

THE THEOSOPHICAL PATH

KATHERINE TINGLEY, EDITOR

VOL. II

MAY, 1912

NO. 5

THAT which can be cognized by reflection alone, which is without parts, and without body, and which is eternal; which encloses all manifested beings, and which is inconceivable, shone forth of its own will.—*Mânava-dharma-sâstra*, I, 7

SCIENCE AND THE ORIGIN OF LIFE:

by H. T. Edge, B. A. (Cantab.), M. A.



IN a newspaper we notice some remarks from the scientific standpoint on the origin of life. The word "life" here means what are generally known as organized beings, animal and vegetable, ranging down to those microscopic forms which we scarcely know whether to classify as animal or vegetable. At one time it used to be thought that life was produced by "spontaneous generation" — that is, that if unorganized mineral matter were shut up by itself, it would nevertheless in process of time produce animated beings. But later on this phenomenon was shown to be due to the presence of minute germs carried through the air; and that, if the mineral matter were carefully sterilized and shut off from the air, no such generation of living things could take place. Now, it is alleged, we are swinging around again to the older view, but in a different form. It is now being asked whether there is not a continuous chain of evolution from mineral to vegetable, containing intermediate linking forms that are between the two. In other words, are the so-called chemical and physical forces that operate in inorganic matter capable of giving rise to those more complex forms of activity which we call "life"? There are two alternatives to be proven: one is that life is now being so produced; and if this cannot be shown, then we may fall back on the hypothesis that life was so produced "originally," but that once having been produced, it is no longer generated in the same way but continues to reproduce itself.

Now here we find scientific men inquiring into origins and essences; for several eminent authorities are quoted in the remarks to which reference is made. And the reason for saying this is that it appears to contradict certain observations recently made and quoted by an eminent man of science and well-known writer on scientific subjects — Sir E. Ray Lankester. This writer is undertaking the defense of scientific men against a charge of being unable to tell us anything about the essential nature of things and of being concerned only with externals. He answers this charge by protesting that men of science do not pretend to solve such questions, but have enough to do in investigating matters that lie closer to their hand. Such ultimate questions are without their sphere. The speculations about the origin of life, however, transcend the limits imposed by the professor; a circumstance that would not much matter, were it an isolated instance. But on the contrary, we frequently find that men of science — or at least people speaking in the name of science — push their inquiries into the most abstruse and recondite subjects, totally disregarding any such limitation as Professor Lankester seeks to impose on the sphere of scientific research. Indeed the professor's remarks are not consistent with themselves; for one of his arguments is that scientific men do not constitute an organized body holding corporate opinions, but are simply a number of free and independent inquirers. If this be so, on what grounds, we may ask, does the professor take up their defense? Clearly, by his own showing, we must not regard his remarks as representing anyone but himself. Hence he has nothing whatever to do with any quarrel we may have with any other person speaking in the name of science. To put the matter in another way — if you deliberately limit your sphere and confess your limitations, you cannot at the same time claim an authority inconsistent with those limitations. And though we do not accuse any one man of science of such inconsistency, yet it is possible that one man may make claims inconsistent with the disabilities admitted by another man. And if any man of science should meet this by pleading that there is no constituted and representative scientific opinion, we may rejoin that not a few scientific writers speak as though there were such a constituted and representative body.

Applying these remarks to the question of the origin of life, we may simply tell the man who wrote them that he is trespassing into regions which do not concern him, and we may quote Professor Lan-

kester in our support. It is evident that theorists cannot at one and the same time exclude a large part of nature from their field of inquiry, and yet dogmatize about it; such a procedure would be tantamount to establishing a church.

Again, it is more and more being realized that the field of inquiry cannot be marked off into spheres — at least, not without seriously restricting and impairing the results in each such sphere. Nature is a whole, and the divisions of the sciences artificial. In recent inquiries into the relations between planetary movements and the propagation of undulations through the ether, it has been seen that we must modify our conceptions of time, space, energy, and mass, if we wish to bring consistency into our calculations. We cannot proceed far in our investigations into the recesses of physical phenomena without finding that we must include in our studies an inquiry into the nature of our own faculties of perception and conception.

Take this question of the origin of life, for instance. What do we mean by an origin? Our ordinary conceptions of time and space, derived as they are from our acquaintance with the physical manifestation of nature, do not permit us to conceive of an origin at all; hence the phrase “origin of life” has no meaning in terms of these physically-derived notions of time and space. So we are propounding a query which is insoluble under the prescribed conditions of solution! The origin of life — the origin of anything — is, following out the idea, as meaningless for us as the idea of a stick with only one end.

It must be maintained, then, that a Theosophist, if required to give an answer to the above query, would be obliged to say: First investigate the nature of your own conceptions of time and space, and then we will talk further; but until then, talking is useless.

But a Theosophist would never be willing to limit the field of scientific inquiry. To do so would be to restrict science to inventions and practical applications. Clearly no success could be predicted for theoretical speculations which should begin by deliberately rejecting the most important postulates. And truly, as long as science remains a free field, there will be plenty of men who will not recognize any restrictions whatever. These men will lead the advance guard, though they may not obtain recognition in their own time. Quite recently the orthodox scientific fundamentals — as we may call them — space, time, and mass, have been called in question; and the new “theory

of relativity" bids us inquire whether these supposed ultimate units are not themselves compounded of that which is beyond them. This amounts to an admission that these conceptions — time, space, mass — are not ultimates or units of nature but ultimates and units of our own mind (in its physical mode of manifestation). Further progress implies an analysis of our own conceptions. Physics melts into metaphysics. The faculties which heretofore we have been using subjectively are now themselves to be made objects of scrutiny. Therefore, unless a faculty can study itself, then in order to investigate our lower faculties, we must use our higher faculties.

Reverting to the question of whether there are any intermediate links between the mineral and higher kingdoms, a student of Theosophy would answer that there is indeed a complete chain of evolution and of graduated forms, but that not all the links are now (in this manvantara, or life-cycle) present on the physical earth. This accounts for the gaps, the "missing links." Geologists, studying the rock-records of past ages, have found that there once existed forms that are intermediate between forms now living; and this confirms the Theosophical teaching. We have at present on the physical earth the mineral, vegetable, animal, and human kingdoms, and each of these kingdoms is again divided into classes and species. The demarcations are on the whole distinct, however shady they may be near the borders. The transition stages are not present. Such transition stages may have existed physically at different times in the remote past; but now they exist only in the world of prototypes.

As to the word last used, it is not necessary to put it forward as embodying any dogma; for it is a necessary postulate. If science is to inquire into origins at all, it must postulate an origin for physical matter; and that origin cannot (under the conditions of the inquiry) itself be physical. So we may say that the physical manifestation of life has proceeded from its ultra-physical manifestation; and this carries the investigation into another region. All that we can discover by physical investigation will be physical life "coming into existence," "appearing," from another source; and it seems reasonable to suppose that there may be a definite *unit of size* for the physical world — an atom which cannot be further divided physically, but which, if split up, would disappear altogether.

To sum up this paper, let it be said that there is no intention of

inviting scientific researchers to leave their field and enter upon that of pure psychology. The intention is merely to remind them that as long as they limit their field, they must limit their ambitions. For some of the questions they propound are insoluble under the conditions they themselves impose — a fact which becomes serious if ever a dogmatic attitude should be assumed. What is “matter”? We can never explain it except by its relativity to “mind.” Hence we must either be content to assume it, and there drop further inquiry; or else we must study mind.

But in accordance with the spirit of the new century, neither science nor any other study can any longer be regarded as an independent line of inquiry nor as a pursuit of leisure and mere curiosity. Every problem is felt to be but a part of one great problem — the problem of human life and welfare. We see the main interest in science centering around those forms of it which have a practical bearing on human life. This may serve to make clearer the attitude of Theosophists towards physical and psychological investigation. The main interest of Theosophists being the great human problem, all other interests are subservient thereto; and such investigations claim attention in proportion only to their bearing upon that main interest. Study of Self is found to be the most important and fruitful application of one’s energies which a Theosophist, cherishing the objects he professes, can make. In the pursuit of this study he will certainly obtain much light on the more purely scientific questions; but to pursue these singly would be for him a bypath. This statement is of general application; but among students of Theosophy are found people whose particular work lies in some one or other of the scientific fields, such as medicine, agriculture, or chemistry. Yet here again the main purpose is always the service of humanity. And the sciences, by thus being studied as parts of a greater whole, are ennobled, while each investigator achieves greater success than he could ever have done in an exclusive domain.



WERE the life-principle to become for a single instant inactive, say in a stone, its particles would lose instantly their cohesive property and disintegrate; although the force would remain in each particle, but in a dormant state. — *H. P. Blavatsky*

“WHAT IS THIS IMMORTAL THAT THOU HAST?”

by **H. Coryn**, M. D., M. R. C. S.



IT is almost a law of mind that if we want to know something thoroughly we must study or consider it at some time every day. Once in twenty-four hours the mind should be tuned to the topic. Then it will become a magnet, attracting to itself day by day and in the between-whiles of the study such casual items of knowledge as will fill all the little gaps. And in its depths it will be steadily generating ideas and intuitions which will afterwards well up into the moments definitely consecrated to the task. Twenty-three hours serve the one hour; the night serves the day; the subconscious becomes servant and feeder to the conscious.

It is another law that the more the minds which work upon the same matter the farther will be the penetration into it of each. This follows from the existence of that mind-ether, universal and connective, of which science as yet knows nothing.

In these laws we may have by implication the reason why men know nothing about death, nor “what is this immortal” that they have. Has nature intentionally shut the door against our minds? Or is it merely that we will not open it? Maeterlinck seems to think that if we faced the problem together and kept our faces to it we could solve it.

Death is the one event that counts in our life and in our universe. . . . But though we think of death incessantly we do so unconsciously, without learning to know death. We compel our attention to turn its back upon it, instead of going to it with uplifted head. . . . How should we know the one power which we have never looked in the face?

Contemplation of death is morbid. It is — when done morbidly. To look at it calmly, demanding its secret, is not morbid looking. In that way it has never yet been looked at by the many. And it is by the looking of the many at once that the secret will be solved. There is no secret of the world insoluble to the minds of men enough thinking together for time enough. That is why open popular writing and discussion will begin to do good. A thousand speculators with as many admissions of unillumination would be of infinite service so long as they stimulated thought. Given searchers enough and there shall always at last be one who finds. Given leaves enough and they shall always at last make possible a flower.

We have quoted Maeterlinck because he recently opened the dis-

“WHAT IS THIS IMMORTAL THAT THOU HAST?” 307

cussion on immortality in one of the popular monthlies, a discussion which must mean that there is a considerable public which wants to have immortality discussed. It knows that during the last decade there has been much new thinking in philosophy, much new work in science; and it asks what light there may now be for this very old problem. Is there at last some actual knowledge? Is there at any rate some hope of knowledge?

Many years ago Maeterlinck wrote this:

Our consciousness is of more than one degree, and the wisest only concern themselves with that which is almost unconscious because it is on the point of becoming divine.

This “degree” is the soul, the inner Ego. “We possess,” he says, “an *I* profounder and more inexhaustible than the *I* of the passions and of pure thought” — “almost unconscious” therefore with respect to matter only; with respect to what is beyond matter, the possessor of exactly the knowledge we need. “In truth,” he goes on,

It is difficult to interrogate one’s soul and recognize its small voice amid the futile clamor around it. Yet of how little import are the other efforts of mind, and how far away from us is [then] our ordinary life! . . . One should ceaselessly take refuge there. We know all the rest before it has been said; but here we learn what cannot be uttered; and it is at the moment when words and phrases cease that our restless gaze suddenly encounters, across the years and the centuries, another gaze which awaited it patiently upon the divine road . . . and we know that we are no longer alone upon the endless path. — *Les Disciples à Saïis*, Introduction

So one might hope that in the years since that was written he had interrogated his soul to some purpose and got from it some answer, even if not fully expressible in words, to the great question of men’s common minds.

But in spite of many fine suggestions the hope is disappointed. At the end we find that everything has been left as open as at the beginning. He can but enumerate for us the various possibilities of our post-mortem future, hardly suggesting even a probability for one over another. He still admits the soul, but it has now become a “stranger,” hardly subjectible in that case, one would think, to the “interrogation” whose ceaseless pursuit he enjoined upon us in the earlier writing. And he asks how it shall comfort the *lower* Ego, the personality, that which joys and sorrows throughout earth-life, fears death and craves

immortal life, to know that an "unmoved, unseen stranger," *within him* possesses immortality:

If I am told that that stranger is myself [my *higher* self or Ego] I will readily agree; but was that which upon earth felt my joys and sorrows and gave birth to the few memories and thoughts that remain to me — was that this unmoved, unseen stranger who existed in me without my suspecting it, even as I am probably about to live in him without his concerning himself with a presence that will bring him but the wretched recollection of a thing that is no more? Now that [at death] he has taken my place, while destroying, in order to acquire a greater consciousness, all that formed my small consciousness here below, is not another life commencing, a life whose joys and sorrows will pass above my head, not even brushing with their new wings this which I feel myself to be today?

We must therefore inquire whether this "stranger" be indeed such; whether the soul really is so remote and hedged a sovereign as to be inaccessible to — and, let us add, useless to — its representative on earth, the laborer in the vineyard of life, the personality of sorrows and joys; whether that knowledge which Maeterlinck himself seems once to have had — "that we are no longer [nor ever were] alone upon the endless path" — is possible for the rest of us.

One mark of the not-aloneness is conscience. The personal man wants to do something wrong. Conscience does not tell him that it is wrong; he knows that already. But opposing *his* wish to do it, conscience is the expression of *another* wish that he should not. Another being, or center of being, within him, desires him not to do what he desires to do, reinforcing with its desire his bare knowledge that the thing is wrong. This other being is therefore *not* "a stranger," *not* indifferent to his deeds. It is near enough to him to be a-watch of his thoughts, his contemplated and his actual deeds, closely a-watch; and to be able to make its wish directly known by him from within; and it cares enough for him to desire that he should act rightly.

But the soul can and does do more than inspire *not*-doings. As active conscience it also inspires *doings*. When, in a fire or wreck, the common man suddenly "forgets himself," discards the fierce physical impulse to self-salvation, becomes a hero and risks or gives his life for the others in peril, conscience has passed from *do not* into *do*. Under this inspiration the man not only does, but does the *right* thing. The center of inspiration is near enough to earth to know what needs doing.

There are also other kinds of doing, rendered possible by the same

“WHAT IS THIS IMMORTAL THAT THOU HAST?” 309

help. Whence comes the pulse and light of inspiration which in the man of genius suddenly compel him to suspend his ordinary personal thinking and write down quickly the music, the poem, the thought? His task is now to *arrange*, to give *form* to something whose *essence* he knows was not of his personal creating and cannot be commanded at his time or by his will. In his common life he may be as the rest of us, indistinguishable, trivial. But at that moment of reception he is transformed, rarefied, raised to his highest terms.

In some few men the inspiration and transformation have gone much farther, so far that they thought themselves to stand in the immediate presence of absolute deity.

What are we to say of this center of consciousness which radiates into the heart what we call conscience and into the brain the light of creative genius? Will it not be possessed of that knowledge of life which the limitations of the personal man seem to deny to him and without which he can at best walk by faith? Immortality may then be found knowable for certain even if it remain undemonstrable along the lines of ordinary reasoning. A man knows himself as an Ego, but he cannot demonstrate it to any other man whose mind should suppose itself to doubt it. Knowledge of immortality will come to him who allies himself sufficiently with that in him which already knows it.

Nor is this so hard. For although *full* union with the soul is the reward only of much effort and sacrifice on the part of the personal man, so much union as may give certainty of immortality is very easy. For most men, for all whose hearts could be reached at all, this measure of union has already been achieved for them by the compassion of that soul which Maeterlinck calls a “stranger.” There only needs that the reasoning mind shall be trained to cognize what is beyond its own purview.

What remains, then, at death, of the personal man? *He himself*, but not with the entirety of his memories. His bondage to the body was, during life, the only cause of his remoteness from the soul. Re-united at death, he carries with him into the full sunlight such memories as belong to that light, as can live in it, memories of such deeds, thoughts, and feelings as it and not the passional body inspired.

Then it will be by the cultivation of these deeds, thoughts, and feelings, that certainty of immortality can be perfected during life?

Yes; and progress can be made very definite by a daily standing back, as it were, from the personal man. If at night the whole day be gathered together with all its containment of deeds and happenings, looked at for its lessons of failure and success, the limits of this personal man of ours begin to be transcended. It is, so to speak, withdrawn from for better survey from a spiritual standpoint. Then it is understood that that which thus withdraws, which thus looks on and judges and resolves, is not that which death can affect. Death is faced and studied and sounded, in sufficient measure rehearsed, before it actually comes. It is seen that its waves cannot by their very laws of constitution, their function in the scheme, reach up as high as the place on which we now stand. The purpose and meaning of it are, not to cut us short, but to bring other scenes and experiences and fields of consciousness before us — finally, other fields of work.

But not until *this* field has been well tilled. We have made a thousand mistakes, yielded to a thousand forces of passion. The opportunities for the renewal of these makings and yieldings must unfold before us again and again till we have won every victory, strengthened every weak place. Life must follow life. The old temptations must come again — but so also the strength gained by every effort to surmount them; so also the wisdom that is the slowly ripened fruit of bygone pains and failures. The concrete memories of the past can wait. All that are worthy to live *do* live within the field of the soul's consciousness; enough for the personality, *now*, are the threads they wove into his character.

The secret of connexion between life and life is this: All those *misplaced* or *miss-working* energies which we call "weaknesses of character" work out life by life as acts of will compelling the opportunity for their display. They bring about pains and humiliations, which, little by little, becoming at last adequate stimuli, compel the man to readjust himself to the light of his soul. So we move, all too slowly, to that rounded perfection of character which, when attained by all humanity, will permit of the beginning of real life.



THEOSOPHY is the thread which passes through and strings together all the ancient philosophies and religious systems; and what is more, it reconciles and explains them. — *H. P. Blavatsky*

From "SONG OF THE REDWOOD TREE"

Lands of the western shore,
I see in you, certain to come, the promise of thousands of years, till now deferr'd,
Promis'd to be fulfill'd, our common kind, the race.

The new society at last, proportionate to Nature,
In man of you, more than your mountain peaks or stalwart trees imperial,
In woman more, far more, than all your gold or vines, or even vital air.

Fresh come, to a new world indeed, yet long prepared,
I see the genius of the modern, child of the real and ideal,
Clearing the ground for broad humanity, the true America, heir of the past
so grand,
To build a grander future. — Walt Whitman in *Leaves of Grass*



RAPANUI, OR EASTER ISLAND:

by the Rev. S. J. Neill



FEW places in the world possess the charm of mystery which belongs to Easter Island. For this reason alone anything which helps us to a fuller knowledge of the place and its wonderful remains must be deserving of study. Quite recently H. M. S. *Challenger*, Captain G. R. Grant, visited the island, and a brief account of the visit is given in the *New Zealand Herald* of August 23, 1911, upon the ship's arrival at Auckland. In the *London Magazine* for August 1910 there is an account of Easter Island gleaned from several quarters; and the author is no doubt much indebted to the writings of H. P. Blavatsky, though no acknowledgment is made. In the new edition of the *Encyclopaedia Britannica* there is a fairly good article on Easter Island.

In connexion with the above, and some other sources, a few facts may be noted. In order to appreciate these facts, and also the better to understand what H. P. Blavatsky says about Easter Island, one should glance at any good map of the Pacific Ocean which gives in different colors the various soundings. The floor of the Pacific, roughly speaking, consists of four different sections. The "Tuscarora Deep," between North America and Japan, and several other smaller "Deeps," such as those south of Hawaii, north of Samoa, and north of the

Carolines. Then there is the great body of the Pacific whose depth averages about 15,000 feet. A third division consists of the numerous small islands, from Australia and New Guinea to North and South America, with the comparatively raised ocean floor in their immediate vicinity. The fourth section is a very peculiar one, and to get some idea of it one may picture a vast form, almost in human shape, covering the floor of the eastern Pacific from ten degrees north of the equator to the extremity of South America. One can fancy the head bent to the east till it touches Panama and Ecuador, about the right breast is Easter Island, while the right arm seems broken off at Pitcairn Island, and the various islands as far as Fiji may be imagined as fragments. The ocean floor which bears this rough likeness to the human form is raised from 3000 to about 5000 feet above the rest of the ocean floor. Now all this should be kept in mind in reading what H. P. Blavatsky, in *The Secret Doctrine*, says about Easter Island, and about its being a remnant of an ancient continent, Lemuria. It is also very notable that this strange plateau on which Easter Island is situated contains scarcely any life. According to the report of H. M. S. *Challenger*, "fishes and birds alike find the expanse an unattractive desert."

Geographically considered, Easter Island is about 2000 miles from the mainland of South America, south latitude $27^{\circ} 8'$, west longitude $109^{\circ} 28'$. Its area is forty-five square miles; and it is somewhat triangular in shape, with each of the three corners marked by a volcanic peak, the northeastern one being 1768 feet in height. There is no good landing-place. Some of the soil is fertile, and the island appears to have been wooded at one time, but now there are only a few bushes, ferns, grasses, and sedges. The natives grow bananas, sugar-cane, and sweet-potatoes. Goats, fowls, sheep, and a fair number of cattle are reared by the two hundred inhabitants.

In *Blackie's Gazetteer*, a standard work of its time, it is said:

The inhabitants are tall, have an open countenance, high forehead, and regular features; the men are generally robust and muscular; the women delicate and handsome. Both sexes tattoo themselves.

If the picture were ever true it is so no longer, for the natives are now described as of a "low type, wild-natured and undependable, having, like the cattle, sadly deteriorated through in-breeding." The island "owes a passive allegiance to the Chilian Government, and it is in the hands of a private company, Messrs. Balfour and Williamson of Valparaiso." It is managed by an Englishman who keeps a large

assortment of firearms, and along with them the skull of a former manager, with a hole in it, a native having used against the manager his own revolver. The natives are said to be lazy, but they are expert horsemen. Clothing is scarce, and a shirt is of more value than coin. Leprosy has broken out among the natives and very probably they will soon become extinct; though their numbers in 1722 were said to be two or three thousand, that was before the Peruvians in 1863 began to use them to work in the guano diggings on the Chincha Islands.

It is said that Easter Island was discovered in 1686 or 1687 by a South-sea buccaneer named Davis, but this is doubtful, though it is sometimes marked "Davis Island" on maps. Admiral Roggeveen visited it on Easter Day, 1772, hence the name Easter Island. In 1774 Captain Cook rediscovered it and called it Terapi or Waihu, a Maori name surely! La Pérouse visited the island in 1776, and Kotzebue in 1816. The natives are a polynesian race, and they have a tradition that they came to Rapanui (Great Rapa) from Rapa Iti (little Rapa), or Oparo, one of the Austral Islands.

The chief interest of Easter Island is to be found in the wonderful statues, and other archaeological remains. There are about five hundred and fifty-five statues altogether, in different stages of formation, and of different sizes, from three or four feet to nearly eighty feet, the latter being at the volcanic cone on the southeast where all the images appear to have been cut out of the gray trachitic lava, the average size being about sixteen feet high. One in the British Museum is eight feet high and weighs four tons. Crowns to be placed on the heads of the images were cut out of red vesicular tuff found at a crater eight miles distant from the cone where the statues themselves were formed. Some of these crowns are still lying at the crater where they were cut, and it gives some idea of the weight of these crowns to know that one of the largest measures ten feet in diameter. How these immense statues were got out of their position inside the crater of the volcano, and transported several miles is one of the mysteries of antiquity left for moderns to puzzle over.

Immense platforms of large cut stone, some of the stones being six feet long, were formed on headlands and on the slopes toward the sea, and on these platforms the images were placed, always looking seaward. In some cases the platforms are thirty feet high, two or three hundred feet long, and thirty feet wide. All observers agree in speaking of the strange expression on the faces of the statues. The head

is nearly always tilted backward. The eyebrows are heavy, and the eyes deep sunk. The nose is prominent, and very broad at the tip. The lips are thin and projecting. The lower part of the face is broad and heavy, but only imperfectly formed. The ears are long and pendent. The statues generally ended at the shoulders, or at the waist. But the most prominent thing about these statues, that for which they seem carved, is the expression of disdain, the look of "supercilious scorn with which each looks before it," according to the account given by Captain Grant of the *Challenger*. All observers agree in this.

The captain hazards the opinion that the statues were made in feverish haste as if some great peril was feared. The state of the quarries where a great many images were being formed at once, while many more were on the way to be set up, some already being erected, all indicate that some great disaster was dreaded. The peril seems to have come and cut short the fevered haste of the workers, and left their half-finished, or newly begun work as a mystery for future ages to solve. Captain H. V. Barclay, in a paper read in 1898 before the Australian branch of the Royal Geographical Society, expresses a similar opinion:

In short, everything points to a sudden cessation of work, and what more probable than that this was caused by some great volcanic catastrophe.

Other remains are found on Easter Island. There are buildings about one hundred feet long and twenty wide, and only five feet high. These chambers were lined with

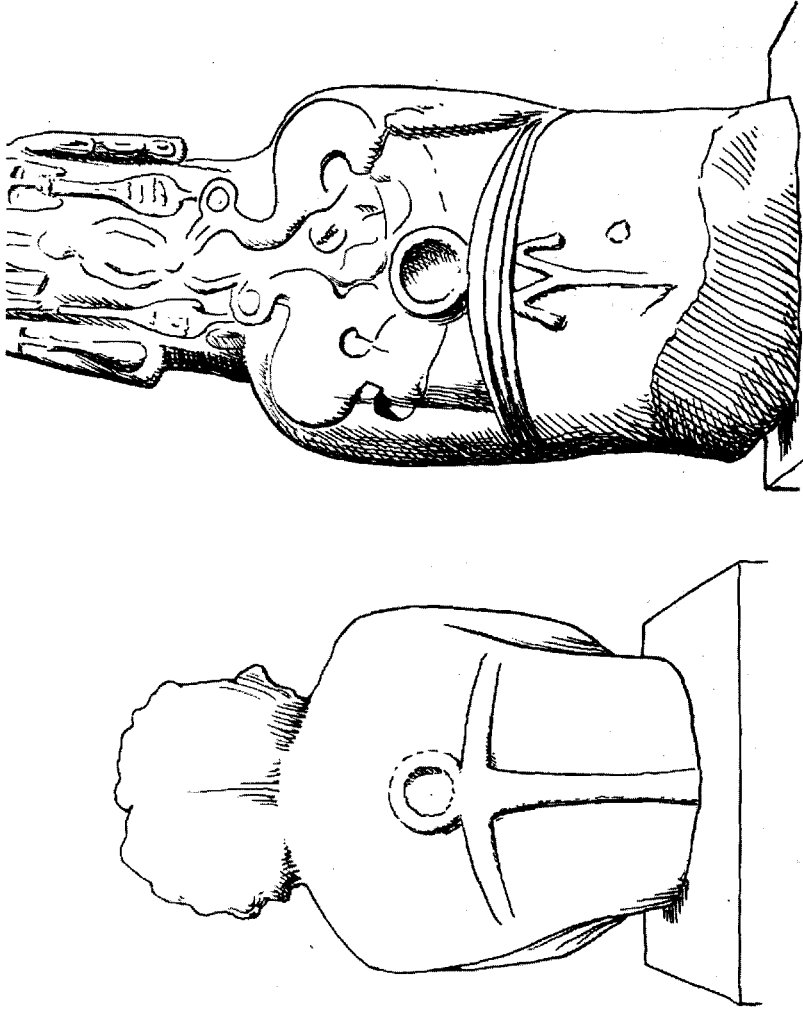
upright slabs of stone, and also with wood, on which are painted geometrical figures and representations of animals. Also, outside these buildings the lava rocks are carved into the resemblance of various animals, and human faces. Wooden tablets covered with various signs and figures have also been found.

Captain Barclay says:

The whole island is one vast sepulchre. Look where you may, dig where you like, human remains are sure to be found.

A rude form of stone chisel is the only kind of ancient instrument found so far.

Easter Island is not the only place where similar remains are to be found. On Tongatabu there is an equally inexplicable, though very different monument. Some have sought to trace a likeness between the statues on Easter Island and remains in Peru and Central America;



Lomalind Photo. & Engraving Dept.

BACK VIEW OF THE TWO EASTER ISLAND STATUES IN THE BRITISH MUSEUM, SHOWING SYMBOLS

The Egyptian Tau Cross is very distinct on the smaller one. The birds on the larger one resemble the Apteryx. Height of the larger statue, eight feet; weight about four tons.

The right-hand statue is "Hoa-Haka-Nama-la," shown on the preceding page.

but nothing quite like the statues on Easter Island is found anywhere in the world.

Let us see what light H. P. Blavatsky gives us on this subject. In Stanza XI, *Book of Dzyan*, we read:

They built huge cities. ●f rare earths and metals vomited out of the fires, they built. ●ut of the white stone of the mountains and of the black stone, they cut their images, in their size and likeness, and worshiped them. They built great images nine yatis high [27 feet], the size of their bodies. Inner fires had destroyed the land of their fathers. The water threatened the Fourth [Root Race].

Again, in Vol. I, pp. 322-3 of *The Secret Doctrine*, it is said that Easter Island presents the feature of the “remaining peaks of the mountains of a *submerged continent*.” Also that the *ansated cross* is to be found on the back of those strange images of Easter Island, and that

Identical glyphs, numbers, and esoteric symbols are found in Egypt, Peru, Mexico, Easter Island, India, Chaldea, and Central Asia.

Again in Vol. II, p. 224, of *The Secret Doctrine*, H. P. Blavatsky says:

The Easter Island relics are . . . the most astounding and eloquent memorials of the primeval giants. They are as grand as they are mysterious; and one has but to examine the heads of the colossal statues, that have remained unbroken on that island, to recognize in them at a glance the features of the type and character attributed to the Fourth Race giants. They seem of one cast though different in features — that of a *distinctly sensual type*, such as the Atlanteans (the Daityas and “Atalantians”) are represented to have in the esoteric Hindû books.

Comparing these Easter Island statues with the Bamian statues (Afghânistân), said to be “portrait-statues of Buddhas belonging to *previous Manvantaras*,” H. P. Blavatsky says:

These “Buddhas,” though often spoilt by the symbolic representation of the great pendent ears, show a suggestive difference, perceived at a glance, between the expression of their faces and that of the Easter Isle statues. They may be of one race — but the former are “Sons of Gods”; the latter the brood of mighty sorcerers. (*Ibid.* II, 224.)

Again H. P. Blavatsky says in the same volume (II, 340) that five of the statues of Bamian are the work of Initiates of the Fourth Race for the purpose of perpetuating in stone the fact of the existence of these races. The third of these

measuring 60 feet — immortalizes the race that fell, and thereby inaugurated the first *physical* race, born of father and mother, the last descendants of which are represented in the Statues found on Easter Isle; but they were only from 20 to

25 feet in stature at the epoch when Lemuria was submerged, after it had been nearly destroyed by volcanic fires.

Again in Vol. II, p. 326 it is written that

Easter Island was also taken possession of in this manner by some Atlanteans; who, having escaped from the cataclysm which befel their own land, settled on that remnant of Lemuria only to perish thereon, when destroyed in one day by its volcanic fires and lava.

In conjunction with this, "Leaflets from Esoteric History" in *Five Years of Theosophy* may be read.

The above will show at once to any impartial thinker that H. P. Blavatsky has thrown a flood of light upon the character of the mysterious statues of Easter Island.

The surmises made by Captain Grant of the *Challenger*, and by others, that some impending calamity was feared by those who made the statues, and that this calamity probably overtook them in the midst of their work, is explained by what H. P. Blavatsky says. The configuration of the floor of the Pacific agrees well with what she says. It is a fitting time to note these things when H. P. Blavatsky and even *The Secret Doctrine* are being assailed by those who should know better. All Theosophists know that *The Secret Doctrine* is based on the "Stanzas" of the *Book of Dzyan*, which it gives, and also their explanation. Some confirmation of them is also given from the works of eminent men. None of the learned men have the work from which H. P. Blavatsky translates these stanzas for us, nor could they read it if they had it. In this work H. P. Blavatsky assures us there is preserved a full record of that ancient past from which she is permitted to give but a small portion, and even this small portion is hardly, as yet, understood. More will be given as it is needed, and as we deserve it.

WHY SO FEW HUMAN BONES HAVE BEEN FOUND:

by T. Henry



PALAEONTOLOGIST, asked why so few human bones are found, compared with animal bones, answers to the following effect: that human bones are sufficiently plentiful but are found only in the latest rocks, and even then mostly in tombs. That no authentic remains are older than the Pleistocene; and that in North America they are all very late Pleistocene. That the inference is that man did not inhabit North America

during the Tertiary period. That the regions explored, however, are only a small fraction of the area of Tertiary formations known to exist in the world; that there are in every continent vast areas of "bad-lands" unexplored by fossil-hunters; and that even in the western States fifty years are so far from exhausting the field that every summer extinct animals hitherto unknown to science are found. That nevertheless we know enough to make it improbable that the ancestry of man will be found in the Tertiary of North America. But that there is much indirect evidence pointing to Central Asia as the home of man during the Tertiary period; it is unexplored territory to the palaeontologist; but if it is opened up during the next fifty years, as the western States have been during the past fifty, we may look to find there the remains of Tertiary ancestors of man.

As to the scarcity of human fossils, Lyell long ago said:

If we consider the absence or extreme scarcity of human bones and works of art in all strata, whether marine or fresh-water, even in those formed in the immediate proximity of land inhabited by millions of human beings, we shall be prepared for the general dearth of human memorials in glacial formations, whether recent, pleistocene, or of more ancient date. If there were a few wanderers over lands covered with glaciers, or over seas infested with icebergs, and if a few of them left their bones or weapons in moraines or in marine drifts, the chances, after the lapse of thousands of years, of a geologist meeting with one of them must be infinitesimally small. — *Antiquity of Man*, p. 246

In fact the rocks preserve but a small fraction of any remains. The number of men is very small compared with the number of animals, and men live in communities and bury or burn their bones, while animals lie down and die where they are. Hence the paucity of human bones and remains in the strata. If it be argued that human remains have been found in the later rocks but not in the older, it can be answered first that the greater the lapse of time the more would the remains have perished; and second that as the writer first quoted says, we have explored the later rocks more than the earlier. Altogether the paucity of hitherto discovered (and admitted) human remains affords no argument against the existence of man, even civilized man, at the more ancient dates. Besides this we have to bear in mind the prevalence of cremation and the fact that major geological changes have intervened between the age of the earlier races of man and the present age.

It should also not be forgotten that the selfsame theory which

denies the antiquity of man also implies his antiquity, since the theories of the biological evolutionists demand an enormous length of time for the carrying out of their supposed process of evolution from the lower animals. In other words these speculations are not consistent.

To sum up — the answer to the question propounded at the beginning may be given as follows. The reasons why so few human bones are found are (1) that there were fewer men to shed them; (2) that men burned or entombed their bones instead of scattering them about; (3) that we have not yet found more than a very small fraction of what there is to be found.

STUDIES IN ORPHISM: by F. S. Darrow, A. M., Ph. D. (Harv.)

II. THE TEACHINGS OF ORPHISM

THE IDEAL WORLD

1. INTRODUCTION



THERE is good reason for believing that the legend of Orpheus in Greek Mythology grew around and partially obscured the actual life of a great prehistoric religious reformer in Greece, of whom Thomas Taylor, the Platonist, says:

This alone can be depended on, from general assent, that there formerly lived a person named Orpheus, who was the founder of theology among the Greeks, the institutor of their life and morals, the first of prophets, and the prince of poets — who taught them their Sacred Rites and Mysteries, and from whose wisdom, as from a perennial and abundant fountain, the divine Muse of Homer and the sublime theology of Pythagoras and Plato flowed.¹

No less than six different men of the name of Orpheus were known to antiquity, but the original Orpheus, the founder of those Mysteries which ensure the salvation of mankind, the interpreter of the gods, who revealed the knowledge of Things Divine, poet, musician, theologian and mystagog, seems to have lived about the middle of the thirteenth century before Jesus Christ. However, historic Orphism, which was evolved from the teachings of Orpheus, comes to the forefront in Greek religious life particularly during two widely separated ages, namely, during the sixth century before Jesus and during the first

1. Thomas Taylor, *The Mystical Hymns of Orpheus*.

four centuries of the Christian era. It is noteworthy that both of these periods witnessed a religious activity and awakening, extending throughout the civilized world — an activity which ran its course not only in Greece and Rome but in Egypt, Persia, India, and China as well. Our principal sources of knowledge in regard to the earlier Revival of the sixth and fifth centuries are Empedocles, Pindar, Euripides, Aristophanes, Plato, and the Orphic Tablets, which date from the fourth century B. C. Our principal authorities for the later period are the Neo-Platonists and their opponents the early Christian Fathers.

The history of Pythagoreanism both in its earlier and later forms, and of later Platonism, is intimately connected with that of Orphism, for in the words of Proclus:

The whole theology of the Greeks is the child of Orphic mystagogy. Aglaophamus first taught Pythagoras the Mystic Rites of the Gods, and next Plato received the perfect knowledge of such things from the Pythagorean and Orphic writings.²

Three figures stand out during the earlier period of historic Orphism as of especial importance, namely, the Cretan prophet, Epimenides, guardian of the Dictæan Cave on Mount Ida, wherein, tradition says, the infant Zeus was nurtured; the philosopher, Pherecydes; and the scholar Onamacritus. Of Greek cities, Athens and Croton seem to have been among the most important centers of this earlier Orphism. Pherecydes, who is reported to have been an early teacher of Pythagoras, is represented as the first literary editor of the Orphic Sacred Writings. That he was well-fitted for the task is attested by the statement that he had been initiated into the Mysteries of the Phoenicians, Chaldaeans, and Egyptians, as well as into those of Orpheus. Furthermore, it is known that he taught the complete immortality of the human soul, its eternity, and its rebirth, in his great prose work on Theology, which unfortunately is no longer extant, except for a few fragments. Onamacritus, one of the scholars connected with the court of Peisistratos, tyrant of Athens (560-527 B. C.), is also mentioned as an editor of the Orphic Literature and it was probably largely due to his influence that the rites of the Eleusinian Mysteries were modified so as to include the Orphic Mystery-Myth of Dionysus-Zagreus, who was identified with the Eleusinian divinity Iacchos, the holy babe. Several other Orphic editors, like Zopyrus of Heraclea and Orpheus of Croton (not to be confused with the original Orpheus),

2. Quoted by Lobeck, *Aglaophamus*, p. 723.

are little more than names to us. In the fifth century before Christ vast quantities of Orphic literature were in circulation at Athens, and we know the titles of about forty different works which are no longer extant. We possess only the *Orphic Hymns*, a collection of more than eighty invocations used in the Mysteries; the *Lithica*, a poem on the Nature and Engraving of Precious Stones for use as Talismans; the *Orphic Argonautica*, a poem reciting the story of Orpheus' connexion with the Argonautic Expedition; and various miscellaneous fragments. Orthodox scholarship dates all these, in their present form at least, during the later period of historic Orphism, although a just reaction in favor of the recognition that their subject-matter goes back to very early pre-Christian times is already noticeable.

The real Greek religion is not, as is commonly supposed, to be found only in the mythology of the anthropomorphic Olympians, but (using the term pantheism in its true sense) in the pantheistic worship of the trinity consisting of Zeus, (a divinity quite distinct from the Ruler of the Homeric Olympus) and the two many-named Chthonic or Earth Gods, the gods of life, death, and rebirth: namely, (1) Zeus, the Divine All-Father; (2) Dionysus, the divine son, both mortal and immortal, the God-man, the Higher Self in man, the only begotten, the first born, Zagreus, the mighty horned hunter, Iacchos, the holy babe, Bromios, the spirit of entheastic inspiration, the God-within, Hades King of the Dead, the spiritual sun, the reborn Savior, the twice born, the fire born, dithyrambos, He of the Twin Portals, the reascended soul or perfected man, He of Many Names and Many Forms; and (3) Rhea-Demeter-Kore, the divine mother-wife-sister-daughter, the Earth Goddess, Persephone, the virgin queen of the dead, and Phersephassa, the risen dove-queen. Side by side with true Orphism were many false and counterfeit cults, which always spring into being whenever truth is proclaimed anew inasmuch as falsehood ever seeks to cloak itself under a more or less formal semblance of truth. We are concerned with the true Orphism and consequently shall not deal with its perversions.

The entire mythology of Orpheus is intentionally symbolical and allegorical, as is distinctly stated by the ancients in the following quotations. Proclus says:

The Orphic method aimed at revealing divine things by means of symbols, a method characteristic of all writers on divine wisdom (theomythia).³

3. Proclus, *Theol.*, I, iv, 9.

Plutarch also testifies to the same fact:

It is clear from the Orphic poems and the Egyptian and Phrygian writings that the archaic natural science both among the Greeks and non-Greeks was for the most part hidden in myths — a secret and mysterious theology containing an allegorical and hidden meaning.⁴

This was also known to the Early Christian Fathers, for Clement of Alexandria says:

All who have referred to divine things, whether Greeks or non-Greeks, have veiled the primal principle and have spoken the truth in riddles, symbols, allegories, metaphors, and similar figures.⁵

And the author of the *Clementine Recognitions* declares:

All the literature among the Greeks dealing with the origin of antiquity is based — primarily upon Orpheus and Hesiod. Their writings, when considered from the standpoint of interpretation, are found to be twofold, literal and allegorical. While the people at large have clung to the literal interpretation, all the eloquence of the philosophers and of the learned is spent in admiration for the allegorical sense.⁶

In the face of such explicit testimony both from Pagan and Christian authors, no one who is open-minded can deny that the Orphic myths, to be rightly comprehended, must be interpreted allegorically.

Our clearest knowledge in regard to the allegorical interpretation of Orphic theology in antiquity is gained from the Neo-Platonists. One of the chief points to bear in mind is that Orphic cosmogony represents the successive stages in the growth of the universe under the figure of successive dynasties of gods, the earlier dynasty being dethroned and supplanted by the later. Also number-symbology lies at the basis of the whole system, the key-numbers being 1, 2, 3, 4, 5, 7, 10, and 12, while a triadic structure is everywhere evident. For example, there are two Diacosms or Worlds, the Ideal or Noumenal World and the Material or Phenomenal World; seven orders of Heavenly Hierarchies, each consisting of a triad of Essence (Father, the creative powers), Life (Mother, the preservative powers), and Intelligence (Son, the regenerative powers), but all in their entirety are emanations from the Unknown Absolute Deity. The Orphic teachings in their purity are identical with the teachings of the Wisdom-Religion, the parent "Secret Doctrine" underlying all historical religious systems, and they can be understood only with the help of

4. Plutarch, *De Daed.*, Frag. IX, i, 754. 5. Clemens Alexandrinus, *Stromata*, v, 4.

6. *Clementine Recognitions*, x, 30.

the keys given by the Theosophical Leaders. For further explanation the student should consult H. P. Blavatsky's masterpiece, *The Secret Doctrine*, upon which the following brief exposition is based.

2. THE ABSOLUTE DEITY

The ultimate postulate of Orphism is well expressed by Thomas Taylor as a belief

in one First (or rather Causeless) Cause of all things, whose nature is so immensely transcendent that it is even super-essential (that is, beyond and above the realm of existence) and that in consequence of this it cannot properly either be named, or spoken of, or conceived by opinion or be known or perceived by any being.⁷

This immense principle is superior even to Being itself; exempt from the whole of things, of which it is nevertheless ineffably the source.⁸

All things, says an Orphic verse, are contained in "the single power and the single might of the One Deity, whom no man sees."⁹ So Maximus Tyrius states:

There is one Deity, the King and Father of all, and many gods, sons of the Deity, ruling together with him. This the Greek says, the barbarian says, the inhabitant of the continent and he who dwells near the sea, the wise and the unwise.¹⁰

So also Aristotle:

Our ancestors and men of great antiquity have bequeathed to us a tradition, involved in fable, that the first principles are gods and that the Deity includes the whole of nature.¹¹

The Absolute Deity is named by Orphism "The Thrice Unknown Darkness" (a term adopted from the Egyptians), and Chronos or Unaging Time, Endless Duration. Since the Ineffable is of necessity unknowable, Orphic speculation turns to the dual principles of primordial spirit and matter, previous to the manifestation of which Orpheus declares "the Boundless unweariedly revolved in a circle."¹²

3. AETHER, CHAOS, AND PHANES

The two principles immediately posterior to "the Thrice Unknown Darkness" are called in Orphic teaching Aether (the Father, spirit), and Chaos (the Mother, the World-stuff, primordial matter). Manifested life is itself the offspring of these two principles and is repre-

7. Thomas Taylor, *Miscellanies in Prose and Verse*, 1st ed. 1805, p. 26. 8. Thomas Taylor, *Mystical Hymns of Orpheus*. 9. Quoted by Lobeck, *Aglaophamus*, p. 479. 10. Maximus Tyrius, *Dissertation on What God is According to Plato*. 11. Aristotle, *Metaphysics*, xii, 8. 12. Quoted by Proclus, *On the Cratylus of Plato*, p. 78.

sented by the symbol of the silvery-white Mundane Egg, from which leaps forth in gleaming glory Phanes-Protogonos, the First Born, the first Logos or cosmogonic Eros, love divine which fashions the world, male-female, the triple dragon-formed God with four eyes gazing everywhere, and golden wings with which he travels in every direction, known also as Metis and Ericapaeus. Phanes, the "Appearer," as the name signifies, is the first of the five successive Cosmic Rulers, the Parent of the gods and the creator and ruler of the ideal world, the prototype and ancestor of Zeus, the demiurge or creator and ruler of the material world. With Phanes, Night is associated, as both mother and wife. These Orphic teachings are outlined in the following quotations. The *Clementine Recognitions* declare:

It is Orpheus, indeed, who proclaims that Chaos first existed, eternal, uncreate, neither darkness nor light, nor moist nor dry, nor hot nor cold, but all things intermingled ever in one unformed mass; and that at length, in the shape of a huge egg, it brought forth and produced from itself a twofold form, wrought out in the course of immense cycles of time, male-female, a form made concrete by the admixture of opposites — the principle of all things, which arose from matter and which coming forth, effected a separation of the four elements and made heaven of the two elements which are first (fire and air), and earth of the other two (water and earth); and from them he says that all things now are born and produced by a mutual participation in them.¹³

Proclus states that

The Egg was produced by Aether and Chaos, Aether fashioning it according to limit, for it is the root of all; and Chaos according to infinity, for it has no bounds.¹⁴

Furthermore, Lactantius tells us that Orpheus called the first born Phanes, or "the Appearer, because while as yet there was nought He first appeared and came forth from the Infinite."¹⁵ "None could look upon Phanes except Holy Night alone. The others — all amazed beheld the sudden light in space, such radiance shone forth from Phanes."¹⁶ "This power Orpheus calls Phanes because upon its appearance the whole universe shone forth by the light of fire — the most glorious of the elements."¹⁷

And its names Orpheus heard in a prophetic vision and proclaimed them to be Metis, Phanes, and Ericapaeus, which interpreted signify Forethought (Will),

13. *Clementine Recognitions*, x, 30. 14. Proclus, *On the Timaeus of Plato*, I, 138.
15. Lactantius, *Institutiones*, I. 5. 16. Orphic Verse, quoted by Hermias, *In Phaëdrum*, p. 141. 17. Clemens Alexandrinus, quoted by Lobeck, *Aglaophanus*, p. 478.

Light, and Life (the Light-giver); and he added that these three divine powers . . . are but the single power and might of the one Deity, whom no man sees — and by whose power all things come into being, both the immaterial principles and the sun and moon and all the stars.¹⁸

4. URANUS AND GAEA

As Phanes carries within the ideal germ of all things divine and earthly with the help of his mother and wife Night, he generates the ideal world, and from the upper part of the broken shell of the Mundane Egg he forms Uranus or Heaven, his Son, the second Logos or the second of the successive Cosmic Rulers; and from the lower part of the broken shell Gaea or Earth, wife of Uranus. This is referred to by Aristophanes in the following verses:

There was Chaos at first, and Darkness and Night, and Tartarus, vasty and
dismal;
But the Earth was not there, nor the Sky nor the Air, till at length in the bosom
abysmal
Of Darkness an Egg, from the whirlwind conceived, was laid by the sable-plumed
Night.

And out of that Egg, as the seasons revolved, sprang Love,¹⁹ the entrancing, the
bright,
Love brilliant and bold with his pinions of gold, like a whirlwind, refulgent, and
sparkling,
Then all things commingling together in love, there arose the fair Earth and
the Sky
And the limitless Sea; and the race of the gods, the Blessed, who never shall die.²⁰

5. KRONOS AND RHEA

The offspring of Heaven and Earth were first, the three Fates or Karmic Powers, the three Hecatoncheires, the monsters with a hundred hands, and the three Cyclopes, both of which groups represent cosmic builders among the celestial hierarchies, who, because of a premature revolt against their father Uranus were hurled into the lowermost depths of Tartarus. The twelve Titans, as a second progeny, were then brought forth by Earth in secret for the purpose of avenging their defeated brethren. The second revolt, that of the Titans, proved successful. Uranus was dethroned, and after a short reign of the Titan Ophion and his wife Eurynomê, the daughter of Ocean, the scepter passed to Kronos, the third of the successive cosmic rulers, and

18. Malela, iv, 31; Cedrenus, i, 57, 84, quoted by Lobeck, *Aglaophamus*, pp. 479-480.
19. That is, Cosmogonic Eros or Phanes. 20. Aristophanes, *Birds*, 693-703 (Rogers).

his wife Rhea, the Great Goddess, Mother of the Olympian Gods. This part of the Orphic cosmogony is referred to by Apollonius Rhodius in the following verses:

And lo, with his lyre upheld
 In his left hand, Orpheus arose, and the fountain of song upwelled.
 And he sang how in the beginning the Earth and the Heaven and the Sea
 In the selfsame form were blended together in unity;
 And he sang of the goal of the course in the firmament fixed evermore
 For the stars and the moon, and the printless paths of the journeying sun,
 And how the mountains arose, how rivers that babbling run,
 They and their nymphs were born, and whatso moveth on Earth;
 And he sang how Ophion at first, and Eurynomê, Ocean's birth,
 In lordship of all things sat on Olympus' snow-crowned height;
 And how Ophion must yield unto Kronos' hands and his might;
 And she unto Rhea, and into the Ocean's waves plunged they.
 O'er the blessed Titan Gods these twain for a space held sway,
 While Zeus as yet was a child, while yet as a child he thought,
 And dwelt in the Cave Dictæan, while yet the time was not
 When the Earth-born Cyclops the thunderbolt's strength to his hands should give,
 Even thunder and lightning; by these doth Zeus his glory receive.
 Low murmured the lyre and slept, and the voice divine was still.²¹

6. ZEUS

As Phanes, the first of the cosmic rulers, is the creator of the ideal world and the ancestor of the gods, so Zeus, the fourth in the chain of succession, the last power in the ideal world, is the creator of the material world, the demiurge, and the Father both of gods and men. Consequently Orphic myth represents Zeus as having swallowed or absorbed his great prototype, Phanes. Also, Zeus is said to have dethroned his father, Kronos, from whose blood sprang into being the race of giants, who in the early years of Zeus' reign instituted an unsuccessful revolt against the newly-established power. The wife of Zeus in Orphic mythology is Demeter-Kore, the great Earth-goddess, as Mother and Maid, rather than Hera, the Queen of the Sky, as in the common myth.

Modern scholars and commentators frequently confuse Phanes and Zeus with each other as well as with the Absolute Deity of Orphism; but the following Orphic Hymns refer to Zeus, the demiurge, rather than to Phanes, the first Logos, or Chronos, the "Thrice Unknown Darkness," the Absolute Deity. However, in this connexion the following explanation of Thomas Taylor must not be overlooked:

21. Apollonius Rhodius, *Argonautica*, I, 494-512 (Way's Translation).

According to this theology, each of the gods is in all, and all are in each, being ineffably united to each other and the highest Deity, because each being a superessential unity their conjunction with each other is a union of unities. And hence it is by no means wonderful that each is celebrated as all.²²

Therefore the various goddesses are often represented as mother, wife, and sister of the same god, and sometimes even as his daughter. Thus an Orphic verse declares: "The Goddess who was Rhea, when she bore Zeus became Demeter."

Now rather turn the depths of thine own heart
 Unto the place where light and knowledge dwell,
 Take thou the Word Divine to guide thy steps
 And walking well in the straight and certain path,
 Look to the One and Universal King —
 One, self-begotten, and the Only One,
 Of whom all things and we ourselves are sprung.
 All things are open to His piercing gaze,
 While He Himself is still invisible.
 Present in all his works, though still unseen.

And other than the great King there is none.
 The clouds for ever settle round His throne
 And mortal eyeballs in mere mortal eyes
 Are weak, to see Zeus reigning over all.²³

There is one Zeus, one Sun, one Underworld,
 One Dionysus, one lone God in all.²³

Zeus was the first, Zeus of the bright thunderbolt shall be the last of things; Zeus is the head; Zeus fills the midst; all things are framed of Zeus; Zeus is the foundation both of earth and of starry heaven; Zeus is male; Zeus the divine feminine; Zeus is the breath of all things; Zeus the rushing of irresistible fire; Zeus the great fountain of the deep; Zeus the sun and moon; Zeus is the king; Zeus the leader of all; for he of the bright thunderbolt, after hiding all within him, brought them forth again from his sacred bosom to the gladsome day, doing ever wondrously.²⁴

For all things lie within the mighty frame of Zeus. His head and fair countenance is to be beheld in the gleaming sky, adorned with the golden rays of the glittering stars, as with beautiful hair; and on either hand are the two golden horns as of a bull, the East and the West, the paths of the heavenly gods; and his eyes are the sun and the shining moon; his royal ear that tells him all things truly is the imperishable ether, wherethrough he hears and hath intelligence of all things. Nor is there any voice or any cry or noise or rumor, which escapes the

22. Thomas Taylor, *Mystical Hymns of Orpheus*. 23. Orphic Hymn, quoted by Justin Martyr, *Exhortation*, xv. 24. Orphic Hymn (Campbell's Translation).

ear of all-prevailing Zeus, the son of Kronos. Thus immortal is his head and faculty of thought, and his body all radiant, immeasurable, imperishable, unshakable, of mighty limbs and all-subduing, is thus framed; the shoulders and the chest and broad back of the god is the wide circumambient air, and he hath wings, moreover, whereon he is wafted every way, and his holy abdomen is the earth, mother of all things, and the lofty mountain-tops; and the girdle of his middle is the swelling and sounding sea. And the ground he treads are the inward parts of earth firmly rooted beneath gloomy Tartarus. Hiding all these things within him, he brings them forth again into the gladsome light, doing ever wondrously.²⁵

Zeus is the great God who is all things that be —
 The Pillar of the Earth and starry Sky,
 The Depth of the great Deep; the Sun, the Moon,
 The Word which Makes, the all-compelling Love —
 For all things lie within his formless frame.²⁶*

The following hymn by Cleanthes, though written by a Stoic, is thoroughly in the Orphic spirit:

Greatest of the gods, God with many names,
 God ever-ruling, and ruling all things!
 Zeus, origin of Nature, governing the universe by law,
 All hail! For it is right for mortals to address thee;
 For we are thy offspring, and we alone of all
 That live and creep on earth have the power of imitative speech.
 Therefore will I praise thee, and hymn forever thy power.
 Thee the wide heaven, which surrounds the earth, obeys;
 Following where thou wilt, willingly obeying thy law.
 Thou holdest at thy service, in thy mighty hands,
 The two-edged, flaming, immortal thunderbolt,
 Before whose flash all nature trembles.
 Thou rulest in the common reason, which goes through all,
 And appears mingled in all things, great or small,
 Which filling all nature, is king of all existences.
 Nor without thee, O Deity, does anything happen in the world,
 From the divine ethereal pole to the great ocean,
 Except only the evil preferred by the senseless wicked.
 But thou also art able to bring to order that which is chaotic,
 Giving form to what is formless, and making the discordant friendly
 So reducing all variety to unity, and making good out of evil.
 Thus throughout nature is one great law
 Which only the wicked seek to disobey —
 Poor fools! who long for happiness,
 But will not see nor hear the divine commands.

25. Orphic Hymn (Campbell's Translation). 26. Orphic Hymn (Translation by Lewis Morris).

In frenzy blind they stray away from good,
 By thirst of glory tempted, or sordid avarice,
 Or pleasures sensual, and joys that pall.
 But do thou, O Zeus, all-bestower, cloud-compeller!
 Ruler of thunder! guard men from sad error.
 Father! dispel the clouds of the soul, and let us follow
 The laws of thy great and just reign!
 That we may be honored, let us honor thee again,
 Chanting thy great deeds, as is proper for mortals,
 For nothing can be better for gods or men
 Than to adore with hymns the Universal King.²⁷

7. ZAGREUS

The fifth and last of the cosmic rulers in the Orphic theology is Zagreus-Dionysus, the divine son, God-in-man, the separated deity, and as such a power of the material world, intellectual and spiritual light, son of Zeus and Demeter-Kore the Earth-goddess. Zagreus was proclaimed to be the divine successor by Zeus himself, who announced: "Hear me, ye gods, I place over you a king." The myth of Zagreus formed the basis of the Orphic Mystery-drama and will be considered later.

8. SUMMARY OF ORPHIC COSMOGONY

It is thus plain that the Orphic Cosmogony postulates the Ineffable, Unknowable, Absolute Deity, called Chronos or Unaging Time and Endless Duration, as the ultimate fact; but in the evolution of the world, outlines seven emanations of the Absolute in the Ideal world, viz: (1-2) Aether (spirit) and Chaos (matter), from which springs (3) the Mundane Egg (Manifested Life), out of which leaps (4) Phanes (the first Logos), who in turn is succeeded by (5) Uranus and (6) Kronos (the second and third Logoi), who are also succeeded by (7) Zeus (the demiurge), the last power of the Ideal World, who starts again the sevenfold process of emanation by begetting Zagreus-Dionysus the God-in-man, the divine son. The importance of the septenary key in Orphic theology is further shown by the following verses:

When the Seventh Light comes, the All-powerful Father begins to dissolve all things, but for the good there is a Seventh Light also; for there is a sevenfold origin of all things.²⁸

27. Hymn of Cleanthes (Version given by James Freeman Clarke in his *Ten Great Religions*). 28. Orphic Verses, quoted by Eusebius in *Praep. Ev.* xiii, 12, 688.

MAN'S DUTY TOWARD NATURE: by a Nature-Lover

FEW years ago, says a Glasgow paper, the gulls which followed in the track of the plow stood high in the estimation of the farmer; they lived on grubs and their presence was welcomed as likely to be of benefit to the crop. But of late years observers have noticed that the bird was developing a partiality for ripening grain. This new taste has grown rapidly, and now the gull is a source of worry during seeding time; for he has been seen searching for grain with a pertinacity that would do credit to the barn-door fowl.

Facts like this, and there are not a few of the kind, help to explain the difference of opinion as to whether certain birds do harm or good. The habits of these birds may have changed; what is more, the habits may vary in different situations. Further, we see that the habits of animals are by no means fixed. So long as animals remain in their customary natural surroundings, they vary but little if at all; adaptation to circumstances seeming to be the goal of their ambitions. But vary the conditions, and before long the animals will change their habits in adaptation thereto. In the case of animals which have been domesticated, we know that they tend to relapse to their natural type if deprived of the sheltering conditions of domestication; and probably the same would be the case with birds whose habits have been changed.

Our civilization is yet young and inexperienced, by comparison with former civilizations, now passed away, which endured for ages. Consequently we have much to learn yet in science. And it is more than possible that some of the secrets we have yet to discover have been known before and forgotten. Perhaps some of the results in the production of domestic types of animals and garden fruits and flowers which we usually attribute to the hand of Nature (whatever that may mean) may be due to the hand of man, who in past ages may have studied these branches of practical science.

However that may be, it seems evident that a field lies open before us in the study of animal education and agriculture. Take the case of these gulls, for instance: their habits have been thus easily changed from grub-feeding to grain-feeding. The change was accidental and unpremeditated, it is true; but why might not calculated changes be produced? In short, why could we not produce types of birds, rodents, etc., to suit our requirements? This is well worth thinking over.

As regards birds, rabbits, and other creatures, which have become pests interfering grievously with our agricultural operations, it is regrettable that under present conditions we should find it necessary (or apparently necessary) to shoot and poison them. We have here a dilemma which sets at variance our instincts of mercy and our interests. It is only to be expected that we should confront such dilemmas in a world so jangled as the one we live in; but surely it is equally to be expected that in a better order of living such difficulties would resolve themselves.

Is it possible that there may be ways of reconciling ourselves with the animal kingdom without destructive violence? If so, not only would the voice of mercy be heeded, but our interests would be consulted as well; for violence breeds violence, and the outrages we inflict on nature must surely be visited on us sooner or later — or upon our descendants — in the shape of plagues. The history of the past presents us with familiar examples of the practice of propitiatory rites designed to put man on a harmonious footing with the powers of nature. These we have hitherto rashly regarded as mere superstition (as perhaps they were at some epochs and among some peoples). But a practice so universal must have had a worthier origin; there can be little doubt that it originated, not in superstitious awe, but in actual knowledge — that it is a remnant of forgotten science. It has been suggested that the Egyptian veneration for the scarabaeus or sacred beetle may have had some connexion with the functions of this animal in agriculture. Many ancient nations seem to have considered that they could, by certain ceremonies, reconcile man with other powers in nature.

These ideas may seem visionary, but we have no right to assign limits to the possibilities of science. And when we consider under what disadvantages science at present works, we may predict for it far greater achievements under better conditions. Shortsighted personal interest, indifference to the higher issues and deeper joys of life, a chaotic condition of belief as regards the laws of life, and inability to hold in check many destructive forces in human nature, militate against the beneficial application of science and cause its discoveries to be directed to harmful uses. But if the present spirit of rapacity and unrest were replaced by harmony and repose, many things would become possible and even probable which now we can merely long for.

The study of nature forms an essential feature in the life of Theosophists. It leads one back to healthy and sane paths, away from morbidity. Nature is usually regarded in three ways, which may be called the agricultural, the artistic, and the scientific. There are a few people who have a deeper appreciation, and who feel the *spirit* of nature. This last class ought to become more numerous. Yet we need not, with the extremists, look to a return to primitive ways of life, in the sense of going backwards. If we have wandered from the path, we can get back to it without having to return to the place where we left it. It is in our hearts and minds that we must seek simplicity, rather than in externals. It is the *spirit* of nature that we must imbibe. That spirit we should seek to carry with us wherever we go, that the works of man may be made as beautiful as the works of nature.

Another point: let us not forget that man stands in a position of power with respect to nature, and that the lower kingdoms look up to him as teacher. With touching plasticity these creatures copy our habits, good or bad. Dog-lovers say that the habits of the dog are clean or unclean — according to circumstances. If man could only leave off calling himself a miserable sinner, or an over-cerebrated ape, or a reincarnation of Mary Queen of Scots and Count St. Germain: if he could only regard himself as a being endowed with a spark of the Divine Fire; he would achieve more dignity in his own life and command greater respect from his younger brothers the animals.

DOES NATURE CHANGE HER LAWS? by H. Travers



IN the columns of a periodical review appears an article entitled "Does Nature Change her Laws?" which, although somewhat confusedly expressed, indicates clearly enough a topic which has frequently been treated by Theosophical writers. It also indicates the great changes that are coming over scientific thought in these days; changes which are more favorable to the ideas promulgated by Theosophists than to the passing scientific beliefs which they are supplanting.

Disposing of the conventional personification designated "Nature," and without expressing at this point an opinion as to whether there are any "laws" or not, we may assert a conviction that the properties of

nature vary both locally and temporally; that is, that they are not the same on all planets, nor the same on any one planet at all epochs. But let us first quote from the article in question:

In a world which evolves continually, are the laws — that is, the rules under which this evolution takes place — alone exempt from all variation?

The writer then supposes a world wherein no such phenomenon as a change of temperature has ever been noted; all temperature is uniform, so far as the inhabitants can tell; in other words, there is no temperature at all — the notion of temperature, having no meaning apart from change of temperature has never struck the inhabitants. Then it is supposed that evolution brings on a slight variation of temperature, which is detected by some scientist by the aid of delicate instruments. He sees at once that this new factor introduces complications into the scientific calculations; and, using the “scientific imagination,” he begins to speculate that in past ages or on other worlds there may have been or may be still greater variations in temperature, so that the phenomena are entirely different. Applying this analogy, the writer suggests that there may be some other quality in the same situation as temperature was supposed to be in the parable; that perhaps this new quality is beginning to be manifested, or beginning to be detected, that it may have existed in greater force in other ages, and that it might upset all our scientific calculations. And he instances the recent discussions as to the invariability of our dynamical laws. Some scientists are asking whether these dynamical laws, framed to explain phenomena within a certain compass of observation, hold good in a greater compass, such as that of interstellar space.

This point may be further illustrated as follows. In a circle drawn upon a plane surface, the ratio between diameter and circumference is constant; but in a circle drawn upon a spherical surface, that ratio, besides being different from what it is in the former case, varies according to the size of the circle relatively to the size of the sphere upon whose surface it is drawn. (We are speaking, of course, of the geometry of a spherical surface and dealing only with lines which lie wholly within that surface.) Consequently, while it is true that the ratio called π holds good so long as our surface is plane or virtually plane, the ratio does not hold good when we come to circles so large that the curvature of the earth would enter as a factor.

In the Theosophical view everything evolves — not the animals and vegetables alone. Hence the properties of physical nature have

not always been the same, nor will always be; nor are they the same in all parts of the universe, or even of the solar system. This view is in accordance with harmony, which forbids us to suppose any fixity in a universe where change is so evidently the general law. It is also reasonable to suppose that men of science, in calculating the dynamical relations among bodies, have overlooked some factors which ought to have been counted in; otherwise we must assume that science had discovered everything. It has always been possible for theorists to make a system complete enough to satisfy themselves, and yet to be able to accommodate any further discoveries that might be made. Thus the phenomena connected with radio-activity have had to be counted in; and gravitational theories of celestial motions are now qualified by a consideration of the possible effects of light-pressure.

Theories which seem complete and satisfying may nevertheless be turned inside out or upside down; for symmetry does not imply completeness, and there may always be other systems equally symmetrical. The scientific text-book tells you that matter is composed of minute particles, separated from each other by relatively enormous inter-spaces. This theory is considered necessary to account for the phenomena of compressibility and porosity. When a body is compressed or expanded, its particles are supposed to approach or recede from one another; and when one body permeates another, the particles of each are supposed to intermingle.

But now, in this age of all-questioning, we find even this old standby brought before the bar. And, what is even more unkind, the plaintiff brings forward in support of his own case some of the witnesses for the opposite side! In short, whereas the alleged fact that bodies permeate one another was brought forward as evidence of the spaces between their atoms, now it is argued that, *because bodies do not permeate one another*, therefore there can be no spaces between their atoms!

The arguer adduces the fact that gases can so readily be imprisoned in solid receptacles, that metals which occlude gases are obliged to expand their bulk in order to do so, that water cannot evaporate from accidental inclusion within crystals containing no water of crystallization, etc. In brief, he presents a case for the theory that the atoms are quite or very nearly in contact. But now, it will be asked, what becomes of the explanation of expansion and contraction? In answer, the theorist bravely and unconcernedly begs the whole question by

suggesting that the atoms themselves are compressible and expansible!

This is indeed revolutionary, and of course does away with the necessity (on that ground) for having any atoms at all; for, if an atom can expand and contract, then why can not an entire body do the same? It was formerly supposed that we could not explain contraction and expansion without postulating an atomic structure; but this difficulty does not seem to bother the present theorist — so far as can be judged from a review of his arguments. And after all, why cannot an atom expand and contract? It is true the question lands us in some metaphysical difficulties. What is an atom? Is it that which has no parts? If so, then how can its parts get nearer to or farther from each other? But if an atom has parts, then, if it contracts, its parts must get nearer together, that is the distances between them must lessen. This raises the question whether a distance is the same thing as a space — and now it is time to go home!

The position raised by this new theory is so curious that it invites further expatiation. We have been compelled, against our will and in spite of strong objections, to postulate an atomic structure for matter, because the necessity of finding an explanation for such phenomena as expansion and contraction. And now we are told that no such necessity ever existed; indeed the new theorist goes back of our original position and proceeds to argue as if the problem of expansion had not arisen and was not going to arise at all. All he wants is an elastic atom, and he does not see why he should not have it. And he is right; he may just as well have his elastic atom as the others may have their inelastic atom. Elasticity may just as well be a prime and irresolvable property as rigidity.

But it would be easy to go on making paradoxes and jokes like this indefinitely, because we are dealing with a fallacy. That fallacy is the attempt to define elements in terms of their products. In arithmetic we may analyse numbers down as far as the unit; but if we attempt to resolve the unit, we are simply frustrating our own purpose by proposing to resolve that which we have postulated as being irresolvable. In short, if we could cut up the unit into parts, it would no longer be the unit; and when, in the attempt to do so, we resort to the devices of vulgar and decimal fractions, what we really do is merely to multiply the unit first and then divide it up again. Thus, in trying to evaluate the square root of 2 in the decimal system of notation, we really put down the nearest square root to 200 or 20,000, etc. and the

expressions $\frac{1}{2}$, $\frac{1}{3}$, etc. mean that we have temporarily substituted for 1 the numbers 2, 3, etc., in order to be able to divide it. So in our atomic theory, we postulate a unit of physical matter. This unit must itself be irresolvable into further parts; for otherwise it is not the unit; an atom which is made up of atoms is not an atom. Yet we proceed to adopt subterfuges, just as we do in our arithmetic, and to suppose the atom itself to be made up of parts, just as we suppose the unit to be made up of parts. For when we endow the atom with size, or extension, or imagine it to have a behind and before, or a top and bottom, we are really endowing it with the very properties for whose explanation it was invented. Thus considered, the atom is a mere convention, and we can make it elastic or rigid as may suit our occasional convenience. Another question arises when we come to deal with experimental observations. If an experimenter has detected any minute particles, their properties are a question to be determined by experiment, not alone by deductive logic.

Thus one must distinguish between the ideal atom and any minute atoms which may be discovered by experiment, and avoid confounding the two in one's argument; otherwise one will get the above confusion.

Let us turn again to the main question of this article. Is solid matter porous or not? How can such a thing be settled? By the visual sense? Well, some rays of light are stopped and others are not; the matter is impenetrable to one radiation and porous to another. Or shall we gage impenetrability by the test of resistance to pressure? In that case a magnetic field might be considered impenetrable, and it is known both from calculation and experiment that a system of particles, separate from each other but in rapid motion, can be as rigid and impenetrable as a solid. We can form no notion, adequate to the purpose in hand, of either a rigid particle or an empty space; hence our question is irrational.

Research may claim to confine its studies to the objective world; yet it often wanders from these limits in order to enter the domain of imagination, wherein it studies the phantoms of the mind. If it decides to confine itself to the study of external nature, it must rest content with certain axioms and primary assumptions beyond which it must not seek to go. If it wishes to go beyond these, then, instead of searching the domain of mental phantoms, let it study the *mind*. For in the mind arise those notions of space, etc., which we superimpose upon objective nature. The faculties themselves by which we study nature

must become objects of study; which of course means that the student has to take his standing-ground in a deeper stratum of his own being.

The interdependence of that which is in ourselves and that which is without, helps us to understand that the properties of nature may not always have been the same. In the bronze age, bronze may have been as useful a metal as iron is in this age. Old formulas, workable in the past, may be no longer so. Colors may have been different, animals may have had different habits, and so on. Many difficult historical questions may have their solution in this consideration. The reader is invited to study the question from the Theosophical standpoint.

ON LOCKS: by H. T. Edge, B. A. (Cantab.), M. A.



IN an article on "locks" it is stated that not long ago two or three locks were all that was thought necessary in a household; but now every door has a lock, there is a lock on every cupboard and closet; no drawer or box, large or small, is without its lock. Particular credit was claimed for a certain country as being pre-eminent in the invention and manufacture of locks, excellent, unpickable. The fact may be conceded, together with such credit as the country may be entitled to for such prowess; yet is there not another side to this question of the rampancy of locks?

Passing along the road one day, an individual gifted with superior faculties saw a chest, and on the chest a lock. Being able to understand the language of inanimate objects, he overheard what that lock said. It said: "Keep out, wicked man!" and said it roughly, too. The wayfarer was ruffled; he had no intention of molesting the lock, no wish even to explore the goods it so jealously guarded; a dishonesty he did not own had been imputed to him. But the lock was after all merely an irresponsible slave, mechanically and faithfully doing the will of its master. And who was that master? Alas! It was the wayfarer's own twin brother, a man whom he was supposed to love, by whom he thought to be beloved. This brother, then, mistrusted him; was afraid the wayfarer would steal his tools; had not even thought it worth while to waste time in the folly of asking him not to steal them; had deemed him a case where prevention is better than

cure. And the wayfarer waxed misanthropical and sarcastic. Everywhere he went, no matter how intimately he was known, locks glared at him from everything that shut and everything that ought to open. He found himself an object of universal suspicion. There must be something badly the matter with brotherhood, he reflected; is this a civilization I am in? And forthwith he shed his clothes, painted his body, and returned to the sons of his fathers, to the men of the forest, to whom locks are unknown, to whom brotherhood is not a thing to be attained, for men do not go seeking what they have never lost.

But it happened that the brother who had put the lock on his chest, being smitten with remorse, sought out the wanderer and said: "I did not lock up my tools against you, nor yet against our brother James, nor against John. It was against Judas, the light-fingered, who passes that way. Let us therefore hale this Judas before the court of the republic and bid the magistrates cut off his fingers according to the new scientific law." But the wanderer answered: "And is not Judas also our brother? Why should I cut off his fingers and yet leave thy uncharitable tongue wagging in thy mouth. Ay! and who am I also that I should deem myself fit to judge another because among his faults he perchance numbers one from which I am free? If our brother were lame or blind, would you bid me slay him? Why then should we maltreat him for being afflicted with an infirmity of his fingers? Let us rather pity him that he has such brothers as we, who have suffered him thus to indulge his weakness and have not helped him. This I have learned since I came to dwell with the forest: that he who would heal his brother must first be whole himself. What Judas needs is not words but a good example."

The lock is, in one of its meanings, a symbol of unbrotherliness. It would be very absurd if the members of a family had each his own locked-up room, and if the food were kept in a number of labeled lockers. We should say that family was disunited — hardly a family at all in fact. It seems to have been absolutely necessary as a stage in progress that men should separate themselves and that the institution of private property should wax to great proportions. Proposals of communism, such as have sometimes been made, do not commend themselves to us as progressive or desirable steps. The reason is obvious; these proposals deal only with the external conditions, but do not reform the character of the individuals; so they would have

to be enforced, which is impracticable. We must aspire to evolve, not to go back. When we are able to get along with fewer locks, it will be not because the institution of private property has been abolished, but because we have learned to use and respect that institution rightly.

Besides locks on our doors and boxes, we have locks on our lips and hearts. Secret thoughts, joys that must not be shared, lie concealed behind these locks. Our brother's mind is unpickable; we cannot get anything out of it — neither can we put anything in. He may prefer suicide to the prospect of confiding his woes to his brother. He loves his own ideas. The lock is a symbol of mutual mistrust, one of the most regrettable features of our life.

THE RIGHT USE OF THE LOCK

A lock is a symbol of protection and guarding. We lock up explosives and dangerous drugs and wild beasts. But there are many things we do not lock up which we should. We do not lock up our mouths at the right time. We send our children out into the street to pick up anything and everything; we let them read the yellow journals and pornographic novels. We have our locks in the wrong places. Side by side with the abuse of privacy is the abuse of publicity. We permit dangerous knowledge to be diffused everywhere and put dangerous drugs and explosives on the open market. But the lock is a sacred symbol — more familiar, perhaps, as the key. The key to knowledge, the key to life everlasting, are familiar expressions. Power and knowledge must be kept from those who would abuse them. But here again disunion plays havoc.

The whole lesson is that no man can live his life alone; his real interests are those of his kind. So long as he neglects his brother, his brother's hand will be against him and he will have to take precautions against that brother. The criminal goes free by claiming the same liberty as the respectable man claims for himself; if we put restrictions on the criminal, those restrictions will gall us too. If we put a ban on selfishness, we must be willing to endure the consequences. Reform begins at home, and before we can stir a step effectually we have to reform ourself. The man who sees a lock and feels insulted by it can say: "At least I will not deserve it." If you prize truth and honesty, nothing can prevent you from practising and cultivating them fully within the sphere of your utmost possibility.

A SON OF ERIN: by Winifred Davidson



R. WILLIAM DRENNAN, who lived 1754-1820, wrote the following words, which seem to describe William Q. Judge, who lived in the latter part of the century:

Arm of Erin, prove strong; but be gentle as brave,
And, uplifted to strike, still be ready to save.

Warmheartedness; sympathy so strong that it breeds splendid, unbounded generosity; a sparkling humor that lies upon the depths of life like wind-rippled waves upon the vast seas; an appreciation of human heroism and human weaknesses; a marked executive instinct: these are the better characteristics of the Irishman. These are the characteristics of the Irish gentleman who was chosen by the Founder of the Theosophical Society to carry on in America the task of forming from the straw of money-worship and doubt, bricks of spirituality with which to build the everlasting House of Life.

William Quan Judge, a native of Dublin, in Ireland, was twenty-three years old in 1874.

It is difficult to imagine the life of anyone apart from the actual deeds and days that composed it; and this difficulty is increased in the case of Mr. Judge, who identified himself so completely with the Organization founded by H. P. Blavatsky, that the history of that Organization from 1874 to 1895 is the life-story of this great man.

One can imagine a successful legal career for him, with attendant ease and comfort; and many believe that had he not gathered into his own heart, a modern Winkelried, the spears aimed at the Organization, he might yet be among the living. But William Q. Judge saw a great light in the hour of his meeting with Madame Blavatsky, and he could no more have gone on the way of mere brief-writing and case-pleading for money than the flying bird can go back to the impotence of its first days in the nest.

Fancy the mind of this young man: business instincts and promises of worldly success being set aside as of secondary importance. Here was one actually fixing "his mind in his heart"; for his heart burned to help his fellow men and prompted his mind to the choice of that way which lay through the dark wilderness of human frailties, where religion wandered like a dotard astray in the night; where science went tripping at every step; whence the weird cry of human pain issued incessantly. In that choice he knowingly undertook all the struggles of the pioneer. Therefore, with gratitude, we who have in

some measure appreciated the privilege of following along the road cleared by his torch-bearing hands, seek to render tribute to the memory of his calm courage and the compassion that held him to achievement. His work was no less than the enlightenment of the race, and the amalgamation of the people of all lands into one spiritual kinship.

It is never necessary to go back into the life of any of the world's heroes for the minor details. Do they matter? Not in the least!—that he was accustomed to do this, *and so*, and had come along this path or that other. The great element of importance enters in at the hour of call to duty. Suddenly, out of the sky comes the call: SOUL, art thou ready? So suddenly, the hero comes to his own, with the clarion shout: *I am!*

Of Mr. Judge it is said that he was a born reformer, though the plan of his work had not yet taken form when he met his teacher. Then with the balm of Karma, Reincarnation, the Divinity of the human soul, the perfectibility of man, he entered upon his true life: a fight against the lower self of the world. His dauntlessness has aroused thousands of warrior souls. His writings on these subjects must stand for ages to come text-books for all students of life. One can feel the broad sympathies of the Irish heart interpreting in every line he wrote; as, for instance, these words:

Everyone of us craves a belief which shall **not** be a formula, but Life itself; which shall develop and complete the constituency of lives.

When men meet their belief in every department of life, when it assists them on every plane, so that they eat better, sleep better, create better, and die better by it, then it will be vital law to them, not a garment to be laid aside on work-days. Theosophy does all this.

Perhaps if we could see clearly, we should recognize the marks Nature places upon the physical bodies of the great souls she sends now and then for the world's help. We should see the imprint of the divine hand upon all good men and women. We should know the compassionate Helpers who live among us by the nobleness of carriage, the voice, the smile, the gesture. They say of Mr. Judge that his mere presence in a room was an inspiration. All who have heard intimately of him know his reply to the student who asked how it were possible to retain the feeling of one's divinity while doing the humdrum duties of life. His answer was:

A man should board a street-car as though he were a god!

Here was one of Mr. Judge's secrets: All that he did or said, all that he was, reveal the certainty that he, indeed, knew himself and recognized the Divine Soul he was, eternal, steadfastly enduring.

We, not having seen him, find in his written words the man himself, his sympathy, his generosity. Profound wisdom and unmistakable warnings, prophecies, touches of loving humor, clarity of expression, all bathed in compassion, fashion forth the man he was for us. He was one who loved his fellows better than himself: a sage whose simple exterior went unnoticed a thousand times; the friend of the world, who, with gentle submission gave his life for the world.

Those who know, even superficially, the history of the Theosophical Cause, know that shortly after forming the American body, Madame Blavatsky went to Europe, leaving Mr. Judge in charge of the work on this side. We, working now in peace and comfort, with so many hours for this and that and plenty of time for sleep, must think, *if we think at all*, that the achievements of Mr. Judge were marvelous. His bread-and-butter legal work went on; his Theosophical writing went on; his lecturing went on. He was awakening souls all over the world; founding magazines; corresponding by the slow means of pen and ink with hundreds. I wonder that we ever dare complain of "no time" with the example of the author of "The Culture of Concentration" before us. That work alone places him among the world's greatest — the time-creators.

To think of Mr. Judge in the first days of Theosophy, when much of the attraction lay in its novelty, and much in its strange-sounding words! Do we approach a realization of the meaning of the fact that there was one in those turbulent days who preserved his solitary, sweetly-repeated note of compassionate friendliness, in the midst of the clash of misunderstandings, lack of unity, warring ambitions? Of course he attracted to himself all the hatred and abuse of those whom he would not permit to wreck the magnificent work that had been begun for the betterment of the race. Yet he was able — wonderfully keen-sighted that he was — to discover here one rare soul, there another, strong and fearless and willing to work with him for the Cause of Humanity. This is the display of the executive ability illuminated by wisdom, that Madame Blavatsky had expected him to make. It was that same wise governing instinct that led him to the suggestion of the needed Inner Body in the Brotherhood called the Theosophical Society. The work of that body needs no comment

in words, but it shall have the eternal silent gratitude of all true souls.

Mr. Judge's warmheartedness, full of unusual sweetness in him, came out in his work for the little ones. He wanted the Lotus Groups to be started, where the children could be taught realities, he said. He hoped the little children could begin to learn very early something about the divinity of their own natures, something about their eternal soul-life; he wanted to see all children fearless and frank and to have them know true happiness. He longed to see children rescued from the bondage into which the doctrine of original sin had cast them.

It is surely not sentimentality that prompts the wish in every student and child in Lomaland, that both Madame Blavatsky and Mr. Judge could step into our midst. What a joy to see the satisfaction beaming from their countenances at beholding the Râja Yoga School, that department of the Organization now grown to such vast proportions under our Katherine Tingley that the thinking world is realizing that this is the certain safeguard of our nation, and indeed, of all the nations.

William Q. Judge was a young man yet, as we count years now, when he laid the burden of the leadership of Theosophical Work upon the competent shoulders of her whom we love, and passed on. But the work he did was that of a master craftsman, old in wisdom. He was a great teacher. That this "arm of Erin" was one of the Illumined, the first glance into his writings must convince every mind following his soul's urge towards Truth.

It is with the hope of carrying the benediction of his life and presence to one and all of the great family he so loved and worked for and died for, that Katherine Tingley and her students and her school-children are here, trying to live Theosophy and in dutiful deeds to teach Theosophy, which we know to be the truth in life, the salvation of the world.



ME^DITATION, or the exercise of memory, is the science of the escape or departure of memory; for, forgetfulness is the going out of knowledge, and meditation, calling up a new memory in the place of that which has departed, preserves knowledge; so that, though for ever displaced and restored, it seems to be the same. — *Plato*

COSMIC MATTER AND THE SPECTROSCOPE :

by a Student



WE observe in a newspaper, as an item of what is called "newspaper science," a turgid and confused account of certain speculations said to be entertained by eminent astronomers. These ideas are heralded as likely to cause a revolution in our conceptions, if not to send astronomy headlong into the waste-basket. Their confirmation awaits, so we are informed, the result of experiments being performed with very delicate instruments at the Mount Wilson observatory. The precise nature of these experiments is difficult to determine from the account, but the idea is that all our calculations with regard to the heavenly bodies, their distances, composition, etc., may have been vitiated by the fact that light-rays are absorbed by some interstellar ether.

Later information will doubtless remove the obscurity of this early report, but meanwhile we have enough to use as a text for some observations. What seems clear, not only from this but from other speculations that have been appearing of late, is that some men of science are asking themselves whether we are justified in assuming that the same physical laws obtain in space and on other planets as obtain on our own earth. This is certainly a large assumption. The invention of the spectroscope introduced quite a new element into our calculations, and it is practically certain that still further inventions will enlarge and change our ideas still more.

It is already surmised, both from astronomical and physical investigations, that the chemical elements which compose our physical matter are not primary or rudimentary but compounded of subtler antecedent forms of matter. It has already been suggested that comets consist of some such primordial form of matter and that interstellar space is filled with it. The idea that matter itself, and the rolling worlds, are growing and evolving, and that planets are born and die, has also been mooted. These ideas are certainly more consistent with the logic of symmetry and harmony than those notions which represented the universe as a mechanical clockwork obeying the physical laws which obtain on our earth at this particular cycle of evolution.

But in all of these ideas the men of science have been anticipated by the author of *The Secret Doctrine* (published 1888). Their ideas, whether they know it or not, are no more primary than our chemical elements, but may be traced back to a parent source in ancient teachings. And, as in the case of the grosser elements, though the product

is visible, the source is often invisible. Thus is twentieth century science fulfilling *The Secret Doctrine*, without, however, as yet giving any credit to the author; and while the leaders of thought are vindicating H. P. Blavatsky by adopting her teachings, some learned encyclopaedias are displaying the qualities of their scholarship by ignoring or even belittling the teacher and her work.

Speaking of the birth of worlds and of the nature of the matter in interstellar space, in comets, and on other globes, the author of *The Secret Doctrine* says:

Occult science teaches that there is a perpetual exchange taking place in space, of molecules, or of atoms rather, correlating, and thus changing their combining equivalents on every planet. Some men of Science, and those among the greatest physicists and chemists, begin to suspect this fact, which has been known for ages to the Occultists. The spectroscope only shows the probable similarity (on external evidence) of terrestrial and sidereal substance; it is unable to go any farther, or to show whether atoms gravitate towards one another in the same way and under the same conditions as they are supposed to do on our planet, physically and chemically. The scale of temperature, from the highest degree to the lowest that can be conceived of, may be imagined to be one and the same in and for the whole Universe; nevertheless, its properties, other than those of dissociation and re-association, differ on every planet; and thus atoms enter into new forms of existence, undreamt of, and incognizable to, physical Science. As already expressed in *Five Years of Theosophy*, p. 242, the essence of Cometary matter, for instance, "is totally different from any of the chemical or physical characteristics with which the greatest chemists and physicists of the earth are acquainted." And even that matter, during rapid passage through our atmosphere, undergoes a certain change in its nature. Thus not alone the elements of our planet, but even those of all its sisters in the Solar System, differ as widely from each other in their combinations, as from the Cosmic elements beyond our Solar limits. Therefore they cannot be taken as a standard for comparison with the same in other worlds.— Vol. I, p. 142-3

The spectroscope can tell us of the quality of the rays which it analyses, in the condition in which they are when they enter the mouth of that instrument. But from this evidence we can only *infer* the condition of those rays at their source. What if they have undergone modification on their journey? That is the question suggested, with meaning, by H. P. Blavatsky, and now propounded by some of our foremost astronomers. According to the hints in *The Secret Doctrine*, matter exists in one of its more rudimentary forms in interstellar space; in which form it is beyond the reach of our means of perception. It afterwards grows, coagulates, or becomes condensed into the stuff of nebulae and comets, in which form it begins to be perceptible

but is still not physical matter. Finally it condenses still further into the matter composing worlds — into chemical elements — though its combinations differ on different globes. Radiations of light from other globes may, upon entering the region of the earth, become transmuted in accordance with the physical laws obtaining on our earth, so that they appear to have proceeded from elements like our own. Thus the spectroscope would give us no information as to other kinds of chemical elements. Yet even so, the information of the spectroscope presents many anomalies which science is striving to explain.

The essence of cometary matter and of that which composes the stars is totally different from any of the chemical or physical characteristics with which Western science is now acquainted. While the spectroscope has shown the probable similarity (owing to the chemical action of terrestrial light upon the intercepted rays) of earthly and sidereal substance, the chemical actions, peculiar to the variously progressed orbs of space, have not been detected nor proven to be identical with those observed on our own planet — say the Teachers.—Ibid. I, 597

But there is more than this in the matter. We may change our universe from a clockwork of physical laws and chemical actions into a mechanism of ultra-physical laws and higher chemistry, and still have it a soulless machine. The important point is that the universe is a living soul, appearing objectively to our senses as the material universe. Science may argue that its department is that of objective study; and the argument holds good so long as men of science act consistently with the limits thus imposed. But the complaint is often made that claims are put forward that are inconsistent with that limitation. Reference is had here to certain theories of life which claim to be based on the results of scientific investigation. The sphere of investigation being confessedly restricted, the theories must of course suffer correspondingly, and cannot be accepted as rules for the conduct of life.

So eminent and experienced a man of science as Professor Russel Wallace has recently written a book emphasizing the importance of considering *design* and *purpose* in the universe, and there is a general trend of thought in the same direction. Not only does a purely objective view of the universe preclude all other views, but it cannot even achieve truth within its own limits; because directly we divide a whole into artificial categories, we begin to invent abstractions. Hence the only proper and certain key to an understanding of physics is metaphysics, and matter can be known only through its relation to spirit.

VERSAILLES AND MARIE ANTOINETTE:

by Grace Knoche



IT was in Versailles that the peace treaty between England and the United States was signed, by which the mother country recognized the independence of her colonies in the New World. This was in 1783. Six years later the States-General met at Versailles where its members bound themselves by oath not to dissolve until they had given France a constitution. In 1870 and 1871 this old place of romance and fascination — whose decay had been averted by the timely restorations of Louis Philippe — became the headquarters of the German army during the siege of Paris and, after peace had been declared, the seat of the National Assembly while the Commune was triumphant in Paris. For a time it was the official capital of France.

But memories of these events do not take the visitor to Versailles. The place is linked far more indissolubly in the general mind with the gorgeous and prodigal days of Louis Quatorze, Louis Quinze, Louis Seize; with Maria Theresa, Marie Leczinska, Madame de Maintenon, the selfish du Barry, the Duchesses of Angoulême and of Burgundy; with de Montespan and the powerful Pompadour; with Bossuet and Massillon, who preached in the old chapel — to little practical result, one divines; and with beautiful, headstrong, Marie Antoinette, that embodied lesson in Karma and the Law.

The place itself has never been in any wise remarkable outside of the palace, the buildings pertaining to it, and the wonderful grounds, but these one may visit again and again to meet new beauties at every turn. Visitors are still shown the Queen's Room, once occupied by Marie Antoinette; her "petits appartements" to the south of the Marble Court, opposite those of her husband, the unfortunate Louis XVI; and the wonderful Galerie des Glaces, where we can almost see her now, surrounded by ladies and courtiers, on some occasion of state.

The Glass Gallery (see illustration), was built by Mansard, in 1678, the architect whose name is still associated with the roof of his designing. It is from two to three hundred feet long and but thirty-four feet wide. It is forty-three feet in height. Of its thirty-four superb arches, half are occupied by mirrors and the balance by windows looking out upon the gardens, the best view of these on the grounds being obtainable from the balcony of this great glass hall. This gallery, as is apparent from the illustration, is lavishly orna-

mented, not only with pictures and frescoes but also with inscriptions in praise of Louis XIV which are said to have been written by Racine and Boileau. Near it are the Galleries of War and Peace with their great allegorical pictures, and behind it on the court side are the apartments used by Louis XIV.

The Palace proper is located in the Place d'Armes, at which point center the three converging avenues of Sceaux, Paris, and St. Cloud. Statues, allegorical groups, and the well-known bronze equestrian statue of Louis XIV, front the main building, and one reads, after passing through the imposing gate, this inscription: "À toutes les gloires de la France,"

which Louis Philippe justified by forming a collection of five thousand works of art (valued at £1,000,000) commemorating the great events and persons of French history.

On either side extend the great wings of the palace, while the main buildings stretch back, one after another, to the Marble Court.

To describe in anything like detail the almost numberless fascinations of hall after hall, gallery after gallery, building after building, to say nothing of the great gardens with their courts, staircases, fountains, groves, and sculptures, would require a volume. The following, from the all too short description by Meissas, gives an idea of the lavish scale upon which the whole was laid out.

The ground floor on the north wing on the garden side contains eleven halls of historical pictures from Clovis to Louis XIV, and on the side of the interior courts a gallery of tombs, statues, busts of kings and celebrities of France for the same period. The Halls of the Crusaders open off this gallery, and are decorated with the arms of crusaders, kings, princes, lords, and knights, and with those of the grand masters and knights of the military religious orders.

On the first floor of the north wing on the garden side are ten halls of pictures commemorating historical events from 1795 to 1855; on the court side is the gallery of sculpture which contains the Joan of Arc of the Princess Marie of Orleans; and there are seven halls chiefly devoted to French campaigns and generals in Africa, Italy, the Crimea, and Mexico, with some famous war pictures by Horace Vernet. The second story has a portrait gallery.

In the north wing is also the theater built under Louis XV by Gabriel, which was first used on the sixteenth of May, 1770, on the marriage of the Dauphin (afterwards Louis XVI) and Marie Antoinette. Here, on the second of October, 1789, the celebrated banquet was given to the Gardes du Corps, the toasts at which provoked the riots that drove the royal family from Versailles.

The central buildings of the palace project into the garden. On the ground floor are the halls of celebrated warriors (once the anteroom of Madame de

Pompadour), marshals, constables, and admirals. The Great Dauphin (son of Louis XIV), the duke and duchess of Berri, the Dauphin (son of Louis XV), Madame de Montespan, Madame de Pompadour, and the daughters of Louis XV, all lived in this part of the palace.

There is not space for more than bare mention of the gallery of Louis XIII, which leads to the Marble Court; the famous lobbies and staterooms of the ground floor, filled with statues, busts, and memorials; the Hall of Mercury and the series of halls on the garden side; the throne room or Hall of Apollo; the Coronation Hall which contains David's picture of Napoleon's Coronation; the Queen's staircase; the *Œil de Bœuf*, so named from its oval window, and which contains a large painting representing Louis XIV and his family as Olympian deities; the Porcelain Gallery, so named because in it, during the reign of Louis XVI, the best work of Sèvres was exhibited every year; the rooms where Madame du Barry lived "and where Louis XVI (the husband of Marie Antoinette) afterwards worked at lockmaking"; the apartments of Madame de Maintenon, of the Cardinal de Fleury, and the duke of Penthièvre; the Imperial Galleries; the great Battle Gallery (nearly four hundred feet long) in the south wing, the walls of which are hung with pictures and adorned with busts, statues, and memorial tablets commemorative of French victories; and other rooms, suites, and halls.

To a lover of nature, however, the glory of Versailles is its gardens. Shrubbery, hedges, great trees, terraces, statues, and sculptured groups lead one to the broad central avenue and the beautiful "Tapis Vert," which, further on, is continued by the Grand Canal, a strip of water two hundred feet wide and a mile in length. The Orangery, a superb piece of architecture, contains more than a thousand orange trees, many of them several hundred years old. Beyond this, broad staircases lead down to the Swiss lake.

Of the fountains, the finest are the Basin of Neptune, famous for its sculptures, the Basin of Latona or the Frogs (see illustration), and the Basin of Enceladus.

The gardens, which were planned by Le Nôtre and in the graces of a monarch who spent with a lavish hand, are a continual surprise. Here is the Queen's Shrubbery, where the Cardinal de Rohan carried out his part in the intrigue of the diamond necklace, which trailed in the filth of court gossip all over Europe the name of Marie Antoinette, although she was innocent. There is the King's Shrubbery, laid out

by Louis Philippe; there, the Grove of Apollo; farther on, the magnificent Colonnade, and the out-of-door ballroom or Rockery, with its waterfall.

But interest centers in a beautiful little building — which now stands without the present park although in the time of Louis Quatorze it stood within it — the Petit Trianon, where Marie Antoinette used to play at housewifery and an imaginary, idyllic, peasant life.

The Grand Trianon was built by Louis Quatorze and has beautiful gardens of its own, while the Petit Trianon (see illustration) was erected by Louis Quinze. It was the favorite residence of the Queen whose reign followed his own and who reaped in bitterness and suffering the harvest of tares that had been sown by those who came before her.

It is impossible to understand Marie Antoinette, however well one may know her personal characteristics and the events of her reign, without some knowledge of the terrible heredity of storm and stress with which France had been endowed by those who came before. The strong, wise government of Anne, Regent and virtually Queen for nine years during the minority of Charles VIII, had left the country "in a healthier condition than it had been in for ages," with a well-filled exchequer and a well-disciplined army; with — more important still — a loyal, contented people. But as soon as her hand was withdrawn from the helm a steady decline set in. The resources which Anne had hoped to see used in building up the country and improving the condition of the people were squandered on the Italian wars. These begot the civil wars, with their legacy of discontent and unbrotherliness, disintegration set in, and soon it was but a step to the conditions of unrest, suffering, and disloyalty that marked the condition of the people under Louis XIV, conditions accentuated by the rule of the king himself and his successor.

Under "Le Grand Monarque" there was great display in high places: patronage of art, music, and letters; the "lofty Muse" spoke through great artists and architects, through Molière, Racine and Corneille, but far too loftily to reach the common heart. To royalty and nobility alike the peasantry were no more than to Coriolanus — "minnows." Famine, pestilence, and the cruel cold of winter carried them off by hundreds and thousands — and nobody inquired.

Under Louis XIV the influence of the Jesuits was paramount; and all the glories of Versailles, of a renewed Paris, of great univer-

sities and manufactures, and of royal patronage of the Muses, could not make up for the king's studied forgetfulness of an enormous peasant population. The people grew discontented and ferocious, like hungry, neglected, unreasoning children, as famine succeeded famine while the coarse du Barry followed Pompadour, as she, in her turn, followed the dangerous Montespan — for in the most vicious blunders of the king's reign one or another of his mistresses played a leading part, and they had no understanding of the nation's heart nor compassion for what it had to bear.

The gulf between king and people, "father and children," became yearly wider under the rule of Louis XV, who seemed to have inherited all his father's vices without any of his virtues or ability. The Karmic load grew heavier.

But out of the burden of misery sprang up, like good grains in a neglected field, writers and thinkers who had ideas and dared to express them and who felt the pitiable ignorance and suffering of the poorer classes. Voltaire attacked priestcraft; Montesquieu brought forward new and startling ideas of liberty; Rousseau sounded a new note in education and declared for the supremacy of conscience; a clearer note was sounded in philosophy and in science. Freedom and Brotherhood were thrown into the common air as blazing ideals — not fully understood, not rightly interpreted, but certainly living and forces to be reckoned with, since they did evoke a response from discouraged and hopeless, even from brutalized, hearts.

France was in the throes of a terrible Karma when Marie Antoinette came to the throne, and in all the country there was no one — certainly no one in power — who had the wisdom to diagnose its condition or the courage to apply a remedy. And a heavier burden than this Karma was never put upon human shoulders.

To the modern woman of a certain irresponsible type — which, however, numbers its tens of thousands — the lessons of Marie Antoinette's life are as the writing on the wall. For these women are being weighed in the balance as she was weighed, and that they do not do as much harm or share as pitiable a fate is simply because they are drifting, for the time, in the shallows of a quieter part of life's great Karmic tide. Frail craft that storms would whirl to wreck may ride the waters of a land-locked harbor in safety. But the wrecks of these we see every day, too. Do we pass them unnoticed, or at least unprofited by, because wrecks are still so common in the great world-

tide? The woman who is pleasure-loving and “innocently” selfish, who has not awakened to her responsibility as a soul, who does not see the use of doing her *full* duty, and whose personal whims and desires weigh heavier in the balance than any consideration affecting others — this woman would do well to study the life of Marie Antoinette.

What was the ever-recurring note in Marie Antoinette’s nature that kept what might have been music, forever “jangled, out of tune”? Why did a people, who in their hearts wanted something to be true to, accuse her on all sides of indiscretions she never committed, of things she never did? Much light is thrown upon this by the writings of H. Morse Stephens, author of a *History of the French Revolution*, though for the deeper understanding of the causes that led to so much woe for a whole nation, and indeed for the world, we must turn to Theosophy, and in particular to its teachings upon the duality of human nature. Says Stephens:

It is hard to speak of Marie Antoinette with justice; her faults were caused by her education and position rather than her nature and she expiated them far more bitterly than she deserved.

She was thoroughly imbued with the imperial and absolutist ideas of Maria Theresa, and had neither the heart nor the understanding to sympathize with the aspirations of the lower classes. Her love of pleasure and of display ruined both her character and her reputation in her prosperous years, and yet, after a careful examination of many of the libels against her, it may be asserted with confidence that she was personally a virtuous woman, though always appearing to be the very reverse.

Innocence is not always its own protection and circumspection is as necessary for a queen as for any other woman. Her conduct throughout the Revolution is heartrending; we, who live after the troubled times, can see her errors and the results of her pride and her caprice, but at the same time she was the only individual of the royal family who could inspire the devotion which is always paid to a strong character.

The main thread of Marie Antoinette’s life is familiar to all who know the annals of France. Her life course was decided upon for her by her mother, the superb woman whom we know as one of the greatest rulers of Europe in any period, Maria Theresa, Archduchess of Austria, Queen of Hungary and Bohemia, and Empress of Germany. But however wise the judgment or pure the motive, to lay down the life course for another is taking liberties with Karma and with the soul, and well had it been for the beautiful little queen, and more than well for France, had Maria Theresa understood this law and known how to work in accord with it. History might have been different.

One feels, in touching the life of Marie Antoinette, so fascinating, so pathetic, so unjust to its own finer possibilities, the shadow of a great neglect somewhere, where hidden currents run. To be sure, that too was Karma. Yet, since we are one in essence, and since all incoming souls are as subtly molded for strength or weakness, for weal or woe, by pre-natal as by post-natal conditions, this factor has weight in the equation of every life.

But there was outward neglect as well. Her mother, absorbed in great national and international affairs — as though the quality of a princess' character, or of anyone's, for that matter, might not become a very serious international affair, given crisis, circumstance, and time — left the child to others. And these must have been dominated by the impulsiveness of her nature, in itself strong.

They left her to run wild in field and forest, and while guiltless of actual wrong-doing, a passion for distraction and amusements brought to her account a host of indiscretions. She was one of the most uneducated queens known to history, unable to finish the signing of her own name at the marriage ceremony.

But she loved music, and her great services to the operatic music of her day, and in particular to Gluck, who had been her teacher, not only placed Europe under a debt of gratitude, but show that there were depths in her nature on which a rich and useful character might have been built, had anyone who touched her poor misunderstood life known how to build it.

For diplomatic reasons Marie Antoinette was destined from birth for an alliance touching as nearly as might be the French throne, and before she was out of childhood her marriage with the French Dauphin was negotiated. When but fourteen she was married to the young Louis, a boy of sixteen, better than his grandfather, without the selfishness of Louis XV, but also without the masterful persistent strength of Louis Quatorze. When he came to the throne France felt a new hope, for beyond a question the young king, though heavy and phlegmatic, cared for his people, for all of them to a degree; he saw their needs, and he aimed to institute far-reaching reforms. Louis XV, who "died as he had lived, in flagrant vice," had sent his country a long way down the steep declivity of misfortune and at last there was to be a change.

The opening of the reign was a period of hope; all seemed to go so well. The king and queen were no common mortals: so young, so innocent, so graceful, they formed a strange contrast to the gloomy selfishness of the past. And roused

by a gleam of hope, literature itself also passed into sentimental idyls; the court itself was idyllic; at the little Trianon the king and queen played at farm and mill; the unreadable sentimentalities of Florian were the delight of Versailles; the innocent pictures of Gessner's pen had a great popularity; the days of Paul and Virginia were not far off. These things occupied and deluded the upper world; the middle world smiled in bitterness over the keen satires of Beaumarchais; the lower world starved and turned uneasily on its frozen couch.—*Kitchin*

There is not space to dwell in detail upon the events that marked the reign of Louis XVI and Queen Marie Antoinette. The surveillance which she was compelled to endure made her suspicious of everyone, and when the storm broke and the Revolution was fairly ushered in, it was this habit of mind which led her to distrust the advice of Mirabeau and others who might have saved France the horrors that ensued and prevented the pitiable guillotining of both herself and the king.

Louis XVI had the instinct of reform in his blood, yet again and again events interposed to prevent his carrying out plans and policies in behalf of the people. All the world knows the result.

With all that the queen did not do, and all she did, we pity her so. If the world had a larger share of some of the qualities that endowed her with beauty, with charm, with that lightsomeness of view, how much richer it would be! And too, she had no real chance. Thrown into the atmosphere of insincerity — for the French court of her day was a hotbed of the frivolous and the untrue — suspected as a spy by the whole nation, used as a piece of political machinery, with all a child's nature and with none of a child's view of life, uneducated, untried — what might not have been expected?

The lessons of history, and especially of this strangely Karmic life, how far-reaching they are! Were one a voice upon the housetops one would cry these out to all the world, until the last woman had found her way out of a false view of life and up to the heights of a true philosophy — the sacredness of duty, the obligation of the soul to serve, the *necessity* of an unselfish purpose, the magic of soul-strength, the power of example, the righteousness of avoiding the appearance of evil as faithfully as the evil itself, *not for one's own sake but for the world's*. These precepts are ancient, yet ever new.

A FORGOTTEN TREASURE: by Lydia Ross, M. D.



THE hospital in the mining camp where the railroad ended was crowded with patients, and every one on duty was ready to drop with fatigue. A week before the evening train had been derailed just below the station, and many passengers and most of the train-men were injured. There was confusion and delay before the townspeople knew why the train was late, and rallied to the rescue. Before the news was telegraphed to headquarters, a heavy cloudburst changed the trout-stream into a raging torrent, full of crashing rocks which swept away the bridge further down the cañon and laid the wires low along the damaged track. Then came the days when the town was cut off from the outer world but for the mail and supplies that came slowly up the steep and winding trail.

The doctor in charge of the hospital sat at his desk after the morning's rounds, feeling tired and depressed. There were two unidentified men in the large ward, each with a fractured arm and brain fever. In bed No. 13 the man was tall and straight, perhaps forty-five years old, with iron-gray hair and rather white hands for a workman. No. 15 was younger, a stalwart, black-haired, blue-eyed man — probably a prospector. Both cases were doing poorly and needed more care; but every nurse was already overtaxed. As a last straw, the capable Miss Stimson in charge of the ward had sprained her ankle. When her foot was dressed, she pluckily insisted upon being returned in a wheeled chair, and offered to remain on duty with the help of anyone who had feet to stand on and could take her orders. The matron had helped with the surgical dressings today and the other nurses ran in for a few minutes now and then; but no one could stay. More attendants were expected to arrive over the trail tomorrow night, but what about the next thirty hours?

It was at this crisis that the Widow MacLain arrived and was announced. What next? the doctor thought, turning slowly round. What he saw was a quaint, trim bit of a body standing framed in the office doorway like an old-fashioned picture. There was a tint of color in the faded cheeks, and the Irish eyes had a dewy freshness that reminded one of little children, knee-deep among the daisies. She explained that she lived in a distant mining town with her son who left home a week ago to stake a claim here. He had not written yet, and she had just heard of the accident. Something must have happened, and she must find "Willie boy" and take him home with her, she said

with a simplicity and wistful confidence that at once enlisted sympathy. Could she look among the sick for him? she asked.

"Certainly," the doctor said, thinking of the two strangers, and went upstairs with her himself.

Her eyes swept over the white beds and then, quickly, with a light step, she went straight over to No. 15 and stood gazing at the moaning, restless figure with its water-cap and bandaged arm. She caught her breath in one stifled, pitying little sob as the free hand groping aimlessly in empty air, fell against her breast. She held it there with gentle grasp; while her eyes, still fixed on the feverish face, were full of that courage and tenderness which motherhood wins in going down to the gates of death to welcome her own into life.

"Shure, he's too sick to be moved," she said presently: "I'll stay here with him"; and she handed her bonnet and shawl to the doctor with a fine air of decision and helpfulness that touched his tired nerves with new life. Now he knew how an overwrought woman could get hope and strength from the mere presence of a confident man who could be trusted.

From the wheeled chair Miss Stimson reached up to pin the cotton gloves carefully to the shawl on the doctor's arm, and whispered: "Hide her things so she *can't* get away. She's a treasure!"

Certainly the little woman was a jewel, so rich in warm-hearted goodwill and "comfy" mother-ways, that the nervous tension of the whole ward seemed to melt away under the influence of her ready hand and soothing tones. When her own "Willie-boy" was cared for and quiet, she turned to No. 13. How helpless and gaunt and sleepless he looked, and he had a broken arm too! As he turned his hollow, burning eyes on her and reached up unsteadily to pat her cheek, she adopted him on the spot. She gave his medicine as Miss Stimson directed, and fixed him up. Then she sat quietly beside him and with gentle, rhythmic pats, she crooned an old, soft lullaby until even his eyelids drooped and he fell asleep at last with a contented sigh.

Now it happened that No. 13 was the new and unknown superintendent of the mountain division — a reserved, ambitious, self-made man who wanted to first look the situation over unofficially. So he was traveling roughly dressed, on a second-class ticket, and had nothing but loose change in his pocket when he was picked out of the wreck unconscious. In hastily sorting out the wounded the doctor assigned him to the ward. So when No. 13 opened his eyes and looked

around, everything was so strange and unreal he couldn't tell who or where he was. Somehow his changed identity had gotten under his skin. His head ached miserably; his arm was stiff and heavy with a nagging toothache securely bandaged into it; his back was so numb and lame he thought he must have a railway spine, dotted along with washouts that were bridged over by wireless messages of distress. He had felt something like this once when he was a little boy and was so sick and weak with a fever that he just wanted to let go and drift away. But there was something so sweet mixed with his pain and weariness then that it made him want to stay, and so he got well.

This precious something made sickness endurable — he must find it! It breathed happiness in the air, like a flower; and yet a sick boy could reach up and touch it and feel it caress his fingers and lightly brush his cheek. It had been his very own; but he had forgotten it somewhere along the line that had carried him up and up in life. He couldn't think it out; he only knew that his train was backing down the whole length of the line, passing station after station until he should find that lost boyhood treasure.

There were other passengers around him — all in charge of a Person in a most unofficial, dainty cap, a striped dress and a very white apron. She wore a pin with figures on it, too small for him to read: but she was undoubtedly the Conductor, with that self-contained and efficient way of settling everything and telling nothing.

She made regular rounds of the bed-berths with a little, tasteless, glass cigarette. It might be some new kind of human steam-gage or time-test of a man's train; for she would slip it into his mouth, and take hold of his wrist, and look at her watch and then write her report on the bulletin hanging on the headboard. At intervals her superior officer appeared; he read the bulletins carefully and asked questions and thumped the passenger's chests to see if their wheels were sound, and then gave new orders. The train fairly tore over the rough road-bed, and No. 13 was so anxious to get through he couldn't settle down to sleep. He got so lightheaded at times that he would just catch himself falling headlong down the mountain cliffs; and then his head would throb through endless stretches of dry, hot desert.

The Conductor kept his head wet and gave him cool drinks, and was as attentive as a polished ebony Porter who was working for a terminal tip. She tried to keep everything properly scheduled and all right: but *he* knew that nothing could be quite right again until they

reached Boytown — miles and miles, and years and years back along the line. Finally, the Conductor appeared with a ladylike, wooden driving wheel on each side of her to help her along the train which was tearing through great stifling, glaring, noisy cities now, until his head was ready to burst.

At last, far, far off, he caught a glimpse of green country: now they reached a meadow surrounded by a white iron fence, hung with little bulletins; then the train slows up as they pass the open door of the farm house. A soft home light streams out across the grass and through the fence and even into the train. He knows that it was lighted for someone else, not for him; but it falls like comforting sunshine over everything that faces it. The roadbed grows smoother and the air is fresher among the trees; now they are running beside the shallow river where he and the other boys used to go fishing — just around that bend is the shadowy swimming-hole; that *is* a meadow-lark singing; and that breath of rosemary comes from the old front yard at home.

The train hardly moves now: he is in his own little bed, at last, clean and cool and deliciously dreamy. He is so young he goes to bed when the room is full of floating dusk and happiness. Can he ever forget it — the best thing in his life? With eyes closed, he reaches up, serenely sure of the tender, answering touch, and falls asleep with his hand upon the Treasure.



THERE are *numerous* men of great skill; there are others of great erudition; there are others of great genius, and some of great courage; but the rarest are men of great character. Such men stand at peace and remain undisturbed amid the vibration and kaleidoscopic movement of humanity.

Knowledge and Peace are the attributes of such men.

Gentleness and Courage are their qualities.

Charity and Integrity are their principles.

And let us remember that greatness of character is the purpose of existence itself.

Perfection of character means absolute harmony.

Absolute Harmony is the goal of humanity.

D. C.

SCIENTIFIC ODDMENTS: by the Busy Bee

IT IS stated that Russia is seriously considering the proposal of some Swiss engineers to tunnel the Caucasus Mountains near Tiflis, thus connecting the Black Sea district with the Caspian. The tunnel would be sixteen miles long and would take seven years to complete.

THE Central London Railway is installing plants for ventilating its underground tunnels with ozonized air. The air is passed over electrified plates and driven to the stations by fans, where it is distributed by ducts. One of the plants is supplying 400,000 cubic feet per hour. In the old days of the steam roads the sulphurous fumes probably purified the air; they were not so bad after all.

WITH the aid of a good echo it is possible to arrange and sing a piece of music so that the echo will supply a harmonious second part, in canon. But apart from this there are echoes which will return the voice at a different pitch from that in which it was uttered. Such echoes have been investigated by Lord Rayleigh, who explains them by saying that the voice was composed of fundamental tones and overtones, and the echo returned only the overtones.

WIRELESS telegraphy has recently been used to determine the difference in longitude between the Paris Observatory and Bizerta in Tunis, places eight hundred miles apart. Signals sent up from the Eiffel tower at regular intervals were heard in the telephone receivers both at Paris and at Tunis, and were timed; while similar signals sent up at Tunis were also heard in both places. These data enabled the difference of longitude to be calculated, and also the length of time taken by the Hertzian wave to travel the eight hundred miles, which was found to have a mean value of .007 second, showing a velocity of the same order of magnitude as that of light.

A KIND of perpetual motion machine has been invented which consists of a gold-leaf electroscope whose leaves are charged with the β -rays coming from radium bromide. Their divergence causes them to come into contact with an earth connexion, which discharges them, and so the process is repeated indefinitely. This simple machine has been improved upon, and of course the principle can be carried out with elaborations. But the question arises whether this constitutes perpetual motion within the meaning of any act, law, or dictionary definition. Long ago somebody made a clock which was kept going by the rise and fall of the mercury in a barometer; was this perpetual

motion? Or shall we argue that, because perpetual motion is impossible, therefore anything which is possible cannot be perpetual motion?

FOOD might be scientifically defined as a nutritive pulp prepared by the action of certain bodily juices upon certain natural substances. The preparation, which is the first process of digestion, takes place usually *outside* the body, in a kind of dent in the skin, known as the stomach. Certain insects digest their food before taking it in, by projecting a fluid upon it. The larva of a coleopter, the dytiscus, common in our ponds, shaped somewhat like a caterpillar, with a large flat head armed with two curved hooks, is a case in point. It has no mouth, but the hooks have orifices and fine tubes leading to the digestive tract. The creature seizes the small fish or other victim, injects into its body a digestive fluid, and so dissolves the body and sucks it in. The same is true of some other insects; perhaps it may explain why the mosquito injects a corrosive fluid into the body of its unfortunate victim. Are humans degenerating when they substitute pre-digested foods for the usual kind?

THE following particulars about severe hailstorms are from a note in *The Scientific American*. In Belgium, December 22d, 1884, twelve persons were killed, seventy-eight injured, and one hundred and seventy head of cattle and five hundred and sixty sheep destroyed by hail. In the State of Bhor, October 5th, 1893, the hail covered the ground to the depth of from four to six feet; six persons were buried beneath it and perished, while eight hundred and thirty-five head of cattle were killed. In the Moradâbâd district on May 1st, 1888, about two hundred and fifty persons perished. In the United States one of the worst storms of this character occurred on September 5th, 1898, in Nodoway County, Missouri. The path of the storm was three miles wide and eighteen miles long, its greatest violence being felt over a region of four square miles east of Clarmont. At one point in this region the fall of hail was so heavy, that a drift, unprotected by any artificial means, remained lying on the ground for four weeks after the storm. At the end of that time the people were found gathering the hail to make ice-cream. During the storm cylindrical pieces of ice four inches long by about two-and-a-half in diameter were picked up. In a field of eighty acres only one stalk of corn was left standing.

WIRELESS telegraphy seems destined to overtake its predecessors in scientific invention and to establish its stations in every part of the

earth, triumphantly leaping the inaccessible places; for it has no posts for buffalos to rub against and knock down, neither can robbers break through and steal its wire. This is an inversion of the usual order of procedure in the civilizing of wild regions — to install wireless telegraphy first and before all the other appurtenances of civilization. The activity of various nations in their colonies bids fair soon to establish a complete system of communication “from China to Peru,” and everywhere else on this earth, even if we do not succeed in telegraphing the forty-seventh proposition of Euclid to Mars. A British plan provides for a start from London to Gibraltar, thence to Malta, Alexandria, Aden, Bombay, Colombo, Singapore, Australia; from here there are various posts leading to Montreal and Glace Bay, whence the Atlantic can be crossed to Clifden on the west coast of Ireland. From this general course there will be branches to the Cape and other parts of the African coast, and to China by way of Singapore. Germany is connecting Berlin with her African colonies and other possessions, and France and Italy are also engaged on similar projects.

WE read in a scientific paper that “the tests of R. Werner and others have proved that ordinary physical bodies have an effect on photographic plates.” This has been known for a long time, but belonged to a class of phenomena regarded by orthodox science with little favor. There was no adequate explanation and it seemed easier to question the authenticity of the phenomena than to venture into an unknown realm. Now, however, we have radio-activity, which bids fair to furnish us with orthodox explanations of this and other phenomena. But the way in which a certain experimenter set to work to investigate is curious. Wishing to ascertain if the photographic emanations of human organs were due to radio-activity, he proceeded to incinerate portions of various organs, and placed the ashes in an instrument which tests radio-activity by its effect on the electric conductivity of air. In every case the presence of radio-activity in the ashes was confirmed. This method reduces the matter to a chemical question, but we should be much more interested in knowing the power of the living body than the chemical composition of its ashes.

It seems evident that rays of some kind or other proceed continually from every body, and that they are capable of registering themselves on a sensitive receiver. This admission enables us to explain many things usually classed as “supernatural.”

As a result of the conference of the directors of national astronomical ephemerides held in Paris last October, for the purpose of arranging a scheme of co-operation among the countries, thus avoiding duplications of the labor of computing, it was decided that the eclipses should be computed in alternate years at Washington and at Paris, and that the work of computing the daily positions of the planets should be divided between London and Paris. Other similar arrangements were made, and the co-operation will enable additional data to be calculated. As regards the wandering moon, it was resolved that the French ephemeris be based on certain French lunar tables, and the English ephemeris on certain English lunar tables; so that if we do not find the moon in one place — why, we can look in the other place. The lunar theory is a tough problem; it is because we know so much about the lunar movements that we know so little — if a bull may be permitted. In other words, her cycles are so comparatively short that their complications are noticeable; in the case of a planet, whose node is measured by tens or hundreds of thousands of years, these complications would not be so evident. It was also resolved that the flattening of the poles is $1/297$. This means that the longer axis is to be two hundred and ninety-seven times the difference between the longer and the shorter axis.

IN discussing the cause of the bad effects produced in our organism by bad ventilation, a scientific writer reaches no definite conclusions and shows that the results obtained by experiment are conflicting. Is the evil due to excess of carbonic acid, deficiency of oxygen, toxic emanations from the breath, poisons from the skin, excess of temperature, too much humidity, the influence of imagination, or to any combination of two or more of these causes? It has been shown that carbonic acid in much larger quantity than obtains in a badly ventilated room can be breathed with impunity, and that breathing and burning do not diminish the oxygen in a significant degree. The writer quotes experiments tending to show that the poisons given off do not amount to much. He favors the idea that the combined influence of high humidity and high temperature are mainly responsible. But may not the whole matter be put into a nutshell by saying that confined air is *dead*, and the air of heaven *alive*? Let the air be never so pure chemically, it never has the same effect as the pure air that blows in through the window, and it may well be that the passage

through heated flues kills it. And what could be said on the question from an electrical or magnetic point of view? What, again, about those radio-active influences that make all the difference between natural and artificial curative waters?

THE beneficent application of scientific invention is well illustrated by the use of the telephone as a means of protection against forest fires; though it is to be regretted that such precautions should be so largely necessitated by the carelessness and want of thought of people who are members of the same community that employs the precautions. If we did not have so much thoughtlessness we should not need so many precautions; and so it is with many of our inventions — they provide for circumstances which could be avoided. The lack of order, self-discipline, and unity, can be partially obviated by rules and machinery — but only partially.

The national forests are threaded with thousands of miles of wires, the living trees themselves affording the poles. At intervals instruments are attached to the trees. The forest rangers keep a constant look-out from lofty stations, where they are provided with cabin, field-glass, and map. When a fire is seen, its location is determined with glass and map, and the ranger can call up the station nearest to the fire. Formerly much time and valuable timber were lost by the ranger having to ride to the nearest settlement for men, and go with them to the fire, after sending a messenger to headquarters for help. Besides this look-out for fires, there is the keeping of the line in repair, for trees fall and break it; and the maintenance of food depots for the use of fire-fighters. The use of the telephone is supplemented by flag-signals and sun-mirrors by day, and sometimes by gasoline torches at night. All this is wonderful testimony to the courage and energy of our rangers; for it is difficult to get an idea of the vastness of the problem presented by the great distances and irregularity of the country. And science ably seconds the resources of human prowess.

IN the Western Ghats, on the west coast of India, there is during the monsoon season, from the middle of June to the middle of September, a rainfall which at Lanouli averages one hundred and seventy-five inches and sometimes greatly exceeds it. Some of this water is to be used as water-power for industrial purposes, and the undertaking is financed entirely by Indian capital. The plan is first to provide 40,000 horse-power, which can be increased in the future. Three lakes or

reservoirs will be constructed. The Lanouli reservoir is to contain enough water for a supply during the monsoon season, bridging over any gaps that may occur in the rainfall. It will approximate one thousand acres formed by a dam 3800 feet long and 26 feet high. The Walwhan Lake is the second reservoir, intended to serve for the remainder of the year. It will be a mile and a half from Lanouli, formed between two spurs of hills by a dam 4500 feet long and 68 feet high. Later on a third reservoir may be constructed beyond Walwhan Lake and connected with it by a tunnel. This reservoir will have a capacity of 7,000,000,000 cubic feet. The water will be led through masonry ducts to the fore bay, situated 2040 feet above sea-level, and thence through pipes six feet in diameter which will run down steep slopes and precipices to Khopoli, three hundred feet above the sea and ninety miles from Bombay, where the generating station will be. The head will be over 1730 feet and the static pressure 680 pounds to the square inch.

One cannot but welcome a manifestation of the spirit of self-help and a desire to be abreast of the times. No doubt the ancient wisdom of India can be as well applied to active life as to contemplative seclusion.

THE old idea of atmospheric nitrogen was that it was mere padding, put in to dilute the oxygen, which otherwise would be too festive; which conveys the idea of a creator correcting his own mistakes. Now we are beginning to know a little more about it. The plants use it to build up the most nutritive part of their substance.

Another thing we are learning is that the active agents in nature are living beings — alive and intelligent, even though “their heart may be in their head and their head in their stomach.”

Still another thing — the soil in which the plants live is not simply a lot of dirt, but is a vast and elaborate chemical laboratory, zoological garden, and machine shop, all in one.

It is the nitrogen-fixing bacteria that take the nitrogen from the air and turn it into nitrates which can be used by the plants. These bacteria dwell in certain tubercles found on the roots of leguminous plants. Other kinds of bacteria do not take the nitrogen from the air but prepare the nitrogen that is already in the soil.

But there are certain larger organisms whose business it is to devour the nitrogen-fixing bacteria, and these of course decrease the fer-

tility of the soil. Now it has been long known that baking the soil made it more fertile; but the reason was not understood until it was found that the baking kills all the larger kind of organisms, but does not kill all the beneficent bacteria, so that the latter in the absence of their enemies soon multiply. But as soil cannot be baked by the acre, other means have to be found for encouraging the beneficent bacteria and keeping down the other kind; and this forms a large field for chemical and biological study.

In this connexion it is mentioned that the latest reason for cultivating the soil is not, as was supposed, to bring the rich soil from below to the top, but to bring the rich soil from the top below. The beneficent bacteria dwell near the surface, where they can get at the atmospheric nitrogen, so the idea is to plow them in so that the roots can get hold of them.

CERTAIN natural electric phenomena, for which a somewhat sketchy explanation has been provided, repeated, and generally accepted, now need further explanation, it seems, the theory of electricity having advanced so far in other directions as to leave the old explanations behind. One of these is the case of the fishes that give electric shocks. The simplest way of explaining these shocks would be to deny their existence, but that is not considered to be within the sphere of practical politics. It used to be considered that the electric organ of the fish consisted of a multitude of cells which acted like a voltaic pile; but it is now said that from five hundred to one thousand volts would be required to give a severe shock; and it is not intelligible how such voltage could be generated in the fish without being short-circuited. In other words, the fish would shock himself long before he could get up enough force to shock anybody else. The problem appears to be analogous to the celebrated problem of why the stomach does not digest itself. Again, the water by which the fish is surrounded is a fair conductor, especially sea-water, so that a voltage of five hundred or more would produce a current of hundreds of amperes in the water, representing hundreds of kilowatts of energy, all produced by the fish.

The phenomena of the thunderstorm are also called in question. The old theory was that the clouds and the earth accumulated opposite charges, and that the intervening air broke down under the stress. But it is said now that the break-down strength of air is about 75,000 per inch, so that if the cloud were one thousand feet above the ground a thousand million volts would be required. This enormous charge,

spread over the whole area of a thunder-cloud, would represent a quantity of energy whose origin is impossible to conceive and whose destructive effects would be immense. So it is thought that lightning may be, not a rupture of the dielectric, but an equalization of uneven electric stresses, analogous to the splintering of unannealed glass.

THE invention of steam, telegraphy and other means of rapid communication made an incalculable difference to the world last century; and this century another tidal wave of invention of the same kind has come over the world and is destined to influence it greatly. We have wireless telegraphy, and aviation is making good progress; and we must not forget the introduction of the internal combustion engine and its use in trackless locomotion. A new future is opened up for such countries as India and for such as Australia by the use of this method of propulsion and transport. In India an extensive use is being made of gasoline transport, which is found serviceable over the most hilly and winding routes. But the greatest advantage is secured by adopting the principle of the "road-train" as opposed to that of "traction." In traction, a train of cars is hauled by a locomotive, so that the pressure of propulsion is all on a few wheels, which may injure the road or else spin around and fail to move the load. But in the road-train system each car is self-propelling. This, however, does not mean that each car has a separate motor. There is only one motor, and that is on the first car (or engine); but the power is transmitted to a universal shaft running the length of the train and operating the wheels of each car, so that all the cars propel themselves by reaction against the ground and are not hauled by the engine. Facility in starting is afforded by a powerful spiral spring in each hub, through which the power is transmitted from the universal shaft to the axle of the wheel. This distribution of the driving power enables a very light engine to be used; and this, in addition to the fact that each car has six wheels, much lessens the wear on the road. Ability to turn curves is given by universal joints between each pair of successive cars, and each car has its own automatic steering mechanism controlled by the car in front of it. *The Scientific American Supplement* gives pictures of a gasoline road-train at the Bombay docks with sixteen tons of cotton; and of a fourteen-ton gasoline road-train in Australia contrasted with a team of thirty donkeys drawing only thirty hundredweight. The working costs are light on account of the high average speed and the large proportion of useful load carried.

THE LEAVES: by Joanna Magalhaes**Adapted from the Portuguese by P. A. M.**

STRETCHED on the grass, his hands folded under his head, little John amused himself watching the fall of the autumn leaves, which the light afternoon breeze gently shook from the old chestnut branches. They fluttered awhile, looking quite golden against the flood of rosy beams of the declining sun, and their fall was so light that the blades of grass did not even bend under their weight. Watching their capricious movements little John thought there must be real life in them, and who knows? Perhaps their whispering and rustling under his feet was a sigh or a song he could not understand.

The child lifted up his eyes towards the dark branches supporting the rich yellow foliage under the blue vault of sky. The wind detached another leaf. For awhile it still clung to a neighbor, then a stronger puff blew it down and it fell on the little boy's head. He picked it up and put it between his eyes and the brilliant sunlight so that it turned quite golden with patches of green. John thought that the leaf trembled under the pressure of his fingers and again came the idea that it must live and feel. He felt very drowsy. Unconsciously he began talking to the leaves as if they could understand him.

"Pretty leaf," he said, "don't you feel sad when the wind blows you down from the tall branches? It must be so nice to stay high up there, to see so far away above the houses and fields, and to have only the blue sky above you! You are so pretty! Wouldn't you like to live longer, instead of turning yellow and falling to the earth?"

The leaves did not answer. They continued falling down on the child's head and body. He rolled on the grass, crushing them under his weight and went on with his talk.

"What are you, poor little things? You pass away so quickly. A light breeze snatches you from the branch that bears you. I do wish you would tell me if you are sorry when you leave your lofty dwelling, your home in the air. Is it prettier up there than it is here, under the golden foliage? How beautiful it looks against the blue sky. Can you see that the sky is blue and the sun golden? No, you are only a chestnut leaf with a life that passes like a breath of air. Poor things, who after living so proudly on high must be trodden under foot and burned when you are dead. . . ."

The boy's speech was interrupted by a song in the distance, a

funeral hymn. A procession approached and passed under the vault formed by the giant chestnut branches. A young girl had died, and as the choristers sang, the bearers carried the coffin on the way to the cemetery. Her friends wept. She was so young! It seemed such a little while ago that she was a child and played under the old trees among the dead leaves which now fell like immense golden tears on the dead girl's coffin.

All passed: the white coffin, the white-robed singers, the bearers, the weeping friends. The funeral hymns died away in the distance and little John remained alone under the chestnuts, his head on his hands, and his eyes gravely fixed on the path. Above on the branches of the trees the dead leaves rustled in the light breeze and some falling seemed to murmur whispered words to the child's ears. Yes! he was not deceived. In the solemn calm of the evening the leaves were answering the little lad.

"Do not despise us, child," they said, "you are no more than we are. The wind blows us away at the end, and sometimes at the beginning of one short life. And is it not the same with you? You people are but the leaves of the great tree called Humanity. Death carries you off, and we have seen more than one who appeared young and healthy, passing in his coffin along this narrow path. Are years better than days, when they are passed and gone? How are you better than we are after you are buried and forgotten? Poor foolish children, you who think you are something in the world, open your eyes and see your vanity! You are but toys in the nursery of nature, yesterday born, tomorrow dead. You are no greater than the leaves you despise. You are born, you grow old, you die. Child, it is not worth while to come out of the bud when springtime arrives. It is not worth while battling against storms and rain. Little by little we all grow old; we fall from our height and descend under the earth. Believe me, life is a useless thing. Make no efforts, child; far too soon you will see we are right. The glory of the sun, the blue of the sky, will not always be for you. Wait a little while for storms to come; then remember our words, poor, proud, little worm. . . ."

The rustling of the leaves said no more. Their speech had taken the joy from little John's face. His smile vanished. The golden sunlight seemed less bright to him. His little heart grew sad when he thought of the dark and gloomy words he had just heard.

“Is life really useless? Are we really no better than dead leaves?” he asked himself, discouraged.

The leaves fell silently and gave no reply. The perfect silence of evening was broken only by the song of a little bird, perched on a low branch. John looked at it with great astonishment.

“How can you sing so joyously? Do you not know life is useless and we are nothing in the hands of Nature?”

“What!” replied the bird. “Life is useless! Who told you that? Do you think it is useless to live when all is so beautiful around us? Would Nature have done all this if it were useless?”

“But the leaves said so,” said the child gloomily.

“Child, child,” laughed the bird in a trill of joyous song, “my feathers are not I. And they will tell you life is useless when they drop out every year. And the dead leaves are the feathers of the tree. The tree lives on from year to year. The little leaves curl up and go to sleep in the heart of the tree and their feathers fall to the ground. They are jealous. But even they come again and feed the tree until they are part of it. And the real leaves rest all winter and peep out of the buds again in spring.

“Nothing but leaves!” trilled the bird, joyously. “Nothing but leaves? They are only the feathers of leaves. And your body is your coat of feathers. But you will come again next spring and you will make another beautiful bud on the great tree of Humanity, if you do your duty now.

“And then in the great Springtime of the World when it returns you may be a blossom and produce fruit that shall give the seed for many trees! Nothing but leaves, indeed!” sang the bird.

And Johnny woke up, joyous and full of happiness that he had his duty to do in life as a soul-leaf of the great Tree of the World.



How foolish it were to be at so much trouble in cultivating a small orchard of trees, because we expect some fruit from it, and yet be at no pains to cultivate that which is instead of a whole estate — I mean Friendship — a soil the most glorious and fertile where we are sure to gather the fairest and best of fruit!

— *Xenophon*