd. Opérat., p. 22. He describes it as being "un disque de douze lignes de diamètre sur quatre d'épaisseur."

² This is contrary to the advice given at Aph. vi, 12, and is the only passage in this small tract which would lead me to question its genuineness. Celsus (ii, 7) and Paulus Ægineta (B. VI, 79) follow the rule laid down in the Aphor. (l. c.) Aetius, on the other hand, is an advocate for the practice here recommended. (Tetr. iv, 2, 5.)

attach it to the girdle at the navel. Then let the medicine which I formerly said is calculated to render the skin thick and strong, be bound on. These things should be kept on for not less than twenty days. The patient should once a day take a draught from flour or millet, or bran, and drink water. When the patient goes to stool the part should be washed with hot water. Every third day he should take the bath.¹

3. Another method of cure:—Having got the anus to protrude as much as possible, foment with hot water, and then cut off the extremities of the hemorrhoids. But this medicine should be prepared beforehand, as an application to the wound:—Having put urine into a bronze vessel, sprinkle upon the urine the flower of bronze calcined and finely triturated; then, when it is moistened, shake the vessel and dry in the sun. When it becomes dry, let it be scraped down and levigated, and apply with the finger to the part, and having oiled compresses, apply them, and bind a sponge above.²

4. Another method:—There grows upon the bleeding condyloma,³ a protuberance like the fruit of the mulberry, and if the condyloma be far without, an envelope of flesh is adherent to it. Having placed the man over two round stones⁴ upon his knees, examine, for you will find the parts near the anus between the buttocks inflated, and blood proceeding from within. If, then, the condyloma below the cover be of a soft nature, bring it away with the finger, for there is no more difficulty in this than, in skinning a sheep, to pass the finger between the hide and the flesh. And this should be accomplished without the patient's knowledge, while he is kept in conversation. When the condyloma is taken off, streaks of blood necessarily flow from the whole of the torn part. It must be speedily washed with a decoction of galls, in a dry

¹ The treatment of hemorrhoids by the cautery is not described by Celsus, Paulus, or Albucasis, and is condemned by Andreas a Cruce.

² I need scarcely remark that the operation of excising hemorrhoids has been revived of late years, but that it is not devoid of danger. Sir Astley Cooper relates cases in which it was followed by fatal hemorrhage. The application recommended by our author is probably intended, in a great measure, for restraining the bleeding.

³ This is a term still in use. See Liston's *Pract. Surg.* The treatment of condyloma ani is minutely given by Celsus, vi, 18, and vii, 30.

⁴ Or mortars, meaning those used in houses for pounding corn. See Hesychius, and Foes in his annotations on this place.

wine, and the bleeding vein will disappear along with the condyloma, and its cover will be replaced. The older it is, the more easy the cure.

5. But if the condyloma be higher up, you must examine it with the speculum, and you should take care not to be deceived by the speculum; for when expanded, it renders the condyloma level with the surrounding parts, but when contracted, it shows the tumour right again. It is to be removed by smearing it with black hellebore on the finger. Then, on the third day, wash it out with a dry wine. You need not be surprised that there is no discharge of blood when you remove the condyloma, for neither, if you cut off the hands or legs at the articulations will there be any flow of blood; but if you cut them off above or below the joints, you will find there hollow veins which pour out blood, and you will have difficulty in stopping the bleeding. In the same manner, the bleeding vein in the anus, if you cut it above or below the point of separation of the condyloma, will pour forth blood; but if you take away the condyloma at its junction (*with the natural parts?*) there will be no flow of blood.¹ If matters then be thus put to rights, it will be well; but otherwise burn it, taking care not to touch the place with the iron, but bringing it close so as to dry it up, and apply the flos æris in the urine.

6. Another method of curing hemorrhoids:—You must prepare a cautery like the *arundo phragmites*,² and an iron that exactly fits is to be adapted to it; then the tube being introduced into the anus, the iron, red hot, is to be passed down it, and frequently drawn out, so that the part may bear the more heat, and no sore may result from the heating, and the dried veins may heal up. But if you are neither disposed to burn

¹ The directions given by Celsus are to the same effect: “At tubercula, quæ κοῦνλώματα appellantur, ubi induruerunt, hæc ratione curantur. Alvus ante omnia ducetur; tum vulsella tuberculum apprehensum juxta radices exciditur.” (vii, 30, 2.)

² I have no doubt that this is the reed described by Dioscorides, i, 114. The meaning of our author, I suppose, is, that the canula used in burning internal hemorrhoids should resemble the stalk of the *Arundo phragmites*. I think it remarkable that the ingenious mode of procedure here described should not be noticed by any of the subsequent authorities on operative surgery. The use of the canula, however, in the application of the cautery for the purpose of stopping bleeding arteries, is not unknown at the present day. See South's edition of Chelius, &c., vol. i, p. 315; and Malgaigne's Operative Surgery, p. 16, English edition. The cautery with the canula is well delineated by Scultet, *Arm. Chirurg.*, t. xvi.

nor excise, having first fomented with plenty of hot water and turned out the anus, levigate myrrh, and having burnt galls and Egyptian alum, in the proportion of one and a half to the other things, and as much of melanteria;¹ these things are all to be used in a dry state. The hemorrhoid will separate under the use of these medicines, like a piece of burnt hide. You are to proceed thus until the whole are removed, and a half part of burnt chalcitis does the same thing. But if you wish to effect the cure by suppositories, take the shell of the cuttle fish, a third part of plumbago, bitumen, alum, a little of the flos æris, galls, a little verdigris; having poured a small quantity of boiled honey on these, and formed an oblong suppository, apply until you remove them.²

7. An hemorrhoid in a woman may be thus cured. Having fomented with plenty of hot water, boil in the water certain of the fragrant medicines, add pounded tamarisk, roasted litharge and galls, and pour on them white wine, and oil, and the grease of a goose, pounding all together. Give to use after fomenting. In fomenting, the anus is to be made to protrude as much as possible.³

¹ Probably "the ferruginous arseniate of copper." See PAULUS ÆGINETA, Vol. III, p. 211, Syd. Soc. edit. It is proper to mention, that there is a mistake there in stating that this substance is not mentioned by Hippocrates.

² This method of removing internal piles by means of caustics and septics, is described by Celsus, Aëtius, and Paulus. Of the ingredients which they contain, the most powerful is arsenic. I have more than once removed hemorrhoids by means of the *pitassa fusa*, and *condylomata* by preparations of arsenic.

³ On this subject, see the authorities quoted in the Commentary on PAULUS ÆGINETA, Book VI, 71, Syd. Soc. edit.

ON THE SACRED DISEASE.

ON THE SACRED DISEASE.

THE ARGUMENT.

I HAVE stated, under the proper head in the Preliminary Discourse, my reasons for deciding to allow this treatise a place among the genuine works of Hippocrates. Though it must be admitted that, both in style and matter, it bears but little resemblance to the other authentic productions of our author, it would be contrary to the critical rules which I formerly laid down, were I to reject a treatise which has so respectable an amount of ancient authority on its side. I shall proceed, then, to give a brief outline of its contents, and afterwards subjoin a few remarks on certain interesting subjects connected with it.

The author enters at once upon the controverted question, whether or not epilepsy be a sacred disease; that is to say, whether or not it be an infliction from the gods. Here, as in the treatise 'On Airs, Waters, Places,' he decidedly maintains that there is no such thing as a sacred disease, for that all diseases arise from natural causes, and no one can be consistently ascribed to the gods more than another. He argues that the only reason for its having been regarded as divine is, that its nature is incomprehensible; but upon this principle, he justly remarks, many other diseases, the nature of which is above the level of human understanding, such as the paroxysms of intermittent fevers, might be set down as divine. He does not hesitate to declare it as his opinion that epilepsy had been referred to a supernatural cause by persons who pretended to cure it by spells and purifications, and who sought to screen their own want of ability to effect anything in the way of remedy under the pretext that it was an infliction from the gods. He points out very acutely the cunning of these impostors in not actually prescribing anything for the cure of it, as in this case their want of skill must have been made apparent

to everybody; and in merely enjoining certain restrictions with regard to food and the modes of life, so that if any improvement should take place the credit would be theirs; whereas, if the patient got worse, the blame could be laid on the gods. Our author's train of reasoning on this head is most logical and conclusive. He argues, that if these persons had the power of removing disease, they must also have the power of inducing it, and consequently they would be superior to the gods themselves. He further contends, that if magical arts could effect what they are represented as being capable of, that is to say, could darken the sun and pull down the moon, it would follow that these celestial objects are not of a divine nature, seeing they are mastered by human power. He then enters into a most convincing line of argument against those who pretended to cure epileptics by purifications; contending that if these persons were in reality possessed by a god, their bodies would be purified, instead of polluted, by the presence of a divine being.

He further argues against the supposition that the disease is divine from the known fact that it is hereditary, for which he attempts to account upon physiological principles. He also contends that it particularly attacks persons of a peculiar temperament, namely, the pituitous, which he justly contends would not be the case if the disease were derived from a supernatural source.

He goes on to state, that the disease is connected with the brain; and of the blood-vessels which connect it with the trunk he gives a description which cannot but appear to us very remarkable. It bears some resemblance to the description of the vascular system contained in the treatise 'On Human Nature,' but is not quite so far removed from modern ideas on the subject. There are, also, certain points of resemblance between it and the description of them given in the Second Book of Epidemics. One of his leading doctrines regarding the veins, is that they are the spiracles of the body, and inhale the pneuma (or spirits) by the lungs, and carry it to the surface of the body, where it passes out of the system by the exhalents. The pneuma (or breath) he holds to be the vehicle of sensibility to all parts of the body, and hence, if its course be intercepted, the part beyond becomes insensible.

He goes on to enlarge upon the connexion of the disease with the brain, a doctrine which he illustrates by a pretty full exposition of the humoral pathology as illustrated by various defluxions upon different parts of the body. It is important to remark that he represents eruptions of ulcers on the head and other parts of the body in infancy, as being calculated to ward off the attack of serious diseases in after life. Local diseases are accounted for as being occasioned by defluxions on particular parts, and the epileptic paroxysm is described as being a struggle between the humours and pncuma in the vessels. This hypothesis he explains very elaborately. Epileptic convulsions are represented as being generally fatal to children, because their veins are small, and cannot admit the defluxion. He gives a curious account of a natural cure which the disease sometimes undergoes, by fixing upon some member of the body, such as the mouth, the eye, the neck, or the hand. In adults this does not take place, as their vessels are large, and the blood is not choked by the influx of the phlegm. When the disease seizes old persons it is apt to induce fatal attacks of apoplexy, owing to the scantiness of the blood in their veins, which is coagulated by the cold defluxion.

The formation of the disease in children is ascribed to a melting down of the brain, owing to exposure to heat, and to an excretion from the same. In some cases it is occasioned by the south wind succeeding to cold north winds, and it is also sometimes produced by sudden fear. In old persons the disease is most commonly engendered in winter, and in that season the transitions from the one state to the other are apt to be attended with the most fatal consequences; and this may happen at any season of the year, and in spring more frequently than in summer, as in the former season the changes are more sudden than in the latter. After the twentieth year, epilepsy is not apt to take place, as the brain by that time is consistent, so that it does not readily melt down, and the blood in the veins is copious. But if the disease had become habitual from childhood, in such a case attacks are apt to occur during changes of the weather, more especially during the prevalence of the south winds, whereby the brain is rendered more humid. That the disease is produced by humidity of the brain, he shows

from what is observed in the inferior animals who are subject to it; for if the brain of a goat so affected be dissected, it will be found to be watery, and to have a bad smell. This, he acutely argues, is an ocular proof that in them it is not a god, but a disease, which infests their body; and he infers, from analogy, that the case is the same with man.

Children he represents as being most liable to attacks during the prevalence of south winds, the effects of which upon all bodies exposed to it, he describes in very striking terms; and hence forms a strong argument in support of his opinion, that the south wind has a great effect upon the brain, and thereby superinduces this disease. He thereupon gives a very interesting exposition of the humoral pathology in explanation of the origin of epilepsy and catarrhs. He afterwards repeats his former declaration, that epilepsy is no more a divine disease than any other is, but has its seat in the brain, which he holds to be the organ of the senses and of the intellect,—that, in a word, it is the part by which we know, feel, think, and judge what is right and what is wrong, what is foul and what is fair,—that it is the seat of the passions, and the organ which is deranged in cases of insanity. These maniacal affections he holds to be connected with phlegm and bile, and the varieties of them he describes very circumstantially. The more violent of them are referred to the bile, and the opposite class to the phlegm. He argues that the *pneuma* (breath or spirits) passes direct to the brain, and thence is distributed to all parts of the body. He contends that the diaphragm has nothing to do with feeling and sensibility, as its name would imply, any more than the auricles of the heart have to do with the sense of hearing. He further argues against the physiological hypothesis, that the heart is the part in which thought and the mental emotions are seated. The work concludes with another repetition of his declaration, that the disease is no more divine than any other, and he contends that by studying the intemperaments, and administering such things as are calculated to correct each of them, the physician may hope to accomplish the cure of epilepsy, as well as of other diseases, provided he will abandon the use of spells, purifications, and other illiberal tricks of the same nature.

From this brief outline of its contents, the reader cannot

fail to perceive that the work is highly interesting, and of a very original nature. The argument here directed against the vulgar belief that epilepsy is derived from a supernatural cause, is perfectly conclusive. If, as here laid down, epilepsy obey the same laws as diseases universally admitted to be sprung from natural causes,—if, like certain of them, it be hereditary, and attack peculiar temperaments, and if it be seated in a particular organ of the body, it is contrary to all sound logic to set it down as divine, and the others as natural.

There are two subjects touched upon in this treatise, which are so abstruse, and at the same time so important, that I cannot omit the present occasion of attempting to throw some light upon them,—I allude to the philosophical doctrine regarding the pneuma, and the hypothesis whereby the nature of epilepsy is explained.

From the exposition of the ancient physical doctrines given in the Third Section of the Preliminary Discourse, it will be readily understood that the higher classes of the philosophers agreed in holding that all activity, intelligence, and force, are derived from mind,—that, in a word, *it* is the active power in all and each of the bodies which compose the universe. Hence a sententious poet of a somewhat earlier date than our author, ventured to proclaim that—

“’Tis Mind that sees, and Mind that hears; all other things are deaf and blind.”¹

But although the philosophers taught that mind is the only active principle in the universe, they maintained that it performs all its operations through the instrumentality of a refined material substance, which partakes of the nature of light or fire. Thus, in the animal frame they recognised the existence of a pneuma, that is to say, a breath or spirit, which they held to be a sort of ethereal matter, that serves as the vehicle of the intellectual and sentient principle, by the instrumentality of which, the latter was supposed to operate upon the organs of the body. The pneuma, in short, is not mind, but its first instrument in all living creatures.² But, as we have stated in

¹ Νοῦς ὁρᾷ καὶ τοῦς ἀκόνει· τ’ ἄλλα νοσῶν καὶ τυφλά. (Clemens Alex., tom. i, p. 412, ed. Pott.; Maximus Tyrius, i.) I may mention that it is doubtful whether the last clause of the line be genuine. It does not occur in Maximus Tyrius.

² On this subject the reader may find it interesting to consult the notes of Mosheim

the Preliminary Discourse, the author of one of the Hippocratic treatises, would seem to have confounded mind with heat, and the same idea runs through the present work, where it certainly appears that Hippocrates (or whoever was the author of the work) expresses himself as if he held the opinion that breath and the soul are the same thing.¹ This, I say, would seem to be the doctrine which our author holds, but, as we stated before, his ideas on ^{αἰθέρα} abstruse points of philosophy are not always so well defined as could have been wished; in short, he had not learned, like his immediate successor, Aristotle, to distinguish accurately between the immaterial principle and its primary instrument. Nor is this to be wondered at, when we reflect that a similar confusion of ideas prevails with many writers of the present day who maintain that some electrical or magnetical substance is the principle of life in all animals, and do not perceive the necessity of admitting an immaterial principle, as the conductor of its operations. Altogether, it is impossible not to remark a most striking coincidence between the tenets of the ancient philosophers regarding a *pneuma*, and those of certain modern mesmerists respecting a magnetical principle existing in the microcosm.

With regard to the cause of epilepsy, it will be remarked that our author assigns its seat to the brain, and holds that the *materies morbi* is a cold phlegm or *pituita*, secreted in that organ,

on Cudworth's Intellectual System, pp. 1076, 1099, 1172; edit. 1723. The opinions of Aristotle may be learned from the third chapter of the Second Book, De Generatione. A tenet, which has been always reckoned peculiar to him, is that the spirit is analogous to the substance of which the stars are composed, by which he probably meant ether, that is to say, light or heat. This would appear to have been a doctrine very generally maintained in ancient times; it forms part of the popular philosophy of the Augustan age, as expounded by Virgil in the Sixth Æneid, l. 724. The poet here describes the *pneuma* as being "aura simplicis ignem;" and in the Georgics he calls it "aethereos haustus." (iv, 220.) The best modern exposition of the ancient doctrines regarding the *pneuma*, is that by Abraham Kaan, in his work, *Perspiratio Dieta Hippocrati*, which is replete with acute and profound views on many points connected with philosophy and physiology. The reader will also find much delightful information on the higher philosophy of the ancients in Berkeley's *Siris*, a most profound and original work. The doctrine of the *pneuma* thus broached by Hippocrates gave rise, several centuries afterwards, to a very important sect called the Pneumatic. On it, see in particular the French edition of Sprengell's *Hist. of Med.*, tom. ii, p. 69; and the Preliminary Disquisition to Boerhaave's edition of Aretæus.

¹ Moses would seem to identify breath and the vital principle. See Genesis, ii, 7.

which passing down into the blood-vessels, and encountering the *pneuma*, or principle of life, produces those dreadful convulsions to which epileptics are subject. I may be permitted to state, that this doctrine of our author's, respecting a cold pituitous humour or phlegm secreted in the brain, is decidedly adopted by Aristotle, who probably received this, as he did most of his physiological opinions, from Hippocrates.¹ Lucretius, the Epicurean poet, also, although he rejects the mental philosophy of the Platonists and Peripatetics, espouses an hypothesis quite similar to our author's, in order to account for the phenomena of epilepsy. The description is so striking, that I subjoin a literal translation of it, by Mason Good :

“ Oft too some wretch, before our startled sight,
Struck as with lightning, by some keen disease,
Drops sudden :—by the dread attack o'erpowered
He foams, he groans, he trembles, and he faints ;
Now rigid, now convulsed, his labouring lungs
Heave quick, and quivers each exhausted limb.
Spread through the frame, so deep the dire disease
Perturbs his spirit ; as the briny main
Foams through each wave beneath the tempest's ire.
He groans since every member smarts with pain,
And from his inmost breast, with wontless toil,
Confused and harsh, articulation springs.
He raves since soul and spirit² are alike
Disturbed throughout, and severed each from each
As urged above distracted by the hanc.
But when, at length, the morbid cause declines,
And the fermenting humours from the heart
Flow back—with staggering foot the man first treads.
Led gradual on to intellect and strength.”

(De Rerum Natura, iii, l. 486-504.)

I may just mention further, that this doctrine of a *pneuma*, or animal spirits, was adopted by all the Arabian authorities, of which I shall only take time to refer to Avicenna, iii, l, 4. It has also been held under a variety of shapes, by some of the first names in ancient and modern philosophy, as is correctly stated in the following interesting extract : “ Hippocrates, Galen, and Vieussens, thought that the spirits are formed of an aerial

¹ De Partibus Animal., ii, 7.

² The poet applies the term *animus* to the mind or soul ; and *anima* to the *pneuma* or spirit. Celsus renders the *pneuma* of Hippocrates by *spiritus*. See Prefatio.

principle. Van Helmont, Willis, and Stenon assimilated them to light. Newton said that they consist of part of that very elastic element upon which the reflexion and rarefaction of the solar rays depend. Descartes regarded them as an igneous principle; Boerhaave thought that they approach to the nature of water. Saussure and De Haen confound them with electric matter." (Dumas, *Physiol.*, iv, 73.) At present, however, as hinted above, the form which the hypothesis has assumed is that of animal magnetism, which, it is well known, has many intelligent supporters, of whom I shall only mention one, my intelligent countryman, Mr. Colquhoun, the author of *Isis Revelata*.

The other part of our author's hypothesis, I mean the connexion of the disease with a pituitous secretion from the brain, however much some may be disposed thoughtlessly to deride it, received a most remarkable confirmation from the observations of the celebrated anatomists, the Wenzels. The following account of their opinions I extract from Dr. Copland's Dictionary of Practical Medicine: "The WENZELS in their numerous dissections, directed attention to the state of the *pituitary and pineal glands*. These able pathologists found the *pituitary gland and infundibulum* variously altered in colour, consistence, size, and structure, in nearly all the cases of epilepsy they examined. . . Alterations in the sphenoid bone and pituitary gland have been found also by Geeding, Newman, Sims, and myself." (See under Epilepsy, § 43.¹)

Before concluding, I have a few additional remarks to make on the question whether or not the present treatise be the production of Hippocrates himself. I am aware that many learned critics, such as Gruner and Ackerman, looking to the difference of style and matter between it, and the genuine works of Hippocrates, such as the Prognostics and Aphorisms, have not hesitated to decide that it must be the production of an entirely different mind. But why should it appear incredible that the great master of Grecian medicine should have devoted his leisure hours to the study of the transcendental philosophy then in so high repute, and that he should have

¹ See further, Syder's edition of Sir Astley Cooper's Lectures, p. 20

displayed the versatility of his genius in the manner he handles the new subject of his research? I have stated in the short biography I have given of him at the commencement of this work, that he was familiarly acquainted with Democritus of Abdera, and it is well known that he visited Athens at the time when Socrates had diverted the minds of his countrymen from verbal disputations to the cultivation of a sound and masculine philosophy. When we reflect how narrow the field of intellectual research then was, compared with what it has now become, it need not appear at all remarkable that the enlarged mind of our author should have ventured to grapple with all those great questions in physical and mental philosophy, which the sages of his time were attempting to solve. Galen, in fact, on many occasions, pronounces Hippocrates to have been a great philosopher, as well as a great physician; and that there is no incompatibility in the two characters is apparent from examples of very recent date. My lamented friend, Dr. Abercrombie, not only wrote elaborate works on Pathology and the Practice of Medicine, but also published treatises on Moral and Intellectual Philosophy. Haller was not only a great physician and physiologist, but also a highly popular poet. Why then should it appear incredible that Hippocrates should have displayed as wide a grasp of mind as a Haller or an Abercrombie? I know that the opinion is now pretty generally propagated, that a medical man ought to be exclusively occupied with professional pursuits, and have no leisure to devote to the cultivation of elegant literature; and it is not unusual to hear of a physician's being run down by the craftsmen of our art, as a person who, it is inferred, must be deficient in a practical acquaintance with medicine, because it is admitted that he has made respectable acquirements in the liberal sciences, and in philosophy. Such members of the medical profession (or, I should rather say, craft), though they can find no time to devote to Homer or Aristotle, to Milton or Kant, find plenty of leisure to frequent all the haunts of fashionable resort, and as Galen somewhere says of his professional contemporaries, when the rich and the noble do not want them in the sick chamber, they are always ready to attend them in the ball- or the banquet-room. But is such a waste of intellectual existence indispensably necessary, in order to attain success in the practice

of our profession? And might not a man become a useful and respectable member of it, by discharging the duties of his profession actively when called upon, and then retiring to the study of the liberal arts and sciences? I shall conclude this Argument and my present task, by quoting the memorable words in which Cicero apologises for his having spent a certain portion of his time in the cultivation of elegant literature, and of philosophy, leaving the reader to apply the same in the case of Hippocrates, and, I may be permitted to add, in that of the humble Editor of the present volume, who trusts he shall not be set down as an idle and unprofitable practitioner of the Art, because he has found leisure amidst the turmoil and distraction of a professional life, to communicate to his countrymen the important opinions contained in the genuine remains of The Coan Sage:—“Ego vero fateor me his studiis esse deditum; ceteros pudeat, siqui ita se literis abdiderunt, ut nihil possint ex his neque ad communem ferre fructum, neque in adspectum, lucemque proferre. Quare quis tandem me reprehendat, aut quis mihi jure succenseat si, quantum ceteris ad suas res obeundas, quantum ad festos dies ludorum celebrandos, quantum ad alias voluptates, et ad ipsam requiem animi et corporis conceditur temporum; quantum alii tribuunt temporibus conviviis; quantum denique aleæ, quantum pilæ, tantum mihi egomet ad hæc studia recolenda sumsero?”¹

¹ Pro Archia Poëta.

ON THE SACRED DISEASE.

IT is thus with regard to the disease called Sacred: it appears to me to be nowise more divine nor more sacred than other diseases, but has a natural cause from which it originates like other affections. Men regard its nature and cause as divine from ignorance and wonder, because it is not at all like to other diseases. And this notion of its divinity is kept up by their inability to comprehend it, and the simplicity of the mode by which it is cured, for men are freed from it by purifications and incantations. But if it is reckoned divine because it is wonderful, instead of one there are many diseases which would be sacred; for, as I will show, there are others no less wonderful and prodigious, which nobody imagines to be sacred. The quotidian, tertian, and quartan fevers, seem to me no less sacred and divine in their origin than this disease, although they are not reckoned so wonderful. And I see men become mad and demented from no manifest cause, and at the same time doing many things out of place; and I have known many persons in sleep groaning and crying out, some in a state of suffocation, some jumping up and fleeing out of doors, and deprived of their reason until they awaken, and afterwards becoming well and rational as before, although they be pale and weak; and this will happen not once but frequently.¹ And there are many and various things of the like kind, which it would be tedious to state particularly. And they who first referred this disease to the gods, appear to me to have been just such persons as the conjurers, purificators, mountebanks, and charlatans now are, who give themselves out for being excessively religious, and as knowing more than other people. Such persons, then, using the divinity as a pretext and screen of their own inability to afford any assistance, have given out that the disease is sacred, adding suitable reasons for this opinion, they have instituted a mode of treatment which is safe for themselves, namely, by applying purifications and incantations, and enforcing abstinence from baths and many articles of food which are unwholesome

¹ Our author in this place evidently alludes to nightmare and somnambulism.

to men in diseases. Of sea substances, the sur-mullet,¹ the blacktail,² the mullet,³ and the eel: for these are the fishes most to be guarded against. And of fleshs, those of the goat, the stag, the sow, and the dog: for these are the kinds of flesh which are aptest to disorder the bowels. Of fowls, the cock, the turtle,⁴ and the bustard,⁵ and such others as are reckoned to be particularly strong. And of potherbs, mint, garlic, and onions: for what is acrid does not agree with a weak person. And they forbid to have a black robe, because black is expressive of death; and to sleep on a goat's skin, or to wear it, and to put one foot upon another, or one hand upon another: for all these things are held to be hinderances to the cure. All these they enjoin with reference to its divinity, as if possessed of more knowledge, and announcing beforehand other pretents, so that if the person should recover, theirs would be the honour and credit; and if he should die, they would have a certain defence, as if the gods, and not they, were to blame, seeing they had administered nothing either to eat or drink as medicine, nor had overheated him with baths, so as to prove the cause of what had happened. But I am of opinion that (if this were true) none of the Libyans, who live in the interior, would be free from this disease, since they all sleep on goats' skins, and live upon goat's flesh; neither have they couch, robe, nor shoe, that is not made of goat's skin, for they have no other herds but goats and oxen. But if these things, when administered in food, aggravate the disease, and if it be cured by abstinence from them, then is God not the cause at all; nor will purifications be of any avail, but it is the food which is beneficial and prejudicial, and the influence of the divinity vanishes. Thus, then, they who attempt to cure these diseases in this way, appear to me neither to reckon them sacred nor divine. For when they are removed by such purifications, and this method of cure, what is to prevent them from being brought upon men and induced by other devices

¹ Namely, the *Mullus barbatus*. See under *πρίγλη*, in the Appendix to Dunbar's Greek Lexicon.

² Namely, the *Sparus melanurus*. See under *μελάνουρος*, in the above cited work.

³ Namely, the *Mugil cephalus*. See under *κεστρίδις*, as above.

⁴ Namely, the *Columba turtur*. See under *τρυγών*, as above.

⁵ Namely, the *Otis tarda*. See under *ώρις*, as above.

similar to these?¹ So that the cause is no longer divine, but human. For whoever is able, by purifications and conjurations, to drive away such an affection, will be able, by other practices, to excite it; and, according to this view, its divine nature is entirely done away with. By such sayings and doings, they profess to be possessed of superior knowledge, and deceive mankind by enjoining lustrations and purifications upon them, while their discourse turns upon the divinity and the godhead.² And yet it would appear to me that their discourse savours not of piety, as they suppose, but rather of impiety, and as if there were no gods, and that what they hold to be holy and divine, were impious and unholy. This I will now explain. For, if they profess to know how to bring down the moon, and darken the sun, and induce storms and fine weather, and rains and droughts, and make the sea and land unproductive, and so forth, whether they arrogate this power as being derived from mysteries or any other knowledge or consideration, they appear to me to practise impiety, and either to fancy that there are no gods, or, if there are, that they have no ability to ward off any of the greatest evils. How, then, are they not enemies to the gods? For, if a man by magical arts and sacrifices will bring down the moon,³ and darken the sun, and induce storms,

¹ I cannot but think that the proper reading is, ἐπιγίγνεσθαι, and not ἀπογίγνεσθαι. Agreeably to this reading, the meaning is more clear.

² The term in the original (δαίμονιον) is of dubious meaning. In the works of earlier Greek authors, it and δαίμων are generally put in a good sense; but in Christian times they are almost always taken in a bad sense, and applied to evil spirits. Hence demoniacs were held to be persons possessed with evil spirits or devils. In this light, I need scarcely remark, they are universally represented in the New Testament. That the persons there described as being possessed with impure spirits were the same as the demoniacs of the Greeks, and that they were epileptics and maniacs, cannot admit of the very slightest doubt. It will be seen below that our author understands the popular belief to be, that the bodies of such persons were possessed by demons, who, he argues, must be good beings and not bad. The earlier Christians, however, held that all the gods of the heathens were demons in a bad sense, that is to say, devils.

³ This was supposed to be a very common exploit of the ancient witches. Hence Virgil says,

“Carmina vel cælo possunt deducere lunam.”

And Tibullus, in like manner:

“Hanc ego de cælo ducentem sidera vidi.” (El. i, 2.)

And in similar terms Horace says,

“et polo
Deripere lunam vocibus possum meis.” (Epod. xvii.)

or fine weather, I should not believe that there was anything divine, but human, in these things, provided the power of the divine were overpowered by human knowledge and subjected to it. But perhaps it will be said, these things are not so, but, men being in want of the means of life, invent many and various things, and devise many contrivances for all other things, and for this disease, in every phase of the disease, assigning the cause to a god. Nor do they remember the same things once, but frequently.¹ For, if they imitate a goat, or grind their teeth, or if their right side be convulsed, they say that the mother of the gods is the cause. But if they speak in a sharper and more intense tone, they resemble this state to a horse, and say that Posidon (*Neptune*) is the cause. Or if any excrement be passed, which is often the case, owing to the violence of the disease, the appellation of Enodius (*Hecate?*) is adhibited; or, if it be passed in smaller and denser masses, like bird's, it is said to be from Apollo Nomius. But if foam be emitted by the mouth, and the patient kick with his feet, Ares (*Mars*) gets the blame. But terrors which happen during the night, and fevers, and delirium, and jumpings out of bed, and frightful apparitions, and fleeing away,—all these they hold to be the plots of Hecate, and the invasions of the Heroes, and use purifications and incantations, and, as appears to me, make the divinity to be most wicked and most impious. For they purify those labouring under this disease, with the same sorts of blood and the other means that are used in the case of those who are stained with crimes, and of malefactors, or who have been enchanted by men, or who have done any wicked act; who ought to do the very reverse, namely, sacrifice and pray, and, bringing gifts to the temples, supplicate the gods. But now they do none of these things, but purify; and some of the purifications they conceal in the earth, and some they throw into the sea, and some they carry to the mountains where no one can touch or tread upon them. But these they ought to take to the temples and present to the god, if a god be the cause of the disease. Neither truly do I count it a worthy opinion to hold that the body of man is polluted by god, the most impure by the most holy; for were it defiled, or did it suffer from any other thing, it would be like to be purified and sanctified rather than polluted

¹ The text appears to be corrupt; at least the meaning is very equivocal.

by god. For it is the divinity which purifies and sanctifies the greatest of offences and the most wicked, and which proves our protection from them. And we mark out the boundaries of the temples and the groves of the gods, so that no one may pass them unless he be pure, and when we enter them we are sprinkled with holy water, not as being polluted, but as laying aside any other pollution which we formerly had. And thus it appears to me to hold, with regard to purifications. But this disease seems to me to be nowise more divine than others; but it has its nature such as other diseases have, and a cause whence it originates, and its nature and cause are divine only just as much as all others are, and it is curable no less than the others, unless when, from length of time, it is confirmed, and has become stronger than the remedies applied. Its origin is hereditary, like that of other diseases.¹ For if a phlegmatic person be born of a phlegmatic, and a bilious of a bilious, and a phthisical of a phthisical, and one having spleen disease, of another having disease of the spleen, what is to hinder it from happening that where the father and mother were subject to this disease, certain of their offspring should be so affected also? As the semen comes from all parts of the body, healthy particles will come from healthy parts, and unhealthy from unhealthy parts.² And another great proof that it is in nothing more divine than other diseases is, that it occurs in those who are of a phlegmatic constitution, but does not attack the bilious. Yet, if it were more divine than the others, this disease ought to befall all alike, and make no distinction between the bilious and phlegmatic. But in them, the brain is the cause of this affection, as it is of other very great diseases, and in what manner and from what cause it is formed, I will now plainly declare. The brain of man, as in all other animals, is double, and a thin membrane (*meninx*) divides it through the middle, and therefore the pain is not always in the same part of the head; for sometimes it is situated in either side, and sometimes the whole is affected; and veins run towards it from all

¹ That epilepsy is often hereditary, is admitted by our best authorities in modern times, as Zæcetus Lusitanus (Prax. ad Mir., i, 36), Stahl (de Hæred. Dispos. ad Var. Affect.), Boerhaave (Aphor. 1075), M. Esquirol, and Dr. Copland (Dictionary of Practical Medicine, under *Epilepsy*, p. 789).

² See, in like manner, On Airs, Waters, &c., § 15.

parts of the body, many of which are small, but two are thick,—the one from the liver, and the other from the spleen. And it is thus with regard to the one from the liver: a portion of it runs downwards through the parts on the right side, near the kidney and the psoas muscle, to the inner part of the thigh, and extends to the foot. It is called vena cava. The other runs upwards by the right veins and the lungs, and divides into branches for the heart and the right arm. The remaining part of it rises upwards across the clavicle to the right side of the neck, and is superficial so as to be seen; near the ear it is concealed, and there it divides; its thickest, largest, and most hollow part ends in the brain; another small vein goes to the right ear, another to the right eye, and another to the nostril. Such are the distributions of the hepatic vein. And a vein from the spleen is distributed on the left side, upwards and downwards, like that from the liver, but more slender and feeble. By these veins we draw in much spirit (*gas?*) for they are the spiracles of our bodies inhaling air to themselves and distributing it to the rest of the body, and to the smaller veins, and they cool and afterwards exhale it. For the breath (*pneuma*) cannot be stationary, but it passes upwards and downwards, for if stopped and intercepted, the part where it is stopped becomes powerless. In proof of this, when, in sitting or lying, the small veins are compressed, so that the breath (*pneuma*) from the larger vein does not pass into them, the part is immediately seized with numbness; and it is so likewise with regard to the other veins. This disease, then, affects phlegmatic persons, but not bilious. It begins to be formed while the fœtus is still *in utero*. For the brain, like the other organs, is depurated and grows before birth. If, then, in this purgation it be properly and moderately depurated, and neither more nor less than what is proper be secreted from it, the head is thus in the most healthy condition. If the secretion (melting) from the whole brain be greater than natural, the person, when he grows up, will have his head diseased, and full of noises, and will neither be able to endure the sun nor cold. Or, if the melting take place from any one part, either from the eye or ear, or if a vein has become slender, that part will be deranged in proportion to the melting. Or, if the depuration do not take place, but it (*the secretion?*) accumulates in the brain, it

necessarily becomes phlegmatic. And such children as have an eruption of ulcers on the head, on the ears, and along the rest of the body, with copious discharges of saliva and mucus,—these, in after life, enjoy best health; for in this way the phlegm which ought to have been purged off in the womb, is discharged and cleared away, and persons so purged, for the most part, are not subject to attacks of this disease. But such as have had their skin free from eruptions, and have had no discharge of saliva or mucus, nor have undergone the proper purgation in the womb, these persons run the risk of being seized with this disease. But if the defluxion be determined to the heart, the person is seized with palpitation and asthma, the chest becomes diseased, and some also have curvature of the spine. For when a defluxion of cold phlegm takes place on the lungs and heart, the blood is chilled, and the veins, being violently chilled, palpitate in the lungs and heart, and the heart palpitates, so that from this necessity asthma and orthopnoea supervene. For it does not receive the spirits (*pneuma*) until the defluxion of phlegm be mastered, and being heated is distributed to the veins, then it ceases from its palpitation and difficulty of breathing, and this takes place as soon as it obtains an abundant supply; and this will be more slowly, provided the defluxion be more abundant, or if it be less, more quickly. And if the defluxions be more condensed, the epileptic attacks will be more frequent, but otherwise if it be rarer. Such are the symptoms when the defluxion is upon the lungs and heart; but if it be upon the bowels, the person is attacked with diarrhoea. And if, being shut out from all these outlets, its defluxion be determined to the veins I have formerly mentioned, the patient loses his speech, and chokes, and foam issues by the mouth, the teeth are fixed, the hands are contracted, the eyes distorted, he becomes insensible, and in some cases the bowels are evacuated. And these symptoms occur sometimes on the left side, sometimes on the right, and sometimes in both. The cause of every one of these symptoms I will now explain. The man becomes speechless when the phlegm, suddenly descending into the veins, shuts out the air, and does not admit it either to the brain or to the vena cava, or to the ventricles, but interrupts the inspiration. For when a person draws in air by the mouth and nostrils, the breath (*pneuma*) goes first to the brain, then

the greater part of it to the internal cavity, and part to the lungs, and part to the veins, and from them it is distributed to the other parts of the body along the veins; and whatever passes to the stomach cools, and does nothing more; and so also with regard to the lungs. But the air which enters the veins is of use (to the body) by entering the brain and its ventricles, and thus it imparts sensibility and motion to all the members, so that when the veins are excluded from the air by the phlegm and do not receive it, the man loses his speech and intellect, and the hands become powerless, and are contracted, the blood stopping and not being diffused, as it was wont; and the eyes are distorted owing to the veins being excluded from the air; and they palpitate; and froth from the lungs issues by the mouth. For when the breath (*pneuma*) does not find entrance to him, he foams and sputters like a dying person. And the bowels are evacuated in consequence of the violent suffocation; and the suffocation is produced when the liver and stomach ascend to the diaphragm, and the mouth of the stomach is shut up: this takes place when the breath (*pneuma*) does not enter by the mouth, as it is wont. The patient kicks with his feet when the air is shut up in the lungs and cannot find an outlet, owing to the phlegm; and rushing by the blood upwards and downwards, it occasions convulsions and pain, and therefore he kicks with his feet. All these symptoms he endures when the cold phlegm passes into the warm blood, for it congeals and stops the blood.¹ And if the defluxion be copious and thick, it immediately proves fatal to him, for by its cold it prevails over the blood and congeals it; or, if it be less, it in the first place obtains the mastery, and stops the respiration; and then in the course of time, when it is diffused along the veins and mixed with much warm blood, it is thus overpowered, the veins receive the air, and the patient recovers his senses. And of little children which are seized with this disease, the greater part die, provided the defluxion be copious and humid, for the veins being slender cannot admit the phlegm, owing to its thickness and abundance; but the blood is cooled and congealed, and the child immediately dies. But if the phlegm be in small quantity, and make a defluxion into both the veins, or to those on either side, the

¹ See Lucretius, De Rerum Nat., iii, l. 486; and the translation of the same as given in the Argument.

children survive, but exhibit notable marks of the disorder; for either the mouth is drawn aside, or an eye, the neck, or a hand, wherever a vein being filled with phlegm loses its tone, and is attenuated, and the part of the body connected with this vein is necessarily rendered weaker and defective. But for the most part it affords relief for a longer interval; for the child is no longer seized with these attacks, if once it has contracted this impress of the disease, in consequence of which the other veins are necessarily affected, and to a certain degree attenuated, so as just to admit the air, but no longer to permit the influx of phlegm. However, the parts are proportionally enfeebled whenever the veins are in an unhealthy state. When in striplings¹ the defluxion is small and to the right side, they recover without leaving any marks of the disease, but there is danger of its becoming habitual, and even increasing if not treated by suitable remedies. Thus, or very nearly so, is the case when it attacks children. But when it attacks persons of a more advanced age, it neither proves fatal, nor produces distortions. For their veins are hollow (*large?*), and filled with hot blood; and therefore the phlegm can neither prevail nor cool the blood, so as to coagulate it, but it is quickly overpowered and mixed with the blood, and thus the veins receive the air, and sensibility remains; and, owing to their strength, the aforesaid symptoms are less likely to seize them. But when this disease attacks very old people, it therefore proves fatal, or induces paraplegia, because the veins are empty, and the blood scanty, thin, and watery.² When, therefore, the defluxion is copious, and the season winter, it proves fatal; for it chokes up the exhalents and coagulates the blood if the defluxion be to both sides; but if to either, it merely induces paraplegia. For the blood being thin, cold, and scanty, cannot prevail over the phlegm, but being itself overpowered, it is coagulated, so that those parts in which the blood is corrupted, lose their strength. The defluxion takes place rather on the right side than on the left, because the veins there are more capacious and numerous than on the left side, for on the one side they spring from the liver, and on the other from the spleen. The defluxion and

¹ Meaning persons about puberty, and until 25 years of age. See Aph. v, 7.

² The connexion between epilepsy and apoplexy is indisputable, and has been often adverted to in modern times. See Copland's Dictionary, under *Epilepsy*, §§ 16, 40.

melting down take place most especially in the case of children in whom the head is heated either by the sun or by fire, or if the brain suddenly contract a rigor, and then the phlegm is excreted. For it is melted down by the heat and diffusion of the brain, but it is excreted by the congealing and contracting of it, and thus a defluxion takes place. And in some this is the cause of the disease, and in others, when the south wind quickly succeeds to northern breezes, it suddenly unbinds and relaxes the brain, which is contracted and weak, so that there is an inundation of phlegm, and thus the defluxion takes place. The defluxion also takes place in consequence of fear, from any hidden cause, if we are frightened at any person's calling aloud, or while crying, when one cannot quickly recover one's breath, such as often happens to children. When any of these things occurs, the body immediately shivers, the person becoming speechless cannot draw his breath, but the breath (*pneuma*) stops, the brain is contracted, the blood stands still, and thus the excretion and defluxion of the phlegm take place. In children, these are the causes of the attack at first. But to old persons winter is most inimical. For when the head and brain have been heated at a great fire, and then the person is brought into cold and has a rigor, or when from cold he comes into warmth, and sits at the fire, he is apt to suffer in the same way, and thus he is seized in the manner described above. And there is much danger of the same thing occurring, if in spring his head be exposed to the sun, but less so in summer, as the changes are not sudden. When a person has passed the twentieth year of his life, this disease is not apt to seize him, unless it has become habitual from childhood, or at least this is rarely or never the case. For the veins are filled with blood, and the brain consistent and firm, so that it does not run down into the veins, or if it do, it does not overpower the blood, which is copious and hot. But when it has gained strength from one's childhood, and become habitual, such a person usually suffers attacks, and is seized with them in changes of the winds, especially in south winds, and it is difficult of removal. For the brain becomes more humid than natural, and is inundated with phlegm, so that the defluxions become more frequent, and the phlegm can no longer be excreted, nor the brain be dried up, but it becomes wet and humid. This you may ascertain

in particular, from beasts of the flock which are seized with this disease, and more especially goats, for they are most frequently attacked with it. If you will cut open the head, you will find the brain humid, full of sweat, and having a bad smell.¹ And in this way truly you may see that it is not god that injures the body, but disease. And so it is with man. For when the disease has prevailed for a length of time, it is no longer curable, as the brain is corroded by the phlegm, and melted, and what is melted down becomes water, and surrounds the brain externally, and overflows it; wherefore they are more frequently and readily seized with the disease. And therefore the disease is protracted, because the influx is thin, owing to its quantity, and is immediately overpowered by the blood and heated all through. But such persons as are habituated to the disease, know beforehand when they are about to be seized, and flee from men; if their own house be at hand, they run home, but if not, to a deserted place, where as few persons as possible will see them falling, and they immediately cover themselves up. This they do from shame of the affection, and not from fear of the divinity, as many suppose. And little children at first fall down wherever they may happen to be, from inexperience. But when they have been often seized, and feel its approach beforehand, they flee to their mothers, or to any other person they are acquainted with, from terror and dread of the affection, for being still infants they do not know yet what it is to be ashamed. And for these reasons, I say, they are attacked during changes of the winds, and especially south winds, then also with north winds, and afterwards also with the others. These are the strongest winds, and the most opposed to one another, both as to direction and power. For, the north wind condenses the air, and separates from it whatever is muddy and nebulous, and renders it clearer and brighter. and so in like manner also, all the winds which arise from the sea and other waters; for they extract the humidity and nebulosity from all objects, and from men themselves, and therefore

¹ It is well known that this is also the case with sheep, and that they are subject to the disease called the *sturdy*, which is indisputably a sort of epilepsy. Many shepherds have told me that they have perforated the skull so as to evacuate the water in the brain. The operation, however, is not often successful. The *materies morbi*, I believe, is a hydatid.

it (the north wind) is the most wholesome of the winds. But the effects of the south are the very reverse.¹ For in the first place it begins by melting and diffusing the condensed air, and therefore it does not blow strong at first, but is gentle at the commencement, because it is not able at once to overcome the dense and compacted air, which yet in a while it dissolves. It produces the same effects upon the land, the sea, the rivers, the fountains, the wells, and on every production which contains humidity, and this there is in all things, some more, some less. For all these feel the effects of this wind, and from clear they become cloudy; from cold, hot; from dry, moist; and whatever earthen vessels are placed upon the ground, filled with wine or any other fluid, are affected with the south wind, and undergo a change. And the sun, the moon, and the stars it renders blunter in appearance than they naturally are. When, then, it possesses such powers over things so great and strong, and the body is made to feel and undergo changes in the changes of the winds, it necessarily follows that the brain should be dissolved and overpowered with moisture, and that the veins should become more relaxed by the south winds, and that by the north the healthiest portion of the brain should become contracted, while the most morbid and humid is secreted, and overflows externally, and that catarrhs should thus take place in the changes of these winds. Thus is this disease formed and prevails from those things which enter into and go out of the body, and it is not more difficult to understand or to cure than the others, neither is it more divine than other diseases. And men ought to know that from nothing else but thence (*from the brain?*) come joys, delights, laughter and sports, and sorrows, griefs, despondency, and lamentations. And by this, in an especial manner, we acquire wisdom and knowledge, and see and hear, and know what are foul and what are fair, what are bad and what are good, what are sweet, and what unsavoury; some we discriminate by habit, and some we perceive by their utility. By this we distinguish objects of relish and disrelish, according

¹ The classical scholar will here recollect the character of the auster given by Horace :

“frustra per autumnum nocentem
Corporibus mutuemus austrum.”

This wind, I suppose there can be no doubt, was the *sirocco*.

to the seasons ; and the same things do not always please us. And by the same organ we become mad and delirious, and fears and terrors assail us, some by night, and some by day, and dreams and untimely wanderings, and cares that are not suitable, and ignorance of present circumstances, desuetude, and unskilfulness. All these things we endure from the brain, when it is not healthy, but is more hot, more cold, more moist, or more dry than natural, or when it suffers any other preternatural and unusual affection. And we become mad from humidity (*of the brain*). For when it is more moist than natural, it is necessarily put into motion, and the affection being moved,¹ neither the sight nor hearing can be at rest, and the tongue speaks in accordance with the sight and hearing. As long as the brain is at rest, the man enjoys his reason, but the depravement of the brain arises from phlegm and bile, either of which you may recognise in this manner : Those who are mad from phlegm are quiet, and do not cry out nor make a noise ; but those from bile are vociferous, malignant, and will not be quiet, but are always doing something improper.² If the madness be constant, these are the causes thereof. But if terrors and fears assail, they are connected with derangement of the brain, and derangement is owing to its being heated. And it is heated by bile when it is determined to the brain along the blood-vessels running from the trunk ; and fear is present until it return again to the veins and trunk, when it ceases. He is grieved and troubled when the brain is unseasonably cooled and contracted beyond its wont. This it suffers from phlegm, and from the same affection the patient becomes oblivious. He calls out and screams at night when the brain is suddenly heated. The bilious endure this. But the phlegmatic are not heated, except when much blood goes to the brain, and creates an ebullition. Much blood passes along the aforesaid veins. But when the man happens to see a frightful dream, and is in fear as if awake, then his face is in a greater glow, and the

¹ If the text be not in fault, we must here understand by "affection" the affected part, or organ ; that is to say, the abstract is put for the concrete. This is constantly done by our author's contemporary, Pindar, but one would scarcely expect so bold a trope in a prose writer.

² The connexion between epilepsy and mania is undoubted. See Copland's Dictionary, under *Epilepsy*.

eyes are red when the patient is in fear. And the understanding meditates doing some mischief, and thus it is affected in sleep. But if, when awakened, he returns to himself, and the blood is again distributed along the aforesaid veins, it ceases. In these ways I am of opinion that the brain exercises the greatest power in the man. This is the interpreter to us of those things which emanate from the air, when it (*the brain*) happens to be in a sound state. But the air supplies sense to it. And the eyes, the ears, the tongue and the feet, administer such things as the brain cogitates. For inasmuch as it is supplied with air, does it impart sense to the body. It is the brain which is the messenger to the understanding. For when the man draws the breath (*pneuma*) into himself, it passes first to the brain, and thus the air is distributed to the rest of the body, leaving in the brain its acme, and whatever has sense and understanding. For if it passed first to the body and last to the brain, then having left in the flesh and veins the judgment,¹ when it reached the brain it would be hot, and not at all pure, but mixed with the humidity from the fleshy parts and the blood, so as to be no longer pure. Wherefore, I say, that it is the brain which interprets the understanding. But the diaphragm has obtained its name (*φρόνεος*) from accident and usage, and not from reality or nature, for I know no power which it possesses, either as to sense or understanding, except that when the man is affected with unexpected joy or sorrow, it throbs and produces palpitations, owing to its thinness, and as having no belly to receive anything good or bad that may present themselves to it, but it is thrown into commotion by both these, from its natural weakness. It then perceives beforehand none of those things which occur in the body, but has received its name vaguely and without any proper reason, like the parts about the heart, which are called auricles, but which contribute nothing towards hearing. [Some say that we think with the heart, and that this is the part which is grieved, and experiences care.² But it is not so; only it contracts like the

¹ *Διόγνωσις*. The term is very obscure; indeed I cannot but think the text must be corrupt. If it stand, it must be understood to mean the peculiar or discriminating power or property of the pneuma.

² This opinion was decidedly maintained by Chrysippus, but he flourished more than 200 years after our author. Who, among the more ancient philosophers in

diaphragm, and still more so for the same causes. For veins from all parts of the body run to it, and it has valves, so as to perceive if any pain or pleasurable emotion befall the man. For when grieved the body necessarily shudders, and is contracted, and from excessive joy it is affected in like manner. Wherefore the heart and the diaphragm are particularly sensitive, they have nothing to do, however, with the operations of the understanding, but of all these the brain is the cause. Since then the brain as being the primary seat of sense and of the spirits, perceives whatever occurs in the body, if any change more powerful than usual take place in the air, owing to the seasons, the brain becomes changed by the state of the air. For, on this account, the brain first perceives, because, I say, all the most acute, most powerful, and most deadly diseases, and those which are most difficult to be understood by the inexperienced, fall upon the brain. And the disease called the Sacred arises from causes as the others, namely, those things which enter and quit the body, such as cold, the sun, and the winds, which are ever changing and are never at rest. And these things are divine, so that there is no necessity for making a distinction, and holding this disease to be more divine than the others, but all are divine, and all human. And each has its own peculiar nature and power, and none is of an ambiguous nature, or irremediable. And the most of them are curable by the same means as those by which they were produced. For any other thing is food to one, and injurious to another. Thus, then, the physician should understand and distinguish the season of each, so that at one time he may attend to the nourishment and increase, and at another to abstraction and diminution. And in this disease as in all others, he must strive not to feed the disease, but endeavour to wear it out by administering whatever is most opposed to each disease, and not that which favours and is allied to it. For by that which is allied to it, it gains vigour and increase, but it wears out and disappears

particular he alludes to, it is difficult to determine with precision. Plato, in imitation of Homer, Euripides, Tyrtaeus, and others of the Greek poets, held that the heart is the organ *or* seat of the passions; but the brain, of the understanding. See *On the Republic, pluries*. This philosophical question is discussed at great length by Galen, in the Second and Third Books of his work, *On the Tenets of Hippocrates and Plato*.

under the use of that which is opposed to it. But whoever is acquainted with such a change in men, and can render a man humid and dry, hot and cold by regimen, could also cure this disease, if he recognises the proper season for administering his remedies, without minding purifications, spells, and all other illiberal practices of a like kind.

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THE END.

EXPLANATION OF THE PLATES TO VOL. II.

PLATE IV.

FIG. 1. The Scamnum Hippocratis, or Bench of Hippocrates, as represented by Andreas a Cruce (*Officina Chirurgica. Venetiis*, 1596).

2. The same, as represented by M. Littré.

A. A board, 6 cubits long, 2 broad, and 12 inches thick; not 13, as incorrectly stated by M. Littré.

B. The feet of the Axles, which are short.

CC. Axle-trees.

DD. Grooves three inches deep, three broad, separated from one another by four inches.

E. A small post, or pillar, fastened in the middle of the machine in a quadrangular hole.

F. Pillars a foot long.

G. A cross-beam laid on the pillars FF, which can be placed at different heights by means of holes in the pillars.

PLATE V.

FIG. 1. Representation of the mode of reducing dislocation of the thigh outwards, as given by M. Littré. (*Œuv. d'Hipp.*, tom. iv, p. 305.)

A mistake in the figure given by M. Littré is here corrected. It applies to Articulations, § 74.

A. A lever applied to the nates of the luxated side, and acting from without inwards, in order to bring the head of the bone into its cavity.

B. Another lever, held by an assistant, put into one of the grooves of the machine, and intended to act against lever A.

§

EXPLANATION OF THE PLATES TO VOL. II.

- c. Groove in which the end of the lever A takes its point of support.
 - d. The luxated member.
 - ee. Extension and counter-extension.
2. Representation of the ancient mode of performing succussion, as given by Vidus Vidius in the Venetian edition of Galen's works. (Cl. vi, p. 271.)
- It applies to Articulations, § 43.

PLATE VI.

- FIG. 1. The Circular Band, named *Rotunda sincera æqualis*. From the Venetian edition of Galen. (vi, p. 205.)
- 2 and 3. The form of bandage named *Ascia sincera inæqualis*. (*Ibid.* p. 206.)
- 4 and 5. The form of bandage named *Sima sincera inæqualis*. (*Ibid.*)
- These bandages relate to the work, On the Surgery.

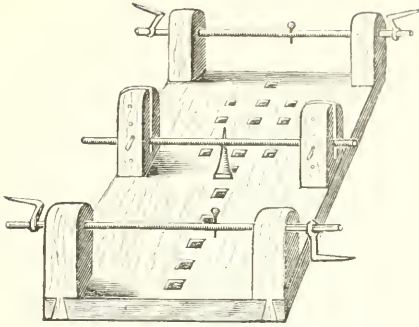
PLATE VII.

- FIG. 1. The bandage named *Monoculus*.
2. The bandage named *Rhombus*.
3. The bandage named *Semirhombus*.
- These figures apply to the work, On the Surgery.

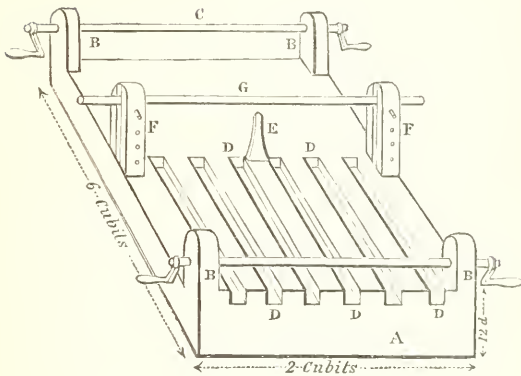
PLATE VIII.

- FIG. 1. Elastic rods used as splints in fracture of the leg. Figure as given by Littré. (*Œuv. d'Hippocrat.*, iii, p. 519.)
2. The same, as given by Vidus Vidius in the Venetian edition of Galen.
- These two figures apply to the description given in § 30 of Fractures.
- 3 and 4. Apparatus for the cure of Club-foot, as given by Arcæus. (See p. 560 of this work.) The Boot, probably, was used in lieu of the Chian sandals of Hippocrates, p. 634.

PLATE IV.



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PLATE V.

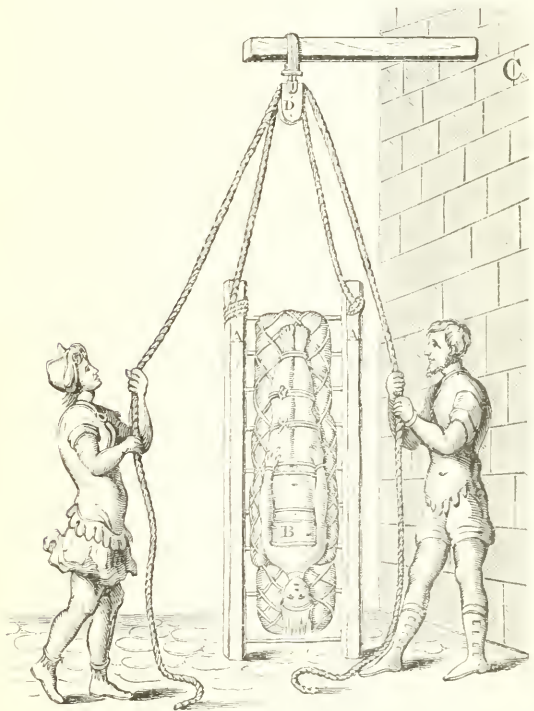
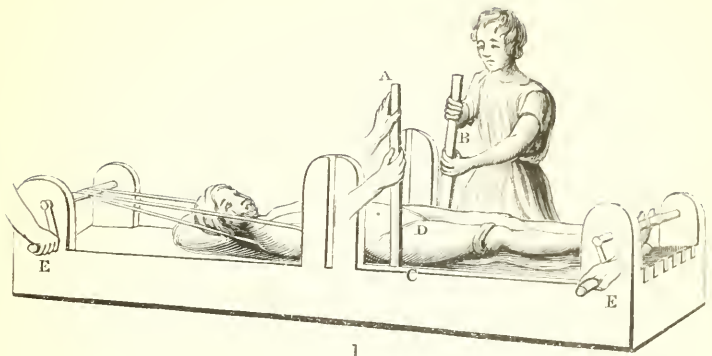
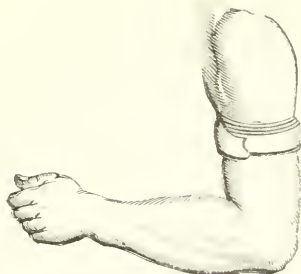
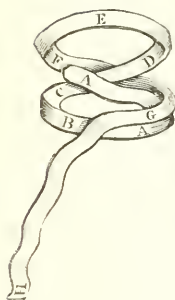


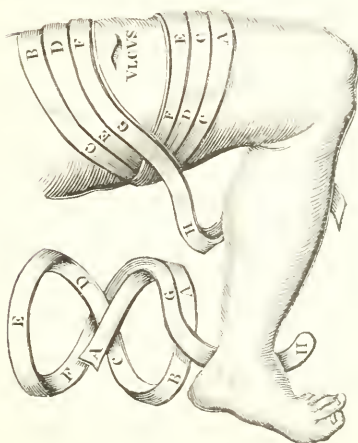
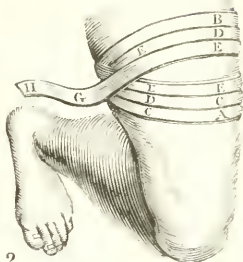
PLATE VI.



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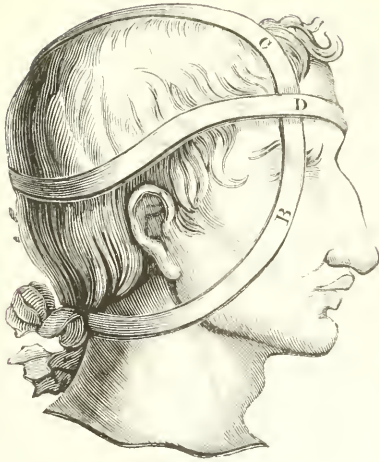


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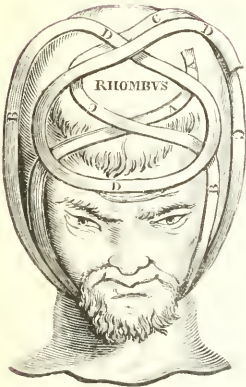


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PLATE VII.



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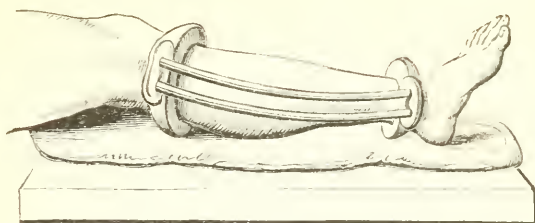


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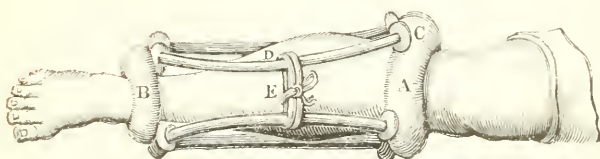


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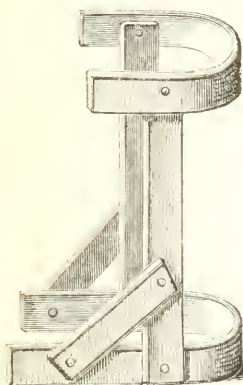
PLATE VIII.



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