

VOLUME I

PART 3

MEMOIRS OF THE
AMERICAN ANTHROPOLOGICAL
ASSOCIATION

HISTORICAL JOTTINGS ON AMBER
IN ASIA

BY
BERTHOLD LAUFER

LANCASTER, PA., U. S. A.
THE NEW ERA PRINTING COMPANY

FEBRUARY, 1907

AMERICAN ANTHROPOLOGIST

NEW SERIES

The AMERICAN ANTHROPOLOGIST (NEW SERIES) is published quarterly, each number containing about 184 octavo pages, with illustrations, forming an annual volume of 736 pages.

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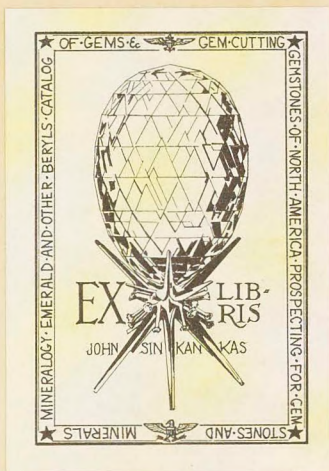
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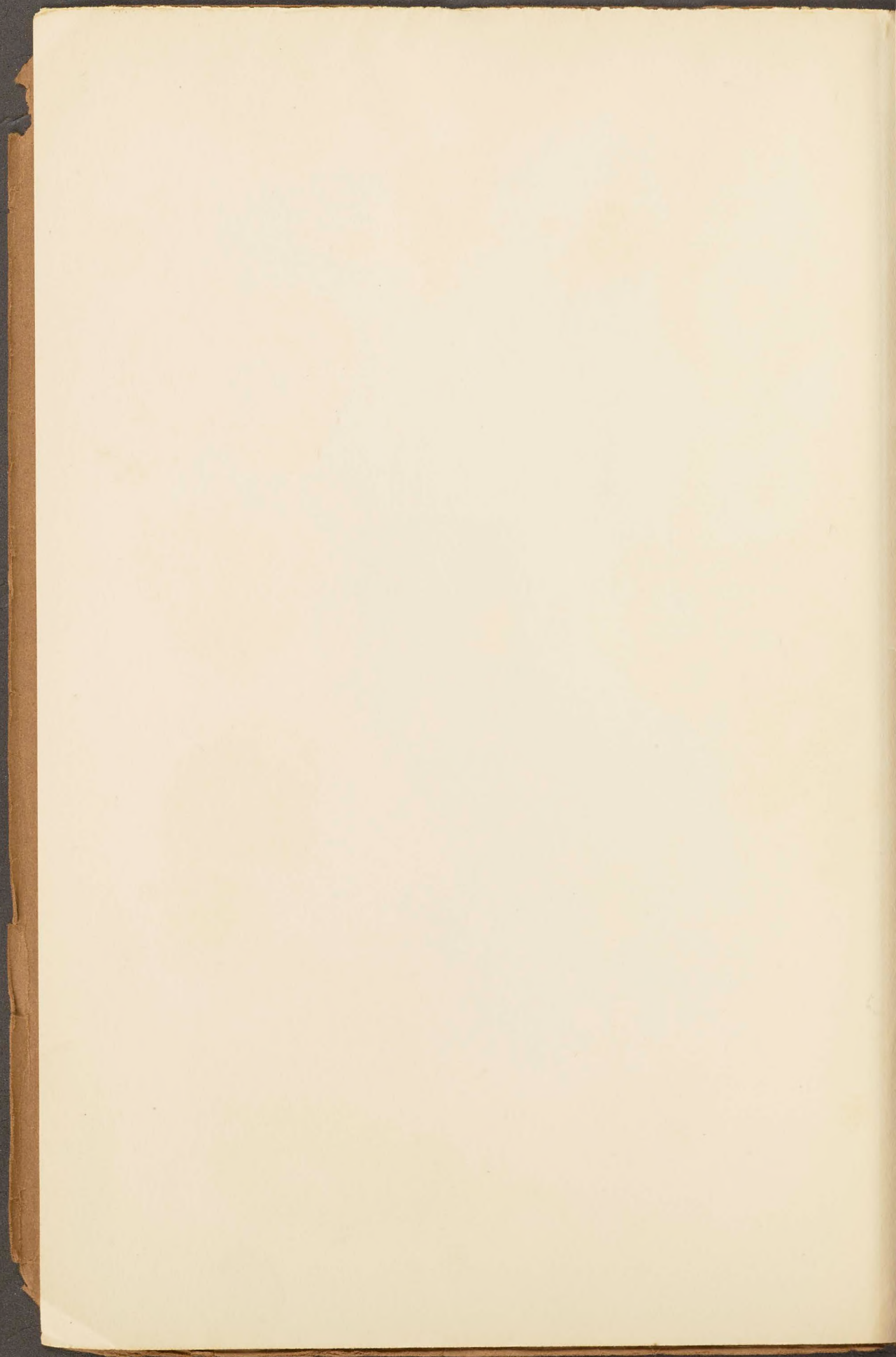
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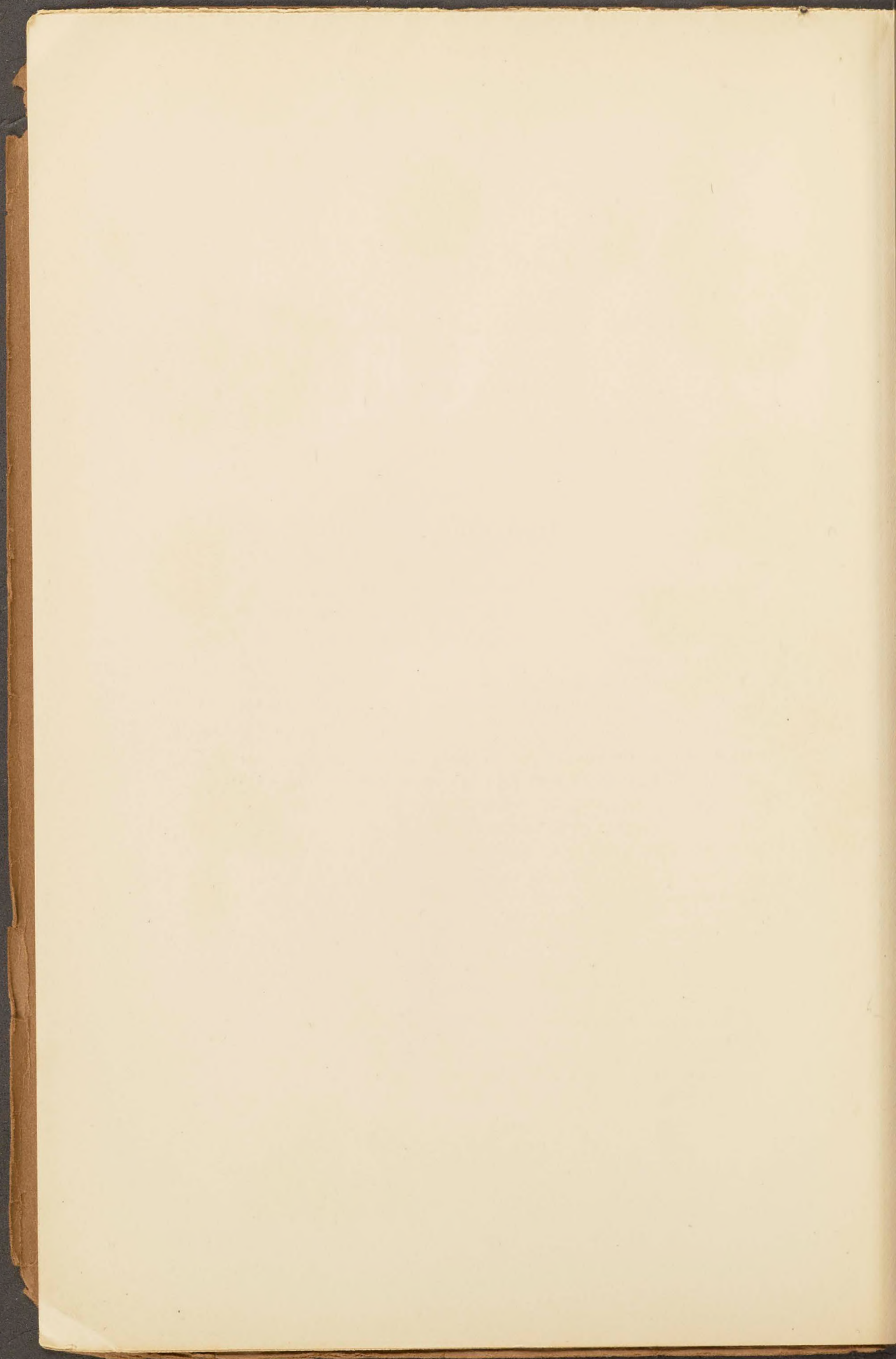
*Lancaster, PA February 1907
The New Era Printing Co.*

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INTRODUCTION

Among the natural products that are of importance in the solution of archeological problems none has attracted wider attention than amber. While the predominating position held by it in prehistoric Europe and in classical antiquity may now be considered as fairly outlined, only sparse material is as yet available for the history of amber and of the trade in it in connection with Asia. A few remarks on amber have been translated from Chinese sources by Wilhelm Schott¹ and St Julien,² the latter of whom did not find much interest in this question.³ Of similar character is that which is to be found in the book of Fred. Porter Smith.⁴

A. Pfizmaier⁵ has translated eleven notes relating to amber, seemingly after the cyclopedia *Yen chien lei han*, without entering into a discussion of the subject. When K. G. Jacob⁶ attempted to review the subject of amber in China from an historical point of view, he met with but scant material on which to base his studies, with the exception of some occasional communications made to him by Hirth and Arendt. Also in the latest and able work of F. de Mély and M. H. Courel,⁷ which

¹ "Skizze zu einer Topographie der Producte des chinesischen Reiches," *Abhandlungen der Berliner Akademie der Wissenschaften*, p. 266, 361, 1842.

² *Industries anciennes et modernes de l'empire chinois*, p. 228, Paris, 1869.

³ "Nous ne nous étendrons pas sur cette question qui n'offre du reste qu'un intérêt médiocre."

⁴ *Contributions towards the Materia Medica and Natural History of China*, p. 12, Shanghai and London, 1871. Compare also A. G. Vorderman in *T'oung Pao*, I, p. 382, 1891.

⁵ "Beiträge zur Geschichte der Edelsteine und des Goldes," *Sitzungsberichte der Wiener Akademie, phil.-hist. Cl.*, LVIII, p. 194-197, 1868.

⁶ "Neue Studien, den Bernstein im Orient betreffend," *Zeitschrift der deutschen Morgenländischen Gesellschaft*, XLIII, p. 353 et seq., 1889.

⁷ *Les lapidaires de l'antiquité et du moyen âge*; Vol. I, *Les lapidaires chinois*, Paris, 1896.

is the most extensive investigation of mineral products from Chinese literature, the problem of amber is only slightly touched on,¹ and the authors are tempted to believe that amber seems to have been little diffused in China.² A brief note, of somewhat uncritical character, on the views of Chinese writers regarding the origin of amber, has been published by a Japanese author.³ I shall not enter into a criticism of it.

Ever since Fritz Noetling,⁴ of the Geological Survey of India, published his important researches regarding the amber mines of Burma, and proved that by far the greater part of this mineral⁵ is there purchased by Chinese traders and transported into Yünnan province, it has seemed to me essential to search in Chinese documents for any references to this trade, or for confirmation of the provenience of Chinese amber from Burma. Such research has proved this supposition to be correct; and the confirmation of Noetling's investigation from Chinese sources, and the chronological definition of Burmese amber production and Burmese-Chinese amber trade, seem to me one of the chief

¹ Loc. cit., p. li. "On connaît tous les problèmes soulevés par la question de l'ambre en Occident . . . Eut-il en Chine, dans l'antiquité, la même valeur commerciale qu'en Occident? Hirth n'a pas examiné la question à ce point de vue: je ne puis m'empêcher de m'y placer, quand il propose comme origine du mot *hou pe*, qui en cantonnais se prononce *fou pak*, l'ἄρπαξ grec dont le ρ tombait nécessairement en passant en chinois."

² Ibid., p. lviii.

³ K. Minakata, "Chinese Theories of the Origin of Amber," *Nature*, LI, p. 294, 1895.

⁴ "Das Vorkommen von Birmit (indischer Bernstein) und dessen Verarbeitung," *Globus*, LXIX, p. 217-220, 239-242, 1896. English readers may be referred to a similar article by the same author — "On the Occurrence of Burmite, a New Fossil Resin from Upper Burma" — in *Records of the Geological Survey of India*, XXVI, p. 31-40, 1893; or to J. G. Scott and J. P. Hardiman, *Gazetteer of Upper Burma and the Shan States*, vol. II, pt. I, p. 289-295, Rangoon, 1900.

⁵ According to investigations made by Otto Helm of Danzig, it differs in its physical and chemical qualities from the Baltic amber, or succinite, and is, moreover, distinct from any other known fossil resin. Helm, therefore, suggested that it should be named *burmite*. But it is justly remarked in the *Gazetteer* above quoted, p. 289: "Since, however, the general outward appearance of the two is similar, there seems no reason why the name *burmite* should be any more generally adopted than the scientific term *succinite* has been up to the present." For historical and archeological purposes I deem it preferable to speak of *Burmese amber*, which gives the well-known generic term and at the same time denotes the place of its origin.

results of the present paper, for which, in addition, I have extracted everything worthy of note regarding amber that is to be found in the Chinese cyclopedias and in other historical and geographical Chinese works. Where passages from Chinese books without further data are quoted, they are derived from the *T'u shu chi ch'êng*, vol. 570, section on National Economy (*shih huo tien*), book 334, chapter on Amber. Chinese sources give us accounts not only of the amber of Burma, but of that of many other regions. The material is arranged geographically, and in each geographical section chronologically. We treat *seriatim* of the amber in India, Tibet, Persia, the Roman Empire, Burma, Turkistan, and of modern European amber importations into China. But first we give a complete translation¹ of what is written regarding amber in the *Pên ts'ao kang mu*, the great work on natural history by Li Shih-chên (end of sixteenth century), because it reviews all statements on the subject made by medical authorities since the earliest times, and contains no small amount of important geographical and historical data which will serve as a basis for the investigation that follows.

ANCIENT VIEWS ON AMBER

The account of the *Pên ts'ao kang mu* reads as follows :

Li Shih-chên says :

“When a tiger dies, its soul (spirit) penetrates into the earth, and is a stone. This object resembles amber, and is therefore called *hu p'ò* ('tiger's soul').² The ordinary character is combined with the radical *yü* ('jewel'), since it belongs to the class of jewels. The Sanskrit books call it *a-shih-mo-chieh-p'ò*.³

The *Pieh lu* says :

Amber is produced in *Yung-ch'ang* (see p. 235).

T'ao⁴ Hung-ching (A.D. 452-536) remarks :

¹ With the exception only of some passages expounding the medical properties and prescriptions of amber, which are outside the scope of the present paper.

² This interpretation is made *ad hoc* to account for the original writing of the apparently foreign loan-word *hu p'ò* ('amber') with the characters *hu* ('tiger') and *p'ò* ('soul'). This way of writing is followed in the two *Han shu*.

³ W. Schott (loc. cit., p. 361) identifies this word with Sanskrit *aśmagarb ha* (emerald), and assumes a confusion of these two precious substances.

⁴ In the *T'u shu chi ch'êng* this name is written erroneously *Liu*.

There is an old saying that the resin of fir-trees sinks into the earth, and transforms itself [into amber] after a thousand years. When it is then burned it still has the odor of fir-trees. There is also amber, in the midst of which there is a single bee, in shape and color like a living one. The statement of the *Po wu chi*, that the burning of bees' nests effects its make,¹ is, I fear, not true. It may happen that bees are moistened by the fir-resin, and thus, as it falls down to the ground, are completely entrapped. There is also amber made by boiling chicken-eggs with the roe of the "dark" fish, but this is not genuine [that is, it is fictitious]. Only that kind which, when rubbed with the palm of the hand, and thus made warm, attracts mustard-seeds,² is genuine.³ Nowadays amber comes from foreign countries and is produced in those places where *fu ling*⁴ grows; on the other hand, however, there is nobody who

¹ See p. 235, 238.

² Pliny says: "When a vivifying heat has been imparted to it by rubbing it between the fingers, amber will attract chaff, dried leaves, and thin bark, in just the same way that the magnet attracts iron."

³ It is very remarkable that this observation is quite correct. Our own naturalists also have recourse to the magnetic property of amber to distinguish it from spurious productions. O. C. Farrington, in his *Gems and Gem Minerals* (Chicago, 1903, p. 207), remarks: "Celluloid can be distinguished from amber by the fact that when rubbed it does not become electric, and gives off an odor of a camphor instead of the somewhat aromatic one of amber." K. G. Jacob (loc. cit., p. 355), says: "Arendt communicated to me from the twenty-fifth book of the *Shu wu i ming su* (eighteenth century) another foreign word for amber, *tun mou*." In this work, however, as may be seen from *Ko chih ching yüan*, book 33, p. 7 a, the term *tun mou* (written with the characters no. 12221 and 8044 in Giles's *Dictionary*) is quoted from the *Lun hêng*, a book of the famous philosopher Wang Ch'ung (A. D. 27-97), and thus goes back to the first century, that is, the time when the Chinese became familiar with Burmese amber; it may therefore be supposed that this word was derived from some Shan language. The passage of Wang Ch'ung runs thus: "*Tun mou* picks up mustard-seeds, *tun mou* is identical with *hu p'o* = amber." Next to the *Ch'ien Han shu* (p. 225), this is the oldest literary mention of amber, and the first mention in Chinese literature of the magnetic qualities of amber, with which, as is known, the ancients also were well familiar. The Sanskrit term *trnagrāhin* ('attracting grass') proves the same for India, and in Persian and Arabic we have the word *kahrubā* with a similar meaning; in Chinese, thus, *shih chieh* becomes a designation for amber. The priority in the observation of this natural law as regards Asia is secured to the Chinese, and it is by no means necessary to assume that their knowledge regarding this point was derived from the classical West. A keen observer and deep thinker like Wang Ch'ung, who refuted the popular notions of his time as to immortality with the acumen of a modern psychologist (see A. Forke, "Wang-Chung and Plato on Death and Immortality," in *Jour. China Branch Roy. Asiatic Soc.*, xxxi), may very well have been able to find out such a fact for himself.

⁴ A false tuber, *Pachyma cocos* Fries (Bretschneider, *Botanicon Sinicum*, pt. III, p. 532-536). Its cinnamon-brown color, and the fact that it grows on fir-trees, are presumably the causes of its being associated with the evolution of amber.

is not aware of the fact that amber may occur in any place, whether there is *fu ling* there or not.¹

Li Hsün² observes:

Amber is a secretion in the wood of the sea-fir. At first it is like the juice of the peach-tree; later it coagulates, and assumes form. Besides, there is southern amber (*nan p'ò*), which, however, does not come to us on sea-going junks.

Han Pao-shêng³ says:

The resin of the liquidambar-tree⁴ penetrates into the earth, changes during a thousand years, and thus becomes amber. It is not only fir-tree resin that thus changes, but, generally speaking, it is tree-resins which penetrate into the earth, and all alter in the course of a millennium, and it is not that liquidambar and fir trees exclusively have resin during many years. When bee-nests are burned, the shapes of bees are inside in addition.

K'ou Tsung-shih⁵ says:

Nowadays there is amber also among the Western Jung, the color of which is unevenly pale, or brilliantly clear. The amber of the southern regions is deep in color and cloudy. The people of those countries make objects and figures of it by turning it on a lathe.⁶ It is said that, when

¹ The above sentence from the *Pieh-lu*, and the quotation from T'ao Hung-ching, have been translated by E. Bretschneider, *Botanicon Sinicum*, pt. III, p. 537. His translation of the latter passage is as follows: "The ancients say that the *hu p'ò* is the resin of the fir-tree, which, being embedded in the soil during a thousand years, turns into amber. When burned, it emits an odor like that of resin. It sometimes incloses insects. An imitation of the *hu p'ò* is produced by boiling hen's-eggs with fish-roe. The genuine *hu p'ò*, when rubbed between the hands till it becomes hot, will attract straw. Now, all the *hu p'ò* in China is brought from foreign countries." It will be noted that the last clause is omitted in this translation; for the rest, this is all that is given by Bretschneider regarding amber, from the *Pên ts'ao kang mu*.

² Author of the *Hai yao pên ts'ao*, an account of the drugs of southern countries, in six books, second half of the eighth century. E. Bretschneider, *Bot. Sin.*, pt. I, p. 45.

³ Author of the *Shu pên ts'ao*, the materia medica of Szüch'uan province, compiled about the middle of the tenth century. See E. Bretschneider, loc. cit., p. 46.

⁴ *Fêng*. Regarding this tree, see Th. Sampson, *Notes and Queries on China and Japan*, III, p. 4-7, 1866.

⁵ A celebrated physician of the Sung dynasty, author of the *Pên ts'ao yen i*, published ca. 1115 A.D. E. Bretschneider, loc. cit., p. 48.

⁶ *Nien*, originally used for the husking of rice by means of a stone roller. Chao Ju-Kua uses this word for the cut glassware of Bagdad (Hirth, *Die Länder des Islam nach chinesischen Quellen*, p. 42, note 3; p. 48, note 3). In Europe, also, amber is worked by turning it on a lathe or by cutting by hand.

in a thousand years *fu ling* is transmuted [into amber], bees and ants will stick to it as if artificially arranged ; but this is not the case with the majority [of amber-pieces].

The *Ti li chi* says :

Hainan and Lin yi (Champa) produce much amber. The resin of fir-trees, filtering into the earth, changes, and is then amber. Around it there are no plants. It extends underground to a depth of at least from five to six feet, and at most from eight to nine feet. There are large pieces of the size of a *hu*.¹ By cutting off its rind, it becomes perfect. This statement is convincing ; but it must be considered that the soil is either suitable or not, and that accordingly the transformation takes place or not. As to the account of the burned bees, I do not know on what evidence it rests.

Su Sung² says :

What all people say regarding *fu ling* coincides, although there are slight discrepancies. All agree in stating that it arises from the transformation of fir-resin into *fu ling*, so that the spirit of the *fu ling* is that of the great pine-tree. When the latter is broken or felled without the root being injured, and thus not decayed, its sap flows down and coagulates. It therefore cures the heart and kidneys by pervading them with juice. Now, amber originates thus : When the branches and joints of the pine-tree are still flourishing, they are scorched, especially under the influence of the hot sun. Then the resin flows out of the trunk of the tree, and thickens in large masses on the outside, where the sun strikes it. Thereupon it sinks into the earth, and the juice, moist in the beginning, trickles into the earth for many years, where finally it is preserved only as a lustrous substance. Now it is capable of attracting mustard ; still, however, it keeps its adhesive properties. This is the reason that all sorts of insects stick to it, which happened before the time it penetrated into the ground. There are, accordingly, two substances which are produced out of the pine-tree, but which are each different in their nature. *Fu ling* arises in the female principle, and is completed in the male principle. Amber arises in the male principle, and is completed in the female principle. Both, therefore, cure, regulate, and tranquilize the heart, and stimulate the water.

Lei Hsiao³ says :

¹ A corn-measure holding five or ten pecks.

² A high functionary and distinguished scholar under the Sung dynasty, author of the *T'u ching pên ts'ao*, illustrated materia medica, published between 1057 and 1090. E. Bretschneider, loc. cit., p. 47.

³ Author of the *P'ao chi lun*, a pharmacology, in the fifth century. E. Bretschneider, loc. cit., p. 41, 42.

Generally, we must follow this division: red fir-tree resin, stone amber, water amber, flower amber, "amber of objects and figures," black (jet) amber (*hsi p'o*), and amber proper (*hu p'o*). Among these, red fir-tree resin is like amber, except that it is dull, in large pieces, and brittle, with streaks extending crosswise. As regards water amber, there are many pieces that are not red, but, rather, light in tinge; among those which are yellow, there are many with furrowed stripes. Stone amber is heavy like stone, yellow in color, but not fit for use. Flower amber resembles "new horse-tails"¹ and the inner part of the pine-tree: it has streaks alternately red and yellow. The "amber of objects and figures" contains objects in its interior, and enters into wonderful relations with the destiny of man. Jet amber is the most excellent of the "figure" ambers. The amber proper is of blood-red² color; rubbed with a piece of cloth and made warm, it can attract mustard-seeds, which is a proof of its genuineness.

Li Shih-chên says:

Amber attracts mustard-seeds, that is, plants in general, and mustard-seeds and grains. The statement of Lei Shih, that it attracts only mustard-seeds, may be an error. The Annals of the T'ang Dynasty contain the fact that in the western regions there is the Kan river in Soghdiana, where the wood of the fir-tree lies in the water, and changes to stone after one or two years. This exactly coincides with the fact that all wood coming from fir and liquidambar³ trees discharges a secretion into the ground, which changes into amber. This is a universal law. Nowadays there is also amber in Li Chiang,⁴ in the country of Chin ch'i ('gold teeth'). The statement that *fu ling*, after a thousand years, changes into amber, is also an erroneous tradition. Ts'ao Chao says in his book, *Ko ku yao lun*,⁵ that amber is produced with the Western Barbarians (*Hsi Fan*, Kukulun region, and Tibet) and the Southern Barbarians (*Nan Fan*). It is the secretion of the liquidambar-tree that thus changes after many years. The kind the color of which is yellow and beautifully transparent is called *la*

¹ Doubtless the name of some plant, which, however, I have not yet been able to identify.

² A color attributed also to Sicilian amber.

³ The connection of the liquidambar (= liquid amber!) tree with the origin of amber doubtless arose from the semi-fluid resin produced by this tree, identical with the storax or liquid storax of commerce, in Chinese *su ho* (see F. Porter Smith, *Contributions toward the Materia Medica*, etc., p. 187).

⁴ Also in the *Ta Ch'ing i t'ung chi*, the Geography of the Chinese Empire of the present dynasty (book 382, p. 5 a), amber is mentioned as a product of *Li Chiang fu*.

⁵ Written in the beginning of the fifteenth century (see E. Bretschneider, loc. cit., p. 162).

p'o ("wax amber").¹ If the color resembles the red of the fir-resin, and is, moreover, yellow, its name is *ming p'o* ("bright amber"). There is a fragrant kind called *hsiang p'o* ("fragrant" or "incense amber"). The sort produced in Korea (*Kao li*) and Japan (*Wo kuo*)² is of a deep-red color. There is another kind called "fir-branches of bees and ants" (*feng i sung chi*), which is still better.

HSI AMBER

A special kind, called *hsi*³ amber, is then treated in the *P'en ts'ao*, as follows:

¹ K. G. Jacob (*Zeitschrift der deutschen Morgenländischen Gesellschaft*, XLIII, p. 356, 1889) remarks: "It is interesting that the Chinese mention wax amber just like the Arabs." I think that there is nothing remarkable about this fact, the term "wax" being used simply as a color-designation of world-wide application. Palladius (*Chinese-Russian Dictionary*, p. 483) translates *la p'o*, "light-yellow amber"; Eitel (*A Chinese Dictionary in the Cantonese Dialect*, p. 510 a) the same expression by "sparkling yellow amber"; and Couvreur (*Dictionnaire classique de la langue chinoise*, p. 580 c) by "ambre jaune." Also Pliny (*Hist. Nat.*, 37, 11) speaks of amber of waxen color (cerinum) found in Scythia, and says that white and wax-colored amber was valueless and used merely for fumigating (Blümner, *Technologie und Terminologie*, II, p. 386). Even the naturalists of our own day employ this attribute in the description of certain kinds of amber. G. F. Kunz, for example, in his *Gems and Precious Stones of North America* (New York, 1890, p. 199), says of a species of amber discovered in America that it is wax- or honey-yellow. This proves sufficiently that the coincidence in the terminology emphasized by Jacob is quite a natural incident.

² So far as I can see, there are in Chinese literature two references with regard to tribute of amber sent from Japan. In the fifth year of the period *Yung hui* (A.D. 654), corresponding to the Japanese period *Hakuchi* (in Chinese, *Pai chi*, "white pheasant"), under the Emperor Kao Tsung of the T'ang dynasty, the Japanese Emperor Toyoshi-karu-no-Oji (in Chinese, *Hsiao T'eh*, 645-654) despatched a tribute of amber and agate, the piece of amber being defined as being the size of a "peck" (tou). Another gift of amber from Japan is mentioned for the fifth year of the period *Hsi ning*, or A.D. 1072, under the Sung dynasty (*T'u shu chi ch'eng*, vol. 1338, *p'ien i tien*, bk. 33, *Ji p'en pu hui k'ao*, I, p. 9 a, 14 b). Jacob, loc. cit., refers in regard to Japanese amber, to E. Kämpfer's *Beschreibung von Japan*, II, p. 470, 1779. O. Münsterberg, *Japanische Kunstgeschichte*, II, p. 89 (Braunschweig, 1906), figures a metal mirror of the Nara epoch, A.D. 709-784, on the back of which flowers and leaves are formed of engraved pieces of mother-of-pearl and red amber. In the recent trade statistics of Japan I do not find reference to amber.

³ Character no. 4174, in Giles's *Dictionary*. Giles defines the term as "a kind of jet, described as a mineral amber of a clear black color." I have no doubt that the species described in the following is identical with the gagate of the ancients, as it strikingly agrees with the description given of this mineral by Pliny, and with that of jet in our own books on mineralogy. On gagate compare H. Blümner,

Lei Hsiao (fifth century) says :

Hsi is the most excellent of all ambers, hence its designation *hsi p'o*.

Li Shih-chên says :

There is also *hsi* that is produced : its color is deep black, hence its name.

Su Kung (seventh century) says :

According to an old tradition, fir-resin alters into *fu ling* in a thousand years. In another thousand years it becomes amber. In another thousand years it becomes *hsi*. When these two substances are burned they emit the odor of firs. In shape they resemble black jade, and are light. They are produced in the country of the Western *Jung*, where there are places in which *fu ling* occurs. Pieces of these substances which are now obtained in a stony desert three hundred *li* south from Hsi chou [Yar-khoto, near Turfan] are large, measuring a foot square, black, moist, and light. When burned they emit a strong odor.¹ The people of Turfan (*Kao ch'ang*) call it *mu hsi* ("wooden *hsi*"),² and the black jade they call *shih hsi* ("stone *hsi*"). Among the stones found in the soil of Kung chou [in Honan ?] there are those which, when burned, smell like a fir-tree, in quality equal to that of amber. It is customary to make it into vessels incapable of being burned or broken.³ I fear that neither these two kinds nor amber are products of fir-resin.

T'ang Shên-wei⁴ says :

In the *Liang kung tzü chuan*,⁵ Nai Kung remarks : "In the plains and stony deserts in the territory of Kiao ho,⁶ the soil is dug a hundred

Technologie und Terminologie der Gewerbe und Künste bei Griechen und Römern, III, p. 67, 68, Leipzig, 1884.

¹ Compare Pliny's description of gagate (*Hist. Nat.*, 36, 34) : "Niger est, planus, pumicosus, levis, non multum a ligno differens, fragilis, odore, si teritur, gravis." ("It is black, smooth, porous, and light, differs but little from wood, is brittle, and emits a disagreeable odor when rubbed.")

² Compare Pliny's "non multum a ligno differens" and the description of jet by O. C. Farrington, *Gems and Gem Minerals* (Chicago, 1903), p. 210 : "Jet is a variety of coal which, being compact, takes a good polish, and hence can be used in jewelry. It is a kind of brown coal or lignite, and retaining, as it does, some of the original structure of the wood," etc.

³ Compare Pliny (loc. cit.) : "Fictilia ex eo inscripta non delentur, cum uritur, odorem sulphureum reddit, mirumque, accenditur aqua, oleo restinguitur."

⁴ Physician, author of the *Chêng lei pên ts'ao*, compiled in 1108. Bretschneider, loc. cit., p. 47.

⁵ Presumably identical with the *Liang ssü kung tzü chi*, Chronicle of the Four Worthies of the Liang Dynasty (502-566), by Chang Yüeh (667-730). Bretschneider, loc. cit., p. 169.

⁶ Capital of Turfan at the time of the T'ang. Chavannes, *Documents sur les Toukiue (Turcs) occidentaux*, p. 336 b.

feet deep ; below there is *hsi* amber of an extremely pure black, some pieces being as big as a cart-wheel. A powder made from it serves as a remedy for female complaints of the urinary intestines, obstruction of the bowels, and other diseases.

Li Shih-chên says :

Hsi is, of all ambers, that of blackest color,¹ according to the one, because the tinge of the earth colors it with its odors ; according to others, it is only one kind of wood, emitting an exudation, which then solidifies. But it is not necessarily thousand-year amber which undergoes this transformation.

Wang Ts'ê-ching says :

Resin, after a thousand years, makes *fu ling* ; *fu ling*, after a thousand years, makes amber ; amber, after a thousand years, makes stone-gall (?) ; stone-gall, after a thousand years, makes *wei hsi* ("sublime happiness" ?). Generally, this is all superstitious² talk. One cannot wholly depend on Lei Hsiao, either. As regards its odor and taste, it is evenly sweet, and it is non-poisonous. As regards its medical virtues, the *T'ang pên* (A.D. 650) says : "It re-animates the heart, calms the soul [so as to cause sleep], stops bleeding, produces flesh, and in women cures obstruction of the bowels."

Ch'ên Tsang-ch'í³ says :

Small boys carry it as an amulet ;⁴ ground, and dropped into the eyes, it prevents a cataract.

We thus see that the earliest mention of this black substance occurs in the fifth century, and that it was introduced into the pharmacopœia as early as the seventh century. From the Chinese account we learn the fact, not unimportant for the geography of minerals, which, so far as I know, was hitherto unknown to our mineralogists, that gagate, or jet, is, or at least was at a certain time, found near Turfan in Turkistan, and that the Turkish inhabitants of this region were acquainted with it, and probably dug it and sent it to China. This importation

¹ Compare Farrington (loc. cit.) : "Jet is sometimes known as 'black amber,' a name not inappropriate when the similarity in origin of the two minerals is considered."

² *Shên i* ; literally, "strange things about spirits," "supernatural wonders."

³ Author of the *Pên ts'ao shi i*, "Omissions in Previous Works of Materia Medica." He lived in the first half of the eighth century. Bretschneider, loc. cit., p. 45.

⁴ According to Pliny, amber is beneficial to infants, attached to the body in the form of an amulet.

seems to have continued down to the twelfth century, as is evident from the observations of T'ang Shên-wei, who recommends the application of jet in certain diseases of women. He is chronologically the last author quoted by Li Shih-chên who does not appear to have known the substance from personal observation, but who merely reasons on the statements of his predecessors. After the time of T'ang Shên-wei, this mineral disappeared from the market, on account of lack of importation, as we may infer from the quotations given in K'ang hsi's Dictionary (*sub voce*) — one, from the dictionary *Chi yüin* (middle of the eleventh century), defining *hsi* as a "beautiful stone of black color" (apparently traceable back to Su Kung); the other from the later dictionary, *Chêng yüin*, which explains this word as "black jade," with the remark that the old explanation, "a beautiful stone of black color," is wrong — which may be taken as sure signs that the material then no longer existed in the empire. In the modern materia medica of China, jet does not occur. It is true that Doolittle¹ gives two equivalents for the word "jet: (1) *pu hwei mu*, which is a mistake, as this term denotes asbestos; (2) *hei yü*, that is, black nephrite, which seems to be based merely on the above-quoted literary sources, perhaps K'ang hsi.

DISTRIBUTION OF AMBER

INDIA

In the *Ch'ien Han shu* ("Annals of the Former Han Dynasty"), written by Pan Ku, who died A.D. 92, and continued and completed by his sister Pan Chao, we hear of amber for the first time in Chinese literature; the term never occurs in the classical texts. This historical work contains an account of the western countries (*Ch'ien Han shu Hsi yü chuan*), which relates that the country of *Ki pin* produces amber (there written with the characters for "tiger's soul"). This geographical name denoted Cashmir at the time of the Han and Wei.² Relations between China and Cashmir commenced at the time of the Emperor Wu (140-85 B.C.),

¹ *Handbook of the Chinese Language*, I, p. 269.

² Chavannes, *Documents sur les Tou-kiue (Turcs) occidentaux*, St Petersburg, 1903, p. 336; see also Schlegel in *T'oung Pao*, série II, vol. I, p. 329, 1900.

and several embassies were despatched from that country to the Chinese court, the last to the Emperor *Ch'êng* (32-7 B.C.), when intercourse with Cashmir ceased, on account of its inaccessibility, till the Wei dynasty (A.D. 386-532).¹ It cannot be presumed, therefore, that during this short period any trade was begun between China and the remote regions of northwestern India, and, still less, that amber from the latter country, in quantities of any importance, could have reached the Chinese Empire. It is certainly not out of the question that the embassies of Cashmir brought along samples of this product for presentation to the court, though nothing is said definitely in our texts regarding this point. Owing to political and geographical conditions, any extensive trade between the two countries was handicapped at the outset; and I think the view of Palladius,² that amber was formerly exported from *Ki pin* to China, cannot be accepted. Still, the Chinese account is of great value, for it proves that amber was known in that part of India during the first century before Christ; and the more so, as ancient Sanskrit literature, at least to my knowledge, seems to be silent on this subject. It is not mentioned in the mineralogical section of the *Nighanturâja*,³ although the author of this book, Narahari, was a physician from Cashmir.⁴ For the rest, our knowledge of Indian amber is based chiefly on the statements of Pliny, in his *Historia Naturalis*, of which chapter 11 of book 37 is devoted to amber. Pliny there alludes to Indian amber in three passages based on the authority of three different informants. First, he reproduces the statement of Nicias, that amber is found also in India, where it is held as a preferable substitute for frankincense.⁵ Second, he says, after Ctesias, that there is in India a river called

¹ Regarding details, see O. Franke, "Beiträge aus chinesischen Quellen zur Kenntnis der Türkvölker und Skythen Central-Asiens," *Aus dem Anhang zu den Abhandlungen der Königl. Preuss. Akademie der Wissenschaften*, Berlin, 1904, p. 58, 59, 63, 64.

² *Chinese-Russian Dictionary*, I, p. 483 b.

³ Edited and translated by R. Garbe, *Die indischen Mineralien*, Leipzig, 1882.

⁴ *Ibid.*, p. vi.

⁵ *The Natural History of Pliny*, translated by Bostock and Riley, VI, p. 399, London, 1857.

Hypobarus, a word which signifies "bearer of all good things"; that this river flows from the north into the Eastern ocean, where it discharges near a mountain covered with trees which produce electrum; and that these trees are called *siptachoræ*, the meaning of which is "intense sweetness."¹ His third testimony is the most important, as it shows that amber was traded from India to western Asia. It reads as follows:

That amber is found in India too, is a fact well ascertained. Archelaus, who reigned over Cappadocia, says that it is brought from that country in the rough state, and with the fine bark still adhering to it, it being the custom there to polish it by boiling it in the grease of a sucking-pig. One great proof that amber must have been originally in a liquid state is the fact that, owing to its transparency, certain objects are to be seen within — ants, for example, gnats, and lizards. These, no doubt, must first have adhered to it while liquid, and then, upon its hardening, have remained enclosed within.²

Archelaus, mentioned in this passage, governed Cappadocia as a Roman province under the Emperor Tiberius. The fact that amber was a native product of ancient India is thus confirmed beyond doubt.

On the other hand, while the records of the ancients do not hint at the importation into India of amber from Europe, and while nothing to this effect can be gained from Indian literary sources, it is curious and surprising to note that the matter-of-fact Chinese grant us an opportunity of establishing the fact that such a commercial relation between the imperium Romanum and India existed. If anything, such an example reflects the highest credit on the wonderfully developed historical sense of the Chinese. This notice is found in the *Liang shu*, ("Annals of the Liang Dynasty"), written about A.D. 629 and relating to the period A.D. 502-556.

In A.D. 503 an embassy arrived from India at the court of the Liang with a tribute of native products. In the description of India given in the *Liang shu* it is related that the western part of India holds intercourse with Syria or the Roman Orient (*Ta Ts'in*) and Parthia (*An hsi*), that the trade goes by way of

¹ Ibid., p. 400.

² Ibid., p. 402. Compare also Chr. Lassen, *Indische Altertumskunde*, III, p. 32.

the sea, and that there are products of Syria in great number there, like precious objects, coral, *amber*, gold, the jade *pi*, pearls, *lang kan*,¹ saffron (*yü kin*),² and storax.³

From Chinese sources we learn also that amber was employed in the most northern and eastern parts of India. In the description of Nepal given in chapter 221 of the *Old History of the Tang Dynasty*, it is related that the king of Nepal adorns

¹ F. De Mély and H. Courel, loc. cit., p. 56, 258.

² Bretschneider (*Botanicon Sinicum*, pt. II, p. 232) left the term *yü kin hsiang* undefined. I am led to the conclusion that *yü kin hsiang*, as well as the simple *yü kin*, whatever its meaning may be with regard to native plants, when applied to foreign and particularly to Indian countries, denotes the true saffron of India, for the following reasons:

(1) In the description of India given in the *Liang shu*, it is expressly stated that *yü kin* is produced solely in *Ki pin*, that is, Cashmir (*T'u shu chi ch'eng*, vol. 1242, *pien i tien*, bk. 58, *T'ien chu pu hui k'ao*, p. 2 b). Now, Cashmir is the classical land famed for the cultivation of saffron, which was and is thence exported to the rest of India, Tibet, and, farther, to Mongolia and China. The industry is very ancient in Cashmir. See W. R. Lawrence, *The Valley of Kashmir*, p. 342-344, London, 1895; also *Mémoires de la société finno-ougrienne*, XI, p. 66-68, 1898, where I have given the history of the distribution of saffron and its various designations.

(2) Hsüan Tsang (St Julien, *Voyages des pèlerins bouddhistes*, II, p. 40, 131) mentions the same plant in the Hindukush and in Cashmir; and I Tsing (J. Takakusu, *A Record of the Buddhist Religion*, etc., p. 128), its occurrence in North India, where Takakusu correctly identifies it with Sanskrit *kuñkuma*, that is, "saffron," *Crocus sativus* L., but, strangely enough, again contradicts this statement in a footnote, in which he explains *yü kin hsiang* as Japanese golden turmeric, a species of *Curcuma*. Nearly all Chinese, Japanese, Arabic, and Western authors usually confound these two plants, although they are not only distinct species but even belong to quite different families (*Crocus* = *Iridææ*, *Curcuma longa* = *Zingiberaceæ* or *Amomeæ*).

(3) Li Shih-chên, in his *Pên ts'ao kang mu*, gives as the Sanskrit equivalent for *yü kin hsiang* the term *ch'a kü mo* = çakama (Tibetan, *sha-ka-ma*), denoting the saffron of Cashmir. He further refers to Ta Ts'in (western Asia) as the country where this plant is produced, which is quite correct and makes sense only when "saffron" is understood by it, the home of which is in Asia Minor. Compare also Hirth in *Jour. China Branch R. A. Soc.*, XXI, p. 221, 1886. Contrary to the statement of F. Porter Smith (*Contributions to the Materia Medica*, etc., p. 223), that saffron is not procurable in Hankow, I may say that genuine saffron may be obtained there as well as in Peking, in any drug-store; to be sure, not under the name *yü kin* or *yü kin hsiang*, restricted to the written language and not understood by the present Chinese, but under the colloquial term *hung hua*, that is, "red flowers." Saffron is highly valued by the Chinese and is very frequently used by women for menstrual disturbances.

³ Compare also Hirth, *China and the Roman Orient*, p. 47.

himself with genuine pearls, rock-crystal, mother-of-pearl, coral, and *amber*.¹ And the geographical work, *Ying yai shêng lan*, written A.D. 1416, informs us that amber was a product of Bengal.² Thus we can trace the occurrence of amber in India from the first century before Christ down to the end of the middle ages.

Of amber in modern India we have unfortunately no information,³ and it seems almost as if the ancient natural resources of amber were long since exhausted. To discover the sites of the mines remains a task still to be performed, in which archeologists and naturalists are equally interested. I cannot find any references to the occurrence of amber in Cashmir. Walter R. Lawrence,⁴ who wrote the most comprehensive work on this region, has only the following to say regarding economic mineralogy:

The lapidaries import all their more valuable stones, such as agate, bloodstone, cornelian, cat's-eye, garnet, lapis-lazuli, onyx, opal, rock-crystal, and turquoise, from Badakshán, Bukhára, and Yarkand. There are, however, certain local stones for ornaments and buttons. These stones are soft, and are incapable of a high polish.

Neither does A. Cunningham⁵ enumerate amber among the mineral productions of the country. Lassen, in his *Indische Altertumskunde*, makes no allusion to amber, except the one passage above quoted, derived from Pliny. Neither does it seem to figure in the *materia medica*, as it does not appear in Jolly's *Medicin*,⁶ nor did we come across it in our contributions to the medicine of the Tibetans.⁷

¹ Sylvain Lévi, "Le Népal, Étude historique d'un royaume hindou," I. *Annales du Musée Guimet, Bibliothèque d'études*, xvii, p. 164, Paris, 1905.

² *T'u shu chi ch'êng*, vol. 1242, *p'ien i tien*, bk. 58, *T'ien chu pu chi shih*, II, p. 1 b.

³ According to Noetling (*Globus*, loc. cit., p. 241 b), the Indian fossil resins have not yet been investigated.

⁴ *The Valley of Kashmir*, pp. 64, 65, London, 1895.

⁵ *Ladák, Physical, Statistical, and Historical*, p. 229-237, London, 1854.

⁶ *Grundriss der indo-arischen Philologie und Altertumskunde*, III, no. 10, Strassburg, 1901.

⁷ Heinrich Laufer, *Beiträge zur Kenntnis der tibetischen Medicin*, two parts, Berlin and Leipzig, 1900. But in the well-known Chinese-Tibetan pharmacopœia

TIBET

In Tibet amber seems to be an article much in use. According to a Chinese account,¹ high and low all wear one or two strings of prayer-beads around the neck; they are made of coral, lapis-lazuli, mother-of-pearl, or even wood; the wealthy wear amber ones, the beads being sometimes as big as cups. Amber appears further among the gifts of tribute sent by the Dalai Lama to the Chinese Emperor,² and is mentioned, in another connection, among presents sent to China in the seventeenth century.³ The Tibetan tribes seem to be, with the Shan, the only ones in Asia among whom amber plays a more extensive ethnographical rôle. The K'amba women in northeastern K'amdo wear a form of head-ornament consisting of a discoidal piece of amber about two inches and a half in diameter, with a coral bead in the center.⁴ These amber disks are transported as far as the western parts of Kansuh province, and Rockhill⁵ assumes that they are imported from India through Lhasa. The same explorer found amber in rough pieces procurable in Kumbum.⁶ No place, to my knowledge, is known in Tibet where amber is actually found. The native designations are not suggestive of an autochthonous occurrence of the material. The usual name for it, *spos shel* (pronounced *pö-shel* or *pö-she*; in Lepcha,⁷ *po-she*), means literally "perfumed crystal" (perhaps from the resinous odor which it emits in burning, or even as an indication of a former utilization of amber in the way of incense),

(*ibid.*, p. 11; Bretschneider, *Botanicon Sinicum*, pt. 1, p. 104), published by the pharmaceutical firm WAN I-HAO in Peking, amber is listed as a drug, so that this is very likely due to Chinese influence.

¹ W. W. Rockhill, "Tibet," *Jour. Roy. Asiatic Soc.*, p. 225, 1891.

² *Ibid.*, p. 244.

³ *Ibid.*, p. 204.

⁴ W. W. Rockhill, *The Land of the Lamas*, p. 184, London, 1891. *Idem*, *Diary of a Journey through Mongolia and Tibet*, p. 103, Washington, 1894.

⁵ *The Land of the Lamas*, p. 60, 110.

⁶ W. W. Rockhill, *Diary of a Journey through Mongolia and Tibet*, p. 103.

⁷ J. D. Hooker (*Himalayan Journals*, 1, p. 122, London, 1855) remarks: "The Lepcha are fond of ornaments, wearing silver hoops in their ears, necklaces of cornelian, amber and turquoise, brought from Tibet, and pearls and corals from the south."

which name, at all events, seems to hint at an importation of the mineral. Another, a literary, designation is *sbur len*, or *sbur long*, which appears simply as a literal translation from the Sanskrit *tyñagrāhin* ("attracting straw"). The Tibetan *se-mo-do* is translated by Sarat Chandra Dás,¹ "necklace of amber"; by Jäschke,² however, by "a kind of ornament, for example, made of pearls." This term can by no means be a word of Tibetan origin, and I am inclined to suppose that in it we have the original Turkish form of *mu hsi*, which, according to Su Kung, the author of the *T'ang pên ts'ao* (A. D. 650), was the Uighur designation for jet or black amber (see p. 223); the Turkish equivalent for *mu* in *mu hsi*, being Chinese for "wood," is *modo*, so that turkicized it would yield *simodo*, which seems identical with the above Tibetan loan-word *semodo*.

ROMAN EMPIRE

The Chinese were acquainted with the fact that amber was an article used in the Roman Empire. We learn this from two main sources—first from the *Tien lio*, in the words that the country of *Ta Ts'in* (Syria) possesses much amber; and, second, at a much later period, in the Accounts of Western Countries, in the Annals of the T'ang Dynasty (*T'ang shu Hsi yü chuan*), which say that "the soil of *Fu lin*, which is the ancient *Ta Ts'in*, has much amber." The *Tien lio*, as finally proved by Chavannes,³ is identical with the *Wei lio*, and was written by Yü Huan between A. D. 239 and 265. These are the only two accounts regarding amber in the Roman Orient quoted in the *T'u shu chi ch'êng*, in the chapter on amber. But we see from Hirth's book⁴ that the same fact is recorded also in the *Hou Han shu*, which, however, was compiled only in the fifth century, so that the editors of the cyclopedia may have omitted this passage for the reason that they thought it to be a repetition from the *Wei lio*. The other notice is found in the *Chiu T'ang shu*, as well as in the

¹ *A Tibetan-English Dictionary*, p. 1274, Calcutta, 1902.

² *A Tibetan-English Dictionary*, p. 575 b, London, 1881.

³ "Les pays d'occident d'après le *Wei lio*" (*T'oung Pao*, sér. II, vol. VI, p. 519, 1905).

⁴ *China and the Roman Orient*, p. 41.

Hsin T'ang shu.¹ The passages above quoted do not admit of the inference that amber was exported from the Roman Orient to China;² their statements are merely restricted to the fact that amber was one of the characteristic products of these western regions.³ Even granting that the *Hou Han shu* was compiled from documents actually written under the Later Han dynasty (A. D. 25-220), we must admit that before the existence of amber in the antique world came to the ears of the Chinese, they were acquainted with this mineral, first, by means of accounts received from India,⁴ and, second, through actual exportation of it from the region of the Shan States into Yünnan (see p. 233 et seq.). Considering this fact, the mere supposition that a trade in amber might have been carried on from Syria to the Far East must lose much of its probability, as Syrian amber, aside from the costliness of all Syrian products, due chiefly to the expense of transportation over the long overland route, could not have competed with the doubtless cheaper Burmese amber, and could hardly have tempted the Chinese to buy. Nor is there to be found in other than historical sources any reference to amber from western Asia except, in going back to the thirteenth century, the single passage in Chao Ju-Kua, who enumerates amber among the products of the West which were brought to Palembang, Sumatra, for transshipment to the Chinese port of Ch'üan chou fu.⁵ These articles are stated in a general way to have come from Arabia, so that amber also should be located there, though the vagueness of the wording gives hardly a clew to the tracing of its origin.

¹ Ibid., p. 55, 59.

² As, for example, is assumed by H. Nissen, "Der Verkehr zwischen China und dem römischen Reiche," *Bonner Jahrbücher*, xcv, p. 19, 1894.

³ Taking the sentences in the above accounts in their strictest sense, we cannot fail to notice that the verb *ch'u*, which implies the signification of production as well as of exportation, is not there employed in any case, but that the verb is omitted, so that it seems justifiable to supplement only the copula "there is," "it has," etc.

⁴ While the Chinese account of the occurrence of amber in India, particularly in Cashmir, goes back to the first century before Christ, the record regarding the same material in the Roman Orient indubitably refers only to post-Christian times, and in my opinion hardly antedates the third century.

⁵ Hirth, *Chinesische Studien*, I, p. 39.

PERSIA

Amber is mentioned also as a production of Persia in the Chinese Annals. This notice occurs first in the *Liang shu*, the Books of the Liang Dynasty (A.D. 502-556), under which an embassy from Persia, with tribute, arrived in 547; second, in the *Pei Wei shu*, or Books of the Northern Wei Dynasty (A.D. 386-532); and, third, in the *Sui shu*, or Annals of the Sui Dynasty (A.D. 589-618).¹ But it is not stated that amber was exported from Persia into China.

BURMA

The fact that the Chinese became acquainted at an early date with what we now call "Burmese amber" is seen from the statement in the Annals of the Later Han Dynasty (*Hou Han shu*),² that *Ai lao* produces lustrous pearls and amber. *Ai lao* (probably the same as Laos) is the Chinese name of the ancient Shan kingdom, first appearing in history during the first century of our era, whose dominions once extended far into Ssüch'uan and Kueichou, embracing nearly the whole of Yünnan and parts of Tonkin and Kuanghsi.³

In Parker's translation⁴ of the account of the country of the *Ai lao*, from the *Hou Han shu*, the passage is given in extenso, and the production of *amber* there appears together with copper, iron, lead, tin, gold, silver, bright pearls, crystal, oyster-pearls, kingfishers, rhinoceroses, elephants, baboons, and tapirs.

In the *T'ang shu*,⁵ it is said regarding the *Nan chao*, the descendants of the *Ai lao*, that the nobles ornament their ears with

¹ *T'u shu chi ch'eng*, vol. 1242, *p'ien i tien*, bk. 56, *T'iao chi pu hui k'ao*, p. 2 a, 3 a, 4 a.

² In the Account of Eastern Barbarians (*Tung i chuan*).

³ See E. H. Parker, "The Early Laos and China," *China Review*, XIX, p. 67-106, 1890, and "The Old Thai or Shan Empire of Western Yünnan" (*ibid.*, XX, p. 337-46), where its history is given from Chinese sources. G. Devéria, *La frontière sino-annamite*, p. 117, Paris, 1886; E. Rocher, "Histoire des princes du Yunnan," *T'oung Pao*, X, p. 19, 1899. See also A. v. Rosthorn, *Die Ausbreitung der chinesischen Macht in südwestlicher Richtung*, p. 42 et seq., Wien, 1895.

⁴ *China Review*, XIX, p. 70 a.

⁵ *Ibid.*, p. 76 b.

pearls, green-stone, and *amber*,¹ which shows that amber was actually used by the Shan.

I think that the first acquaintance of the Chinese with this amber may date from the first century of our era, when their relations with Yünnan and its manifold tribes became more intimate. During the following centuries the references in Chinese literature to the amber of this region become more frequent, and we see that the amber utilized in China was actually supplied from the region named, and is located in such places of southern Yünnan as are near the Burmese frontier, along the ancient trade-route leading from Burma to southwestern China.²

The first dictionary that alludes to the location of this amber is the *Kuang ya*,³ which contains the following passage :

Amber is a pearl.⁴ Above and beside it, no plants grow. The least depth [in which it occurs in the soil] amounts to five feet ; the greatest depth is from eight to nine feet. It is as big as a *hu* [a measure holding ten pecks]. By cutting off the rind, the amber is obtained. At first it is like the gum of the peach-tree ;⁵ but by being stiffened and hardened it assumes form. The people living in that district work it into head-pillows. It is produced in *Po nan hsien*.⁶

¹ Compare also Parker in *China Review*, xx, p. 341 a. This is the first historical reference to the *nadonay*, cylindrical ear-plugs of amber, still worn by the Kachin tribes, and mentioned by Noetling in *Globus*, loc. cit., p. 240 b, 241 a.

² Regarding this commercial highway, see C. Ritter, *Erkunde von Asien*, III, 2d ed., p. 746-51, Berlin, 1834. G. W. Clark, *Kweichow and Yünnan Provinces*, p. 16 et seq., Shanghai, 1894. Other articles traded from Burma to Yünnan are nephrite, rubies, and cotton. Since the British occupancy of lower Burma, the importance of this ancient route is gradually waning, as goods now sent by steamer from Rangoon to Canton, and thence forwarded by boat to Pai sêh, and farther by horse, reach Yün nan fu, the capital of the province, in two months, while the average time for a caravan from the capital to Mandalay, Maulmain, or Rangoon, and back, is about four and a half months.

³ A dictionary by Chang I (about A.D. 227-240), E. Bretschneider, *Botanicon Sinicum*, pt. 1, p. 164 ; according to T. Watters (*Essays on the Chinese Language*, p. 38, Shanghai, 1889), published about A.D. 265. This passage from the *Kuang ya* is quoted in the *P'ei wên yün fu*, bk. 100 b, p. 220 a, as a commentary on the above passage of the *Hou Han shu*.

⁴ This idea is presumably based on the ancient and universal custom of fashioning amber into beads.

⁵ Compare Pliny (translation of Bostock and Riley, VI, p. 401): "Amber is produced from a marrow discharged by trees belonging to the pine genus, like *gum* from the *cherry*, and resin from the ordinary pine."

⁶ In the Han period, the name of Lan chou or Yung ch'ang fu in Yünnan. The

The introduction into a dictionary of the facts just cited proves that amber was then generally known, and that trade in the product from Yünnan into the remainder of China had been carried on for a certain length of time.

The *Po wu chi*, or Records of Remarkable Objects, in its section on medicines, states that the *Shên hsien chuan* (Biographies of Taoist Immortals),¹ says :

The resin of the pine-tree and the cypress penetrates into the earth, and changes in a thousand years into *fu ling*. *Fu ling* changes into amber. Amber (*hu p'o*) is the same name as river-pearl (*kiang chu*). Nowadays *fu ling* grows on the T'ai shan,² but there is no amber there. In Yi chou, in Yung ch'ang fu (Yünnan province), amber is produced, but there is no *fu ling* there. Some people assert that it is by burning bees' nests that [amber] is made. There is as yet no explanation for these two [divergent] statements.

That amber is produced in Yung ch'ang is further stated in one of the oldest works on materia medica, the *Pieh lu*, as quoted in the *Pên ts'ao kang mu*. This is a book frequently referred to by T'ao Hung-ching (A.D. 452-536), and was the standard work of eminent physicians in the Han and Wei periods, as is indicated chiefly by the geographical names mentioned in it, which are invariably those used during that age.³ It is quite possible that the *Pieh lu* existed in literary form at an earlier date than the *Kuang ya*, and certainly earlier than the *Hou Han shu*, so that it might claim priority in recording the Burmese-Yünnan amber.

The earliest European account of Yünnan amber is given, so two districts of Ai lao and Po nan, with parts of I chou, were united into the prefecture of Yung ch'ang in A.D. 69.

¹ As the *Po wu chi* was written by Chang Hua (A.D. 232-300) in the latter part of the third century (Wylie, *Notes on Chinese Literature*, p. 192; Bretschneider, *Botanicon Sinicum*, part I, p. 181), and as Ko Hung, author of the *Shên hsien chuan*, wrote early in the fourth century (Wylie, loc. cit., p. 219; according to Bretschneider, loc. cit., p. 42, he died A.D. 330), the above quotation in the *Po wu chi* from the *Shên hsien chuan* must be considered a later interpolation. This agrees with the remark of Wylie that the *Po wu chi* appears to have been lost during the Sung, and the present work was compiled probably at a later period, from the extracts contained in other publications.

² The famous sacred mountain in Shantung, which so early a work as the *Pieh lu* defines as the locality of Pachyma.

³ E. Bretschneider, *Botanicon Sinicum*, part III, p. 2, 3.

far as I can see, by the Portuguese Jesuit Father Alvarez Semedo, who arrived in China in 1613 and wrote his book on China about 1633 (first published in Rome, 1643). I quote from the English edition,¹ as follows :

Yunnan is a great cuntry, but hath little merchandise, I know not any thing is brought from thence, unlesse it bee that matter, whereof they make the beads for chapplets, which in Portugall they call *Alambras*; and in Castile, *Ambares*; and are like Amber, they are counted good against catarre; it is digged out of mines, and some times in great peices: it is redder than our Amber, but not so cleane.

In another passage of the same work (p. 27), Semedo remarks: "They are very excellent in workes of Ivory, Ebony, and Amber."

Old Father DuHalde was familiar also with the fact that the Chinese amber came from Yünnan,² and is our witness thereof with regard to the first part of the eighteenth century; nor did Carl Ritter³ fail to call attention to it.

The fact that the principal supply of amber in the present Chinese market comes from Yünnan province is clearly seen from the reports of the Chinese Imperial Maritime Customs, in which Yünnan is always mentioned as the source of this product.⁴ I was personally given the same information, too, when making a collection of Chinese medicines at Hankow in 1903. The specimens of amber there obtained by me are doubtless of Burmese origin.

If the Chinese sources, from the third century, invariably refer to Yung ch'ang as the source of amber, this does not mean that it was produced also in that region, which must be considered as the mere transit mart from Burma to China, as the staple place from which the Burmese goods were distributed over the rest of the country. That this was so in fact, becomes

¹ *History of that Great and Renowned Monarchy of China*, p. 9, London, 1655.

² *A Description of the Empire of China* (English transl.), I, p. 122, London, 1738: "It produces red amber, but no yellow. Some think that the rubies and other precious stones are brought hither from the kingdom of Ava." Likewise, Grosier, *Description générale de la Chine*, p. 86, Paris, 1785.

³ *Die Erdkunde von Asien*, III, p. 754, Berlin, 1834.

⁴ *List of Chinese Medicines, Published by Order of the Inspector General of Customs*, no. 488, p. 450, Shanghai, 1889.

evident from the *Ta ch'ing i t'ung chi*, the official geography of the empire, wherein it is stated, in the description of Yung ch'ang (bk. 380, p. 8 b), under the heading of the local products, that the amber of Yung ch'ang "is produced in the soil of all western barbarians of Burma."

In nearly all Chinese writings on Burma the amber production of that country is mentioned. In the *Mien fan hsün chi* ("New Memoirs of the Burmese Frontier"), a brief pamphlet by an unknown author,¹ the gems of Burma are enumerated as follows: kingfisher-colored jade (*fei tsui yü*), topaz, large rubies, large sapphires, cat's-eyes, and various kinds of amber; likewise in the *Mien hsün k'ao lio*,² by Kung Ch'ai from Ningpo, who, besides, mentions precious nephrite, ivory, betel-nuts, copper, iron, lead, tin, and stone-oil; further in the *Mien hsün so chi*, by Hsien Shu,³ etc.

Finally, the fact that Yünnan amber is derived from the amber mines of Burma is confirmed beyond any doubt by the researches of F. Noetling. The center of the amber industry is the village of Maingkhwan, inhabited by Shan, in the district of Myitkyina, which is only about 110 English miles from the city of Yung ch'ang.⁴ According to Noetling,⁵ by far the larger portion of raw burmite is bought up by Chinese traders, and transported on the route north of Mogung, via Myitkyina, into Yünnan. He supposes that, as the commercial relations of the Yünnanese with the northern part of Burma have existed for a long time, burmite has gone that way for a long time; if burmite was ever an object of trade in antiquity, it certainly found its way to China at that early date. This supposition meets with strong corroboration from the previous research; and we may say that, according to our Chinese sources, the exploitation of the amber mines of northern Burma must date

¹ Reprinted in the Geographical Cyclopedia, *Hsiao fang hu chai yü ti ts'ung ch'ao*, sec. x, bk. 4, p. 224 b.

² *Ibid.*, p. 226 b.

³ *Ibid.*, p. 252 a.

⁴ Compare the map of Noetling, in *Globus*, loc. cit., p. 219, and Bretschneider's Map of China.

⁵ *Loc. cit.*, p. 241 a.

back at least to the first century of our era, if indeed they were not worked in times far anterior to the advent of the Chinese in these regions.

Though there is no doubt that the so-called amber of Yung ch'ang is of Burmese provenience, there are two places in the province of Yünnan to which an indigenous production is ascribed. The one is Li Chiang fu, which we found quoted as such in the *Pên ts'ao kang mu*, by Li Shih-chên, and confirmed by the Imperial Geography; the other is Ning chou, in Lin an fu, as stated in the *Nan Man chi*, or Accounts of the Southern Man,¹ which is a work of the time of the Sung,² thus:

In the sand of Ning chou³ there are cliffs full of bees. When the cliffs collapse, the bees come out of the earth. The people burn them, and make them into amber.⁴

This matter requires further investigation on the spot. It is curious to note that in so full a description of Yünnan as that given by E. Rocher,⁵ in which all the mineral resources of the province are discussed, no mention whatever is made of amber.

As regards other places of finds for amber in China proper, few trustworthy accounts can be noted. Hirth⁶ quotes from the *Man shu*, a book of the ninth century, that a "mountain of amber" (*hu p'o shan*) is situated eighteen days' journey west of the city of Jung ch'ang, in Ssüch'uan. In the *Ssü ch'uan t'ung chi* — the geographical description of this province, in which all products are carefully enumerated for each prefecture — I can find no statement regarding the occurrence of amber. According to Alexander Williamson,⁷ amber is found in Lu ngan fu, province of Shansi; while in Richthofen's *China*,⁸ in which the

¹ *Man* is a general designation for all non-Chinese tribes of southern and south-western China.

² E. Bretschneider, *Botanicon Sinicum*, pt. I, p. 176.

³ In Lin an fu, Yünnan.

⁴ The belief in the production of amber from bees doubtless originated in the finding of insects embedded in pieces of amber.

⁵ *La province chinoise du Yün-nan*, 2 vols., Paris, 1879-80.

⁶ Quoted by Jacob, loc. cit., p. 356.

⁷ *Journeys in North China*, I, p. 160, London, 1870.

⁸ Vol. II.

mineral sources of this province are treated in detail, amber is not mentioned. In the *Ko chih ching yüan*¹ a passage is quoted from the *Kuang chi*, a work of the time of the Liang dynasty (A.D. 502-556), as saying that amber is found in Po p'ing, a district in the Tung ch'ang prefecture of western Shantung. As fossil resins are frequent everywhere, these various notices of native amber may be credible; but it must be borne in mind that these finds need not necessarily refer to true amber, but may be related amber-like resins, such as retinite and others; and, further, that in these cases it is doubtless only a question of occasional finds, not of a systematic mining process with a commercial end in view. If this ever were the case, Chinese sources would not be silent on this point. However it may be, it is safe to assume that from the very beginning of the utilization of amber by the Chinese, the principal supply reached them from Burma overland by way of Yünnan.

TURKISTAN

During the middle ages another source for amber was opened to China through her relations with the Turkish tribes of Central Asia. Under the reign of Emperor T'ai Tsu of the Posterior Chou dynasty (A.D. 951-960), in the second month of the first year of the period Kuang shun (A.D. 951), the Uighur (*Hui hu*) of Hsi chou² sent as tribute to the Chinese court six large and small lumps of nephrite, one lump of the nephrite called *pi*,³ nine catties of amber (*hu p'o*), and twenty pieces of great amber (*ta hu p'o*). In the following year, 952 (third month of the second year of the period Kuang shun), the same tribe despatched another tribute, among which were fifty catties of amber.⁴ Under T'ai Tsu of the Northern Sung dynasty, in the twelfth month of the period K'ien t'eh (A.D. 965), the king

¹ Book 33, p. 7 a.

² Yar-khoto, near Turfan. See Chavannes, *Documents sur les Tou-Kiue (Turcs) occidentaux*, p. 357, St Petersburg, 1903.

³ Giles, *Dictionary*, no. 9009.

⁴ *T'u shu chi ch'eng*, vol. 547, *shih huo tien*, bk. 185, *Kung hsien pu hui k'ao*, v, p. 8 a.

of the country Yü t'ien (Khotan)¹ sent envoys to China with tribute containing five hundred catties of amber.² In the geographical work *Huan yü chi*, published A.D. 976-983, amber is enumerated among the products of Khotan and Samarkand.³ Also in the Geography of the Ming it appears as a product of Samarkand, together with gold, silver, copper, iron, nephrite, coral, and glass.⁴ It is not known to me that amber is found in situ in Turkistan or elsewhere in central Asia; hence we must surmise that it was brought to the Turks from the west.

A clew to the manner in which amber came into the possession of these Turkish tribes is possibly furnished by a passage occurring in the Persian work *Jami ul hikayat*, written by Nur Eddin Mohammed Ufi, of the thirteenth century. He says of the products of China imported thence into Khorassan, at the time following the overthrow of the Samanides:

All sorts of textiles are found with them [the Chinese], some of which are brought to Khorassan, with marvelous curiosities. Their merchandize consists of resin, incense, and *yellow amber* coming from the country of the Slavs. This is a resin thrown out by the sea of the Slavs.⁵

On the ground of this passage I am inclined to assume that in the middle ages a trade in amber was maintained from Russia, by way of Siberia,⁶ to Turkistan, whence it was carried to China,

¹The passage in the *Shih i chi*, quoted in *Ko chih ching yüan*, bk. 33, p. 7 b, that a certain Han Fang brought from the kingdom of Khotan, as a present, a phenix of amber six feet in height, is doubtless apocryphal.

²*T'u shu chi ch'êng*, loc. cit., bk. 187, VII, p. 2 b.

³W. Schott, "Skizze zu einer Topographie der Producte des chinesischen Reiches," *Abhandlungen der Berliner Akademie*, p. 371, 372, 1842.

⁴*T'u shu chi ch'êng*, vol. 1242, *p'ien i tien*, bk. 53, *Ki pin pu hui k'ao*, II, p. 2 a.

⁵Ch. Schefer, "Notice sur les relations des peuples musulmans avec les Chinois," *Centenaire de l'école des langues orientales vivantes*, p. 8, Paris, 1895.

⁶According to Philipp Johann von Strahlenberg (*Das nord- und östliche Theil von Europa und Asia*, p. 332, Stockholm, 1730), some pieces of amber have been found between the Chatanga and Yenisei rivers, toward the Arctic sea, and also in the sandy desert between Mongolia and China. This account is confirmed by the investigations of Fr. Th. Köppen, "Vorkommen des Bernsteins in Russland" (*Petermanns Mitteilungen*, XXXIX, p. 249-253, 1893); an abstract of this article appears in *Nature*, XLIX, p. 181, 1893. According to Köppen, amber occurs along the arctic shores of Russia and Siberia, over wide tracts, more frequently between the mouths of the Ob and the Yenisei, but also farther inland, a hundred versts east from the Yenisei, on Stefatin river, which falls into the Agano, farther on the Cheta, a side-

and that this product was again sent from China to other countries in the west.

In the chapter on the Uighur (*Hui hui chuan*), in the *Sung shih*, there is a reference to a tribute of amber from Kucha. In A.D. 1010, the King of Kucha, Khagan, despatched an envoy, Li Yen-fu, to bring incense, medicine, *hua jui* ("stamens, pistils"), cloth, renowned horses, a one-humped camel, a sheep with big tail, a saddle and bridle with jade ornaments, amber, and *t'ou shih*.¹

EUROPEAN AMBER IN CHINA

Finally, it remains to record the importation of amber into China by European nations. S. Wells Williams² asserts that the consumption [of amber in China] for court beads and other ornaments is great, and shows that the supply is permanent, for none is brought from Prussia. In a strict sense the last statement may be true in so far as there was hardly ever direct communication between the Baltic coast of Prussia and the shores of China; but, taken in the sense that no Prussian amber ever found its way to China, it is not correct. From two sources it can be shown that the Portuguese traded amber to China at least as early as the eighteenth century, very probably much earlier; and there can be no doubt that they had shipped this amber from Europe.³ In the sixty-fourth chapter of the *Chinese Gazetteer of the Province of Kuangtung*, there is a brief summary

stream of the Chatanga, where it is dug by the Yakut, and on lakes Ladannach and Tartach. This Siberian species, however, is very likely not genuine amber, but retinite. As to Russia, amber is found over a vast area, almost uninterruptedly from the Baltic to the Black seas and sporadically in two places in the Caucasus. It seems to me that it was not the inferior Siberian material that was made the object of medieval trade to inner Asia and China, but more probably the highly valued Baltic amber, which alone was of sufficient worth to justify so complicated and expensive a traffic.

¹ *T'u shu chi ch'eng*, vol. 1341, *pien i tien*, bk. 51, *K'ui tsü pu hui k'ao*, 1, p. 11 b.

² *The Middle Kingdom*, II, p. 398, New York, 1901.

³ L. Riess, "Geschichte der Insel Formosa" (*Mitteilungen der deutschen Ges. für Natur- und Völkerkunde Ostasiens*, VI, p. 427), states that the Dutch of the seventeenth century imported amber into Formosa among some other articles of trade for further export to China; but nothing seems to be known about the origin of this amber.

of the Portuguese settlement of Macao, in which it is said that the Chinese receive from them in trade, ivory, *amber*, coarse and fine woolen cloths, redwood, sandalwood, pepper, and glass.¹ In the Chinese *Chronicle of Macao*,² amber of two kinds, "gold" and "water" amber, is mentioned as being in the possession of the Portuguese. On the occasion of his visit to Canton, amber of European provenience was there observed by Nordenskiöld:

Ebenso scheint der Bernstein in hohem Ansehen zu stehen, besonders solche Stücke, welche Insekten enthalten. Bernstein wird in China nicht gefunden, aber von Europa eingeführt; derselbe ist oft verfälscht und enthält grosse chinesische Käfer mit den Spuren der Nadeln, auf welche dieselben aufgespiesst waren.³

Even in Mandalay the succinite, or Prussian amber, is now easier to procure, and cheaper than the Burmese amber.⁴ According to Noetling,⁵ succinite has been worked in Mandalay to a large extent since the decrease of the importation of burmite. It is therefore not at all impossible that Prussian amber arrives in China overland by way of Burma. That Prussian amber is imported to Chinese ports appears from the reports of the Chinese Maritime Customs. In *Port Catalogues* of the Chinese Customs Collection at the Austro-Hungarian Universal Exhibition, page 267 (Shanghai, 1873), under the port of Shanghai, Europe and Japan are given as places of production of amber; on page 424, under the port of Canton, the coasts of Prussia, the China sea, and the Indian archipelago are given for the same; and on page 470, again, "the Archipelago, Prussia," etc. I believe that too great stress should not be laid on these statements. They reflect the opinions or general knowledge of the customs officials concerning the provenience of amber rather than give the result

¹ Sir George Th. Staunton, *Miscellaneous Notices Relating to China*, p. 88, London, 1822.

² *Ao mèn chi lió* (bk. II, p. 39 b), latter part of eighteenth century (Wylie, *Notes on Chinese Literature*, 2d ed., p. 60), but probably earlier, as the preface of one of the two authors, Chang Ju-lin, is dated 1750 (M. Courant, *Catalogue des livres chinois*, I, p. 104, Paris, 1903).

³ Adolf Erik Freiherr von Nordenskiöld, *Die Umseglung Asiens und Europas auf der Vega*, II, p. 372, Leipzig, 1882.

⁴ *Gazetteer of Upper Burma*, II, pt. I, p. 294.

⁵ *Globus*, loc. cit., p. 242 b.

of a trustworthy inquiry regarding just those ambers which are imported into China. The statement, "China sea, Indian archipelago, Japan," savors much more of the verbal information given by a Chinese clerk on the customs staff than of authenticated facts. In all probability it is quite impossible to determine the exact source of modern ambers; all we may safely infer is that the ambers of the treaty ports are shipped from abroad and are most likely of German origin.

According to the Returns of Trade of the Chinese Customs (vol. IV, pt. II, p. 410, Shanghai, 1906), 36 piculs of amber from foreign countries, valued at 1033 Haikwan taels, were imported from Hongkong to Canton in 1905.

The amber now used in Korea comes exclusively from Germany. The import from Germany amounted in 1898 to 11,495 yen; in 1899, to 510 yen; in 1900, to 2,111 yen; in 1901, to 5,280 yen.¹

IMITATIONS OF AMBER

Regarding imitations of amber, S. Wells Williams² remarks that "the Chinese have also learned to imitate amber admirably in a variety of articles made of copal, shellac, and colophony." But the most important of these materials is glass, to which, as is well known, the Chinese understand most eminently how to impart, by means of metal oxides, the most beautiful varied colors, imitating those of jade, malachite, lapis-lazuli, and amber. Rosaries of amber-colored glass beads — manufactured, like all glassware, in Po shan, Shantung province — are frequently used. Very curious is the fact that in Canton, for the manufacture of ornaments, a sort of yellow substance much resembling amber is employed, which is nothing but the upper part of the beak of a crane.³ A powder of amber, employed in medicine, is much adulterated with colophony and copal.⁴

¹ Handelsbericht des Kaiserlichen Konsulats in Söul für das Jahr 1901, in *Handelsberichte über das In- und Ausland*, Asien, Serie II, no. 36, p. 11, 12, 14, Februarheft, 1903.

² *The Middle Kingdom*, II, p. 398, New York, 1901.

³ *Catalogue of the Chinese Collection of Exhibits at the Paris Exhibition, 1900*, p. 132, Shanghai, 1900.

⁴ *Hankow List of Medicines*, p. 18, 1888.

That such fictitious products do not date from yesterday, but are almost as old as amber itself in China, may clearly be seen from the statements of the eminent physicians T'ao Hung-ching and Lei Hsiao, who tested the genuine article by its magnetic properties. The cyclopedia *Ko chih ching yüan*¹ quotes from a treatise *Ts'ai huo yüan liu* ("Sources and History of Wealth"), apparently a treatise on political economy, to the effect that there are many counterfeits of amber, and that only the kind whose color is like that of blood, which, when made warm by being rubbed with cloth, attracts mustard-seeds, is genuine. A curious imitation of amber is described in the *Shên nung pên ts'ao ching*:²

Amber can be made from chicken-eggs by the following method: Take an egg, mix the yolk and white of it, and boil it. As long as it is soft, an object can be cut out of it; this must be soaked in bitter wine for several nights, until it hardens; then rice-flour is added to it.

Whether this fabulous composition was really intended to replace amber may be doubted. In the *T'u shu chi ch'êng*, the same passage is given directly after the *Shên nung pên ts'ao ching*, but without the first and last sentences, above quoted, so that the word "amber" does not appear there. According to the *Ch'i wan lin* ("Forest of Extraordinary Curiosities"),³ whose statements on amber generally agree with those of the *Ko ku yao lun*, as quoted by Li Shih-chên,⁴ counterfeit amber is made of dyed sheep's-horn.

NOTE. — Objects made of amber, as described in Chinese sources, and after actual specimens, will be treated in a separate paper.

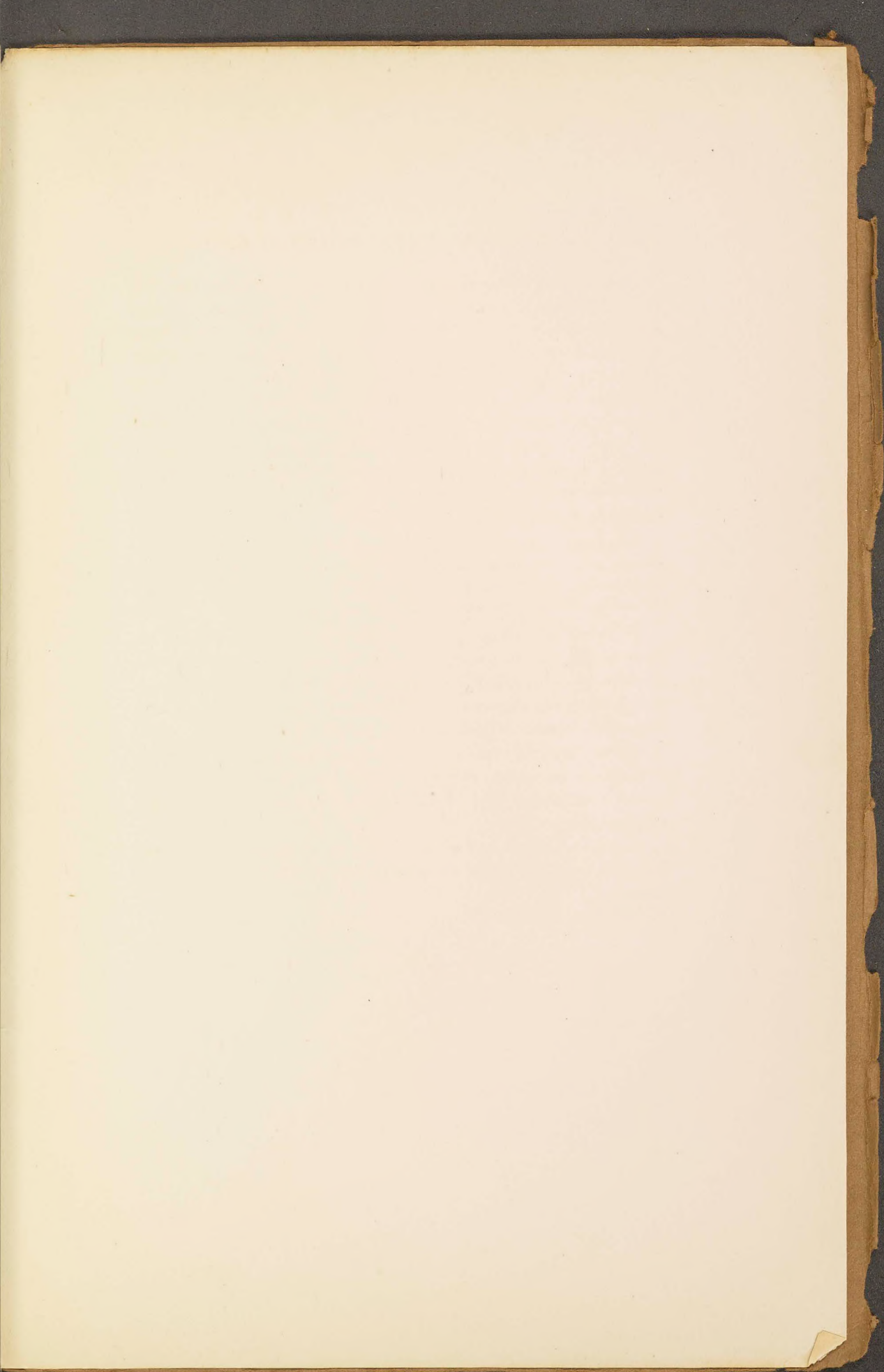
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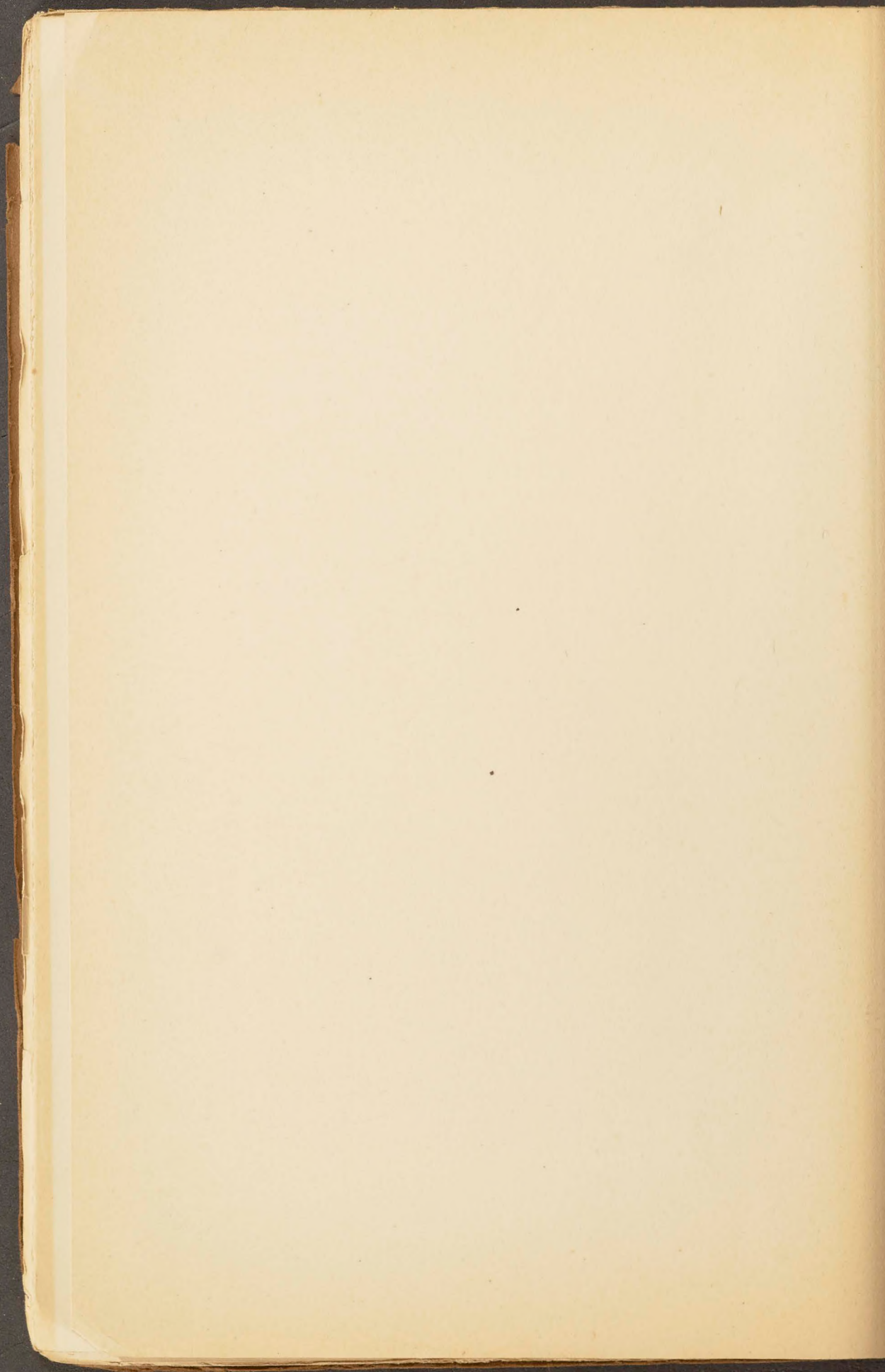
¹ Book 33, p. 7 a.

² *Ko chih ching yüan*, loc. cit.

³ Ibid.

⁴ See p. 221.





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