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NOTES ON CHINESE MEDIEVAL TRAVELLERS TO THE WEST.

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RECORD OF AN EMBASSY TO THE REGIONS IN THE WEST.

(Continued from Vol. v. p. 327)

[Let me quote for comparison, from the biography of the above-mentioned general *Kouo Khan*, the accounts given about the capture of the fortress of Guirdcouh.]

"Kouo Khan was ordered to take part in the expedition to the west, commanded by the prince Hü-lie-wu (Houlagou). In the year 1253 the army (i. e. the vanguard commanded by Kitoubouca) reached the realm of 木乃奚 *Mu-nai-hi*. The roads had been made impassable by the enemy, by means of trenches and walls; and the wells had been poisoned. But Kouo Khan defeated the army of the *Mu-nai-hi*, took a hundred and twenty-eight cities, and killed the commander 忽都答兒兀朱速檀 *Hu-du-da-ru-wu-tsu-su-tan*. In the year 1256 Kouo Khan arrived at 乞都卜 *Ki-du-bu* (Guirdcouh). The fortress was situated on the top of the mount 稽寒 *Yen-han*. It was only accessible by suspended ladders, and these were guarded by the most valiant troops. Kouo Khan invested the place (according to the Persian authors, the Mongols built a wall all round), but it could not be taken. It was then battered by means of catapults (架砲), when the commandant 卜者納失兒 *Bu-tjo na-shi-er* surrendered. Hü-lie-wu sent Kouo Khan to 兀魯兀乃速檀 *Wu-lu-wu-nai-su-tan* to summon him to come and submit in person. His father 阿力 *A-li* maintained himself in the western fortress (or perhaps fortresses). Kouo Khan took it and then went to the eastern one (or ones), forced it (them) also and killed all the people."⁸²

The army of the *Mu-la-hi* consisted exclusively of assassins.⁸³ They were accustomed, when they saw a young man, to seduce him by holding

⁸² Compare notes 88, 89 and 90. By *A-li*, evidently *Ala-eddin* the father of *Roku-eddin* is meant. According to the Persian authors, he was dead at the time Guirdcouh was captured, but he was alive at the beginning of the siege. It is reported, that *Ala-eddin* had succeeded in sending reinforcements to the invested fortress Guirdcouh.

⁸³ 刺客 *T's'e-k'o*. The first character means "to stab," the second—"guest." Both in combination mean not a simple assassin, but an assassin sent by the orders of another to stab a man. Thus the Chinese *t's'e-k'o* would be more significant for designating the Ismaelians, than our "assassin." This Chinese expression would also invalidate the

out some advantage, and brought him to feel no repugnance to assassinate his father or brother. After this they enrolled him, and having been intoxicated by wine, he was carried into a cavern, and there diverted by music and fair damsels. During several days all his wishes were gratified. Finally he was carried again to the former place, and when he awoke they asked him what he had seen, and informed him, that if he would agree to become a *te'e-k'o* (assassin), he would enjoy after death all that happiness by which he was surrounded. Then they gave him every day certain prayers and exorcisms to read. Finally (his heart became so captivated, that) he was not afraid to execute any commission, and accomplished it without fear of death. The Mu-la-hi sent their emissaries secretly to the countries which had not yet submitted, with orders to stab the rulers.⁹⁴ It was the same with regard to women (I understand they were also sent to assassinate). The realm of the Mu-la-hi was hated in the western countries. During forty years they had spread terror through the neighboring kingdoms; but when the imperial army arrived they were exterminated; not one escaped.⁹⁵

On the 6th of the 4th month Ch'ang Te passed the city of 訖立兒 *Gi-li-r*.⁹⁶ There the snakes all have four feet, and are five feet long. The head is black and the body yellow. The skin resembles the skin of the 鯊魚 *sha-yü* (shark). They eject from the mouth a handsome red substance (口吐紫髓).⁹⁷

[In Kouo Khan's biography it is stated] "In the first month of 1257 Kouo Khan reached 兀里兒 *Wu-li-r* (I suppose the same as the place *Gi-li-r* in Ch'ang Te's narrative). The enemy was enticed into an ambuscade and defeated. 海牙速檀 *Hai-ya su-t'an* (sultan Ghiath?) submitted."

Ch'ang Te passed the city of (or the city belonging to) 阿刺丁 *A-la-ding*, and 鴉咄落兒 *Ma-tze-t'sang-r*.⁹⁸ There the people had their hair dishevelled, and wrapped their heads with a red turban. They were dressed in black clothes and thus resembled devils.

opinion of the great orientalist M. S. De Saoy, who states, that the name of assassins first given by the crusaders to the Ismaelians, is erroneously believed to mean the French word "assassin." He tries to prove, that "assassin" is derived from the Persian word *hashish*, meaning an intoxicating beverage. (D'Ohsson, l. c. tom. iii, p. 208.) Rémusat translates erroneously *te'e-k'o* by "des véritables bandits;" and Pauthier, translating more correctly "hôtes assassin," is mistaken in spelling the Chinese name *te-k'o* instead of *te'a*. He confounded the character 刺 *te'e* with the very similar-looking 刺 *ta*, meaning "cruel."

94. 潛令使未服之國必刺其主 Pauthier translates this passage altogether unintelligibly as follows: "Les domestiques qui n'avaient pas encore été au service de cet Etat devaient d'abord poignarder leur maître."

95. 餘之無遺類 Literally: "exterminated;—no posterity left."

96. It is impossible to identify this place, but probably it was near the eastern border of Mazanderan.

97. It seems that by four-legged snakes simply lizards are meant; and I think the same large lizards mentioned in Ch'ang-ch'ün's narrative (note 117), a species of *stellia*.

98. The view taken by Pauthier, that by *A-la-ding* the city of Hamedan is to be understood is untenable. Perhaps by *Ma-tze-t'sang-r* Mazanderan is meant. But in Kouo Khan's biography almost the same name is given to a sultan.

[Kouo Khan's biography states] "Proceeding further to the west, Kouo Khan reached the dominions of 阿刺汀 *A-la-ding*, and dispersed his army of thirty thousand men. 嗎拔答而速檀 *Ma-tze-da-r su-t'an* surrendered." (There is evidently a confusion of the names):

[Henceforth Ch'ang Te's narrative loses the character of a diary.

He says nothing more about the way followed further on, or about his mission to Houlagou. The last date he gives in his diary is the 6th of the 4th month (middle of April, 1259). His journey from *Caracorum* to *Gi-li-r* (which place I suppose to have been somewhere near Mazanderan) had taken three months and six days. Houlagou, as the Persian historians report, was at that time in *Tebriz*, where he had established his residence. It was only in September 1259 that he started for the expedition to Syria. The rest of the *Si shi ki* consists, as we shall see, in relating the military events before Ch'ang Te's arrival, in accounts of the newly-conquered countries in western Asia, their customs and products etc. Ch'ang Te seems to report only what he had heard. I beg to correct a former statement in the Introduction, that Ch'ang Te himself went to Bagdad. After a more attentive examination of the article I am convinced that there is no evidence to that effect; nor does he speak as an eye-witness. It is very unlikely that he was at Bagdad. At the end of the *Si shi ki* it is said, that he was absent fourteen months. His diary embraces only a period of three months; no indication is found in his narrative where he spent the rest of the time, and we know nothing about it from other sources. Let us see what the traveller further reports.]

Since the imperial (Mongol) armies had entered the *Si-ya* (the countries of the west) about thirty realms had been conquered.⁹⁹

There is a Buddhist kingdom (佛國 *Fo-kuo*) called 乞石迭 *Ki-shi-mi* (Cashmere) to the north-west of 印毒 *Hin-du* (Hindustan). There the clothes and the cup¹⁰⁰ of 釋迦 *Shi-kiä* (*Sakiamuni* or Buddha), are handed down from generation to generation. The men in that country (the priests or monks) have a venerable and patriarchal appearance. They look like the paintings we see in China representing 達摩 *Ta-mo*.¹⁰¹ They (the religious) eat only lenten food.¹⁰² One

99. 王師 *Wang-shi* means "imperial army." Pauthier always renders these two characters by "prince du sang" (he means Houlagou); Rémusat by "le général tartare." But there can be no doubt, that *wang-shi* has no other meaning than I have given. It will be easily understood, that the Chinese author, speaking of thirty realms conquered, dates from the time when Tchingiz's armies first appeared in the west. Houlagou's armies never conquered thirty realms. I may also mention that "prince du sang" in the *Yüan shi* is always expressed by 宗王 *tsung wang*, or 諸王 *chu wang*, or 親王 *ts'in wang*.

100. 鉢 *po* "a cup," here the cup of a Buddhist monk, or *patra* in Sanscrit.

101. Rémusat explains in a note, that by *Ta-mo* is to be understood *Bodidharma*, the last of the Buddhist patriarchs in Hindustan, the same who went to China and established there the doctrine of Buddha. *Ta-mo* went to China in the 6th century of our era. The French missionaries in former times, who wished at any cost to prove the early ex-

kin-kang-tsuán,¹¹⁶ and many other precious things. Girdles were found, which might be estimated at a thousand *liang* of gold. (See note 91 above.)

The kingdom had endured more than six hundred years under forty rulers, down to the time of the (last) hu-li-fa, when it became extinct.¹¹⁶

The people were handsomer than in other countries. The horses bred there were called *t'o-bi-ch'a*.¹¹⁷

The ha-li-fa did not cheer himself up with wine. His beverage consisted of orange juice with sugar (*sherbet*, drunk up to this time by the Mussulmans).¹¹⁸

They had guitars with thirty-six strings. One time the ha-li-fa had head-ache and when his physicians could not help him, a man was sent for, who played on a guitar of a new invention with seventy-two strings. The head-ache of the ha-li-fa ceased immediately after he had heard this music.

The ha-li-fa was venerated as a patriarch (祖 properly ancestor) by all the people of western Asia¹¹⁹ who were subject to him.

To the west of Baoda, twenty days journey on horseback, is 天房 *T'ien-fang*,¹²⁰ and in it the divine envoy of Heaven (天使神), the patriarch of the western people (胡之祖) is buried. The name of this sage (師) was 辯顏八兒 *Pei-yen-bar*.¹²¹ In the interior of the temple, there is an iron chain. When trying to grasp it, only the true believers (誠) will succeed. The unbelievers will never catch it. The people of this country have many sacred books, written by the *pei-yen-bar*. The people are wealthy. There are more than twenty cities.¹²²

114. *Se-se* is not as Pauthier translates, a musical instrument. In Kanghi's Dictionary it is stated, that *se-se* is a kind of pearl. The *Pen ts'ao* (book viii, f. 55) mentions it among the precious stones, 寶石 *pao-shi*, which are produced in the countries of the Hui-hui (Mohammedans). That of a blue colour (碧) was called at the time of the T'ang dynasty *se-se*.
115. *Kin-kang-tsuán* is the common name for *diamond*, and not as Pauthier suggests an instrument for boring diamonds.
116. According to the Mohammedan annals, the califate of Bagdad endured six hundred and twenty-six years, A. D. 632—1258, under fifty-one califs.
117. 馬名脫必察 I am not aware what word is intended by *t'o-bi-ch'a*; evidently a foreign word is rendered by the Chinese characters. Pauthier does not hesitate in translating *t'o-bi-ch'a* by "excellent," but he does not inform us in what language this word means "excellent."
118. 哈里法不悅酒以橙漿和糖爲飲 Pauthier translates: "Le Khalife s'en souciait peu [i.e. des chevaux]. Leur boisson est extraite d'une espèce d'orange rafraichissante qu'ils melangent avec du sucre."
119. 胡 *Hu* means *foreigner* with regard to China, and especially the people of western Asia and India are termed so; but Pauthier should not have translated: "à Pao-ta était le patriarche de tous les étrangers; c'est pourquoy tous ces étrangers étaient ses serviteurs." That sounds like a foreign legion in the calif's service.
120. *T'ien-fang* (heavenly house) seems to refer to the great mosque of Mecca, which encloses the holy *Kaaba*. Burckhardt in his "*Travels in Arabia etc.*" p. 184, calls this great mosque *Beitullah* or "house of God."
121. *Pei-yen-bar* renders very exactly the Persian *peighember*, meaning "prophet."
122. The Chinese author seems to apply the name of *T'ien-fang* to the whole of Arabia.

[In Kono Khan's biography it is stated] "To the west of Baoda, at a distance of three thousand *li* there is 天房 *T'ien-fang*.¹²³ The general 住石 *Dju-shi* there sent a letter (to Houlagou), in which he begged to offer his submission. All believed that *Dju-shi*'s intention was sincere. His offer was accepted and no precautionary measures were taken. But Kono Khan made the following objection: 'Do not forget, that treason on the part of the enemy can put our army in danger. In time of war all is deceit. We must take precautions; otherwise we risk bringing shame upon ourselves.' Precautions were accordingly taken, and indeed *Dju-shi* came to attack our army; but he was defeated by Kono Khan. 巴兒算灘 *Bar-tuan-fan* (sultan *Bar*) surrendered."¹²⁴

To the west of *T'ien-fang* is the kingdom of 密昔兒 *Mi-si-r*,¹²⁵ a very rich country. There is gold in the ground. In the night at some places a brightness can be seen. The people mark it with a feather and charcoal. When digging in the day-time, pieces as large as a jujube are brought to light.¹²⁶ *Mi-si-r* is six thousand *li* distant from Baoda.

In the biography of Kono Khan it is stated, that *Mi-si-r* is forty *li* (probably a misprint)¹²⁷ distant from *T'ien-fang* and west of it. Its ruler is called sultan 可乃 *K'o-nai*.¹²⁷

West of *Mi-si-r* is the sea, and west of the sea is the kingdom of 普蘭 *Pu-lang*. The covering of the head for women there resembles much what we see in our paintings representing the 菩薩 *P'u-sa*.¹²⁸

A Chinese traveller of the Mongol time, 汪大淵 *Wang Ta-yüan*, who visited many foreign countries, in his work 島夷志略 *Tao yi chi lü*, published in 1307, calls Arabia 天堂 *T'ien-fang* or "heavenly hall." In the History of the Ming dynasty, 1368-1644, chap. 382, this name is written 天方 *T'ien-fang*, and there is met with also the name 默伽 *Mo-ka* (Mecca). I may observe, that the Arabs have been well known to the Chinese since the 7th century, under the name of 大秦 *Ta-shi*. See my pamphlet on the intercourse between the Chinese and the Arabs, published in 1871.

The first character, in the *Yüan shi*, is written 大 *ta*, but that is evidently a mistake caused by the omission of a stroke.

123. It is difficult to make these confused statements consistent with any of the military expeditions of the Mongols, as reported by the Mohammedan writers. Perhaps the war against *Nasir Salah-eddin Yousoof* in Syria is intended. *Vassaf* gives the text of two long letters *Nasir* exchanged with Houlagou before the hostilities began. (*O'lonon*, l. c. tom. III, p. 294.) Sultan *Bar* is perhaps the emir *Beibars*, who commanded the Egyptian army, which entered Syria in 1260.

124. *Mi-si-r* means Egypt, the *Afratim* of the Bible, called *Masr* by the Arabs.

125. This sounds like the story reported by Strabo, book xvi, p. 198, who states, "The town found on the island of Ophiodes near Egypt, is a gold-coloured (χρυσοειδής) transparent stone, which is of such a brightness, that it cannot be seen in the day-time. It is only in the night that the gatherer can see it. According to *Kieferstein* (*Mineralogia*), *Opuntia*, the topazion of Strabo is not what we call topaz, but the *chlorophan*, a kind of *Opuntia*, which has the property of emitting a phosphoric light in the darkness. The Chinese author in stating the same about gold, has probably misunderstood the story he heard about shining stones.

126. The second character is perhaps a misprint, and is to be read 桑 *to*. Then the name of the sultan would be *K'o-to*, and could be identified with sultan *Coutouz*, who at that time reigned in Egypt.

127. *P'u-sa* (Bodhisatva in Sanscrit) is one of the Buddhist saints, next Buddha most venerated, for his love and protection of living beings. His idol is represented in almost every Buddhist temple, often in the form of a female, and with curious ornaments, especially on the head.

The men are dressed according to the customs of the *lu* (western barbarians) and are of good character.¹²⁹ When they go to bed, they do not take off their clothes. Husband and wife live separately.

[The biography of Kouo Khan states] "In the year 1258 (or beginning of 1259) the prince Hü-lié-wu (Houlagon) ordered Kouo Khan to cross the sea on the west and subdue *Fu-lang*. He summoned the ruler to surrender.¹³⁰ 兀都 *Wu-du sullan* said: 'Last night I dreamed of a divine man. Now I see this divine man is the general;' and he surrendered immediately. After this the imperial army returned."¹³¹

There is (in western Asia) a large bird, above ten feet high, with feet like a camel, and of a bluish gray colour (蒼). When it runs it

129. 男子胡服皆好善 Pauthier translates: "Les hommes de ce pays, qui servent dans les armées étrangères, sont très-braves." Rémusat has: "Les hommes sont bons guerriers."

130. 喻以禍福 literally "he announced to him fortune or misfortune." Pauthier misunderstood this phrase, and took it for the name of the ruler.

131. By *Fu-lang* doubtless the *Franks* (Europeans) are meant. The medieval traveller Marignoli states (Yule's *Cathay*, p. 336), "They term us Franks, not from France but from Frankland." Compare also Pogoletti's notices on the land route to Cathay (Yule l.c. p. 292): "They call *Franks*, all the Christians of these parts from Romania (Greece according to Yule) westward." Europe, and especially the Roman empire, known to the Chinese since the beginning of our era, was first called 大秦 *Ta-tsin* (the great Ts'in) in the Chinese annals. No plausible explanation can be given about the origin of this name. In the Annals of the T'ang, 618-907, we are told, that the country formerly called *Ta-tsin* has in later days been called 拂菻 *Fu-lin*, and a French orientalist has suggested (*Nouveau Journal Asiatique*, tom. ix, p. 458), that the name *Fu-lin* is probably derived from the Greek *πολις*, used in ancient times to designate Constantinople. Indeed *Masudi* (in the 9th century) informs us, that the Greeks never called their city Constantinople but *Bolin* (Yule's *Cathay*, p. 402, note). But some arguments can also be produced in favor of another etymology of the name *Fu-lin*. The German tribe of the *Franks*, which name appears first in history in the 8th century of our era, dwelt first on the lower Rhine, and afterwards gave rise to that powerful Franconian empire, which under Charles the Great embraced a great part of Europe, and with which the history of France and Germany begins. The original name of *Ferenghi*, although applied by the Mohammedans to all Europeans, and which now (in Persia at least) has the meaning of "foreign," originated doubtless from our *Franks*. Perhaps the characters

拂菻 were also intended to designate the word *Franks*, for in the 一切經音義 *Yi-tse king yin yi* (an explanation of foreign terms found in the works translated from the Sanscrit, with an examination of the correct sounds: see Wylie's *Notes on Chinese literature*, p. 169) published in the middle of the 7th century, it is stated, that the correct pronunciation of the two characters is not *fu-lin* but *fu-lan*, which approximates to the sound *fu-lang*, by which name the author of the *Si shi ki* designates the *Franks*. The Chinese statement, that a Mongol general should have crossed the sea and summoned the king of the *Franks* is absurd. It is however a fact, that the Mongols had some differences with the *Franks* established at Sidon, and Rashid reports that Houlagon gave orders to expel the *Franks* from Syria. (Compare Pauthier's Marco Polo, p. cxxiii.) Besides the story reported in the biography of Kouo Khan about the *Fu-lang* or *Franks*, they are mentioned a second time in the *Yüan shi*, in the annals under the year 1341 or 1342, chap. 40, reign of Shun-ti. It is stated there, that the kingdom of 佛郎 *Fo-lang* sent as tribute, a beautiful black horse, about 11 Chinese feet long and 6 feet, 8 inches high. It was black all over, except the hind feet, which were white. Pauthier, does not hesitate to state, that by *Fo-lang* France is meant, and that there can be no doubt, that Phillip VI of France offered this horse to the Chinese emperor. Gaubil also translates *Fo-lang* by France. But Col. Yule (*Cathay*, p. 340) has produced evidence that the horse spoken of was brought by Marignoli, who in his narrative of travels states, that he arrived at Peking in 1342 and brought large horses for the Khan. It is only once, that the ancient name of 拂菻 *Fu-lin* occurs in the *Yüan shi*. In the biography of 愛薛 *Ai-sie* (perhaps Josiah, or Joseph), *Yüan shi*, chap. 134, it is stated that his native country was *Fu-lan*, that he was well versed in all languages of the west, and also in astronomy and

flaps the wings. It eats fire; and its eggs are the size of a 升 *sheng* (a certain measure for grain).¹³²

medicinal. He served at first Cuyouo khan. Coubilni khan entrusted him in 1263 with the direction of the astronomical and medical Boards of the *Si-yü* (Persia), etc. Afterwards he received the title of *Fu-lan wang* (prince of Frankland). His sons and grandsons, as mentioned in the *Yüan shi*, have all names which sound like European names, — *Ye-li-ga* (Elias), *Lu-ko* (Luke), *An-tun* (Antony). One of his daughters was called *A-nu-si-mu-ssa*. I may finally mention, that in the History of the Ming dynasty, 1368-1644 the

Franks are termed 佛郎機 *Fo-lan-gi*; but we must not be astonished, when we find in the *Ming shi* (chap. 325) a statement, that the country of the *Fo-lan-gi* is near *Man-to-lia* (Malacca). They meant evidently the Portuguese, who in the beginning of the 16th century had conquered Malacca and settled there, and in 1517 made their first appearance at Canton. Compare Mr. W. F. Meyers' able essay "On the introduction and use of gunpowder and fire-arms among the Chinese," in the *Journal of the North-China Branch of the Royal Asiatic Society*, 1871.

132. The large bird with camel's feet is the ostrich, in Persian *shutur-murg* (camel-bird). The Chinese author states, "when it runs it flaps the wings;" which is quite correct. As is known, the ostrich, notwithstanding its wings being well-developed, is not able to fly, but when running rapidly it always extends its wings. It seems to me, that this fact is also alluded to in Holy Scripture, Job, xxxix: 18. The English translation of this passage runs: "What time she lifteth up herself on high, she scorneth the horse and his rider." By *lift up on high*, I think, the translator could only mean *to soar up*. Having no knowledge of Hebrew I am not able to discuss the correctness of this translation, but I am inclined to suppose, that the Hebrew text has not the meaning suggested by the English translator, all the more as the Russian translation of the same passage means, — *when she lifts up her wings*. How should the Jews, who knew the ostrich very well (correct accounts are given in the Bible regarding its habits), have overlooked the fact, that it is not fitted for flying? Having requested my learned friend Mr. Schereschewsky to give me his opinion on the translation of the passage in question, he has kindly replied in the following terms: "You are quite right. The English version is wrong in its rendering of the passage in Job, xxxix: 18. The original does not mean, 'What time she, — namely the ostrich, which is in the feminine gender in the Hebrew, — lifteth herself on high;' but it ought to be rendered, 'What time she makes, — viz., the wings, which word is implied but not expressed in the Hebrew, — to float on high,' i.e. to flap the wings in the way peculiar to when they run. The original Hebrew is צֶמְרָת בְּמָרוֹם לָעֵת הַזֶּה. The last word 'לָעֵת' is third person feminine future, in the hiphil' or causative form of the verb 'מָרַר' *marar*, which means 'to fly, to hover, to soar.' To render *tamri* in the present or the reflexive, as the English version does, is grammatically incorrect. The object in the present case is *wings*, which is plainly implied; as the word *wings* is found a few verses above. The rendering of the Vulgate (St Jerome's Latin version), gives nearly the same sense, 'Cum tempus fuerit in altum alas erigat.'" The ostrich, the Chinese in early times, since their first intercourse with the countries of the far west. In the "History of the Anterior Han" (*Ts'ien Han shu*, chap. 96, article *An-ai*) it is stated, that the emperor Wu-ti, B. C. 140-86 first sent an embassy to 安息 *An-ai*, a country in western Asia, which according to the description given of it, can only be identified with ancient Parthia, the empire of the dynasty of the Arsacides. In this country a large bird, from eight to nine feet high is found, the feet, the breast and the neck of which make it resemble the camel. It eats barley. The name of this bird is 大鳥 *Da-iao*, which means in Chinese the "bird of the great horse." The character *iao* now means a "vase used in sacrifices," but its original meaning was "a kind of bird of prey" (see *Kanghi's Dictionary*). It is further stated, that afterwards one of this large bird. In the "History of the Posterior Han" (*Hou Han shu*, chap. 115), an embassy from *An-ai* is mentioned again in A. D. 101. (They brought as presents a lion and a large bird. In the "History of the Wei dynasty," 886-558, where for the first time the name of 波斯 *Po-ss* occurs used to designate "Persia," it is stated, that in that country there is a large bird resembling a camel and laying eggs of large size. It has wings but cannot fly far. It eats grass and flesh, and also swallows men. In the "History of the T'ang dynasty," 618-907, the camel-bird is again mentioned as a bird of

Persia; and besides this, a statement is found there, that the ruler of 吐火羅 *T'u-ho*

There is a kingdom 石羅子 *Shi lo-tze* (Shiraz), which produces pearls. The name of the ruler is 換思阿塔卑 *Ho-sze a-t'a-bei*. To the south-west is the sea (Persian gulf). The men who are engaged in pearl-fishing get into a leather bag, having only their hands free. A rope is attached to their loins and thus they glide down to the bottom of the sea. They take the pearl-oysters together with sand and mud, and put them in the bag. Sometimes they are attacked there below by sea monsters; when they squirt vinegar against them and drive them away. When the bag has been filled up with oysters, they inform the men above by pulling the rope, and are then hoisted up. Sometimes it happens that the pearl-fishers die (in the sea).

[The biography of Kono Khan states regarding the same kingdom *Shi-lo-tze*] "The imperial army (after having returned from Egypt and Syria)

huo-lo (a country generally identified with *Tokharestan*) sent a camel-bird as a present

to the Chinese emperor. The Chinese materia medica *Pen ts'ao kang mu*, written at the end of the 16th century, gives (chap. 49) a good description of the ostrich, compiled from ancient authors. It is said amongst other things, to eat copper, iron, stones, etc. and to have only two claws on his feet. Its legs are so strong, that it can dangerously wound a man by jerking. It can run three hundred *li* a day. Its native countries are 阿丹 *A-dan* (*Aden*) and 竹步 *Dju-bu* (*Djubo* on the African coast). A rude but tolerably exact drawing of the camel-bird in the *Pen ts'ao* proves, that the ostrich was well known to the Chinese in ancient times, and that they paid great attention to it. Our traveller Ch'ang Te does not speak clearly, where in his time the ostrich was found in western Asia. He mentions it



駝鳥

after having spoken of the Franks. In the "History of the Ming dynasty" (*Ming shi*, chap. 326), the country of 忽魯謨斯 *Hu-lu-mo-sze* (Hormuz on the Persian gulf) is mentioned as producing ostriches. Let us see what western authors state about the existence of ostriches in western Asia. In a learned article on the geographical distribution of the ostrich, by the well-known ornithologist *Hartlaub* and *Vinck* (see *Petermann's Geogr. Mittheil.*, vol. xvi, p. 380), it is stated, that in recent books of ornithology, the ostrich is always spoken of only as a bird of Africa, whilst Xenophon saw it on the borders of the Euphrates; and ancient Persian authors as well as Chinese mention it as a Persian bird, occurring even in the eastern part of Persia. The inquiries made on this subject by modern travellers has led to the interesting conclusion, that up to the present time ostriches are met with, although not frequently, in the countries of western Asia, assigned to them by the Chinese authors. The Prussian consul at Damascus states, that every year about five hundred ostriches are killed in the deserts near that place. The well-known traveller Mr. Vambéry informed the authors of the above-mentioned article, that ostriches are well known in Kerman, and that they are even occasionally killed on the lower Oxus, near Kungrat.

went to the south-west (it is not clear from what place; probably there is a mistake, and it should be read—'to the south-east'), to the kingdom of *Shi-lo-tze*. The enemy's troops presented battle, but were defeated at the *Shi-lo-tze*. The Sultan 換四千阿塔卑 *Huan-sze-gan a-t'a-bei* surrendered.¹³³

The country of 印毒 *Yin-du* (Hindustan) (amongst the enumerated kingdoms) is the nearest to China. The population of it is estimated at twelve millions of families. There are famous medicines, great walnuts, precious stones, 鷄舌 *ki-she*,¹³⁴ 寶鐵 *pin-t'ie*¹³⁵ and other products. In this kingdom there are large bells suspended near the palaces of the ruler. People who have to prefer a complaint strike against the bell. Then their names are registered and their cause is investigated. The houses are made of reeds. As it is very hot there in summer, people pass the whole time in the water.

The biographer of Kono Khan seems to have been mistaken in speaking next after having mentioned Shiraz, of a country 寶鐵 *Pin-t'ie*, which he we have seen, in the *Si shi ki* is enumerated amongst the products of Hindustan. In this biography it is clearly said, that the imperial army reached *Pin-t'ie*. Kono Khan defeated the enemy and the sultan 加葉 *Gia-*

huo-lo-tze of the Chinese authors is Shiraz. On my ancient Chinese map the name is written 駝刺子 *She-la-tze*. I may observe, that Marco Polo calls this place *Shiraz*. The Chinese author records about pearl-fishing is quite exact, and sounds very like a translation made from the statements given by the Arabian geographer *Edrisi* about pearl-fishing near Baharain (see *Edrisi*, traduit par Jaubert, tom. i, pp. 177-178). Baharain was, according to D'Herbelot, *Bibli. Orient.* p. 168, in ancient times the name of a province of Arabia, stretching along the western shore of the Persian gulf, and famed for the pearl-fishing on its coast. On modern maps I find only the island of Baharain marked, well known also in our days for the pearl-oyster beds in its neighborhood, happily worked by the proprietors. (Compare Brenner's *Report*, in *Petermann's Geogr. Mittheil.*, 1873, p. 37.) Baharain is also marked in its proper place on the ancient Chinese map, and the name is rendered there by the characters 八哈刺因 *Pa-ha-lia-yin*. At the time the Mongol armies invaded western Asia, Shiraz, or rather Fars, of which Shiraz was the capital, formed a little realm governed by *atabegs* (ancient governors of the Seldjoucs, who had become independent, were designated by this name). The Chinese characters *a-ta-bei* are doubtless intended for this name. When the Mongol armies appeared in Persia, the *atabeg* of Fars had spontaneously rendered homage to the conqueror, and he was not troubled in his possessions. But after the conquest of the *atabegs*, disorders took place in Fars, and Houlagou then sent a division to Shiraz to punish the *atabeg* Seldjouc Suah. (See D'Ohsson l. c. tom. iii, pp. 400 seqq.). I cannot identify the names of the *atabegs* as given by the Chinese authors.

Pin-t'ie (chicken tongue fragrance) is according to the *Pen ts'ao kang mu* (book viii, p. 30), a synonym of 丁香 *ting-liang* (guil fragrance), which is the common name for cloves (the dried aromatic flower buds of *caryophyllus aromaticus*). Judging from the authors quoted in the *Pen ts'ao*, as mentioning cloves, this spice seems not to have been known in China before the 6th century.

¹³⁴ *Pin-t'ie* is, as the *Pen ts'ao kang mu* explains (book viii, p. 36, article *t'ie*, "iron"), a very valuable steel, brought from *Po-sze* (Persia). It is said to cut gold and jade. There were many places besides Damascus famed in western Asia for their steel blades, etc., for instance Meshed and Ispahan. The Indian steel is also very valuable. A Chinese author however of the 10th century identifies the *pin-t'ie* with 吸鐵石 *si-t'ie-shi* (stone, which eats iron), which latter Stan. Julien states correctly (*Mémoires de Geogr. Asiat.* p. 91) to be the magnet. In the *Pen ts'ao*, book x, f. 2, the magnetic iron ore is also termed 慈石 *ts'e-shi* (stone with affection), and 吸鐵石 *si-t'ie-shi* (stone attracting the needle). It is found in many provinces of China.

In the 7th month of 1259 the sultan 阿早 *A-dsao* of the kingdom 兀林 *Wu-lin* came to offer his submission. He surrendered a hundred and twenty large and small cities with seventeen hundred thousand families. In the mountains there, much silver is found.

[The biographer of Kouo Khan states regarding the same subject as follows.] In the year 1259, the scattered army of the kingdom of 兀林 *Wu-lin*, amounting to forty thousand warriors, was defeated. The sultan 阿別丁 *A-bie-ding* surrendered, and a hundred and twenty-four cities were captured.¹⁸⁶

The kingdom of the 黑契丹 *Hei K'i-tan* (Black K'titan) is called 乞里曼 *K'i-li-man* (Kerman; the third character must be read 曼 *man*, I think). The name of the ruler is sultan 忽都馬丁 *Hu-du-ma-ding*. Having heard of the glory of the prince (Houlagou), he came to submit. He has a great city 拔里寺 *Ba-li-se*.¹⁸⁷

The biography of Kouo Khan speaks also of Kerman and states that *K'i-li-man* is south of *Wu-lin*. The ruler is called 忽都馬丁 *Hu-du-ma-ding*. After this in the biography it is said, that the Si-yü was subdued and Kouo Khan went home to the emperor Mangou, arriving there a short time before the latter died. (Mangou khan died in August, 1259.)

[Here Ch'ang Te finishes his enumeration of the different countries which had recently been invaded by the Mongol armies. The remainder of his report contains only the mention of beasts, plants, precious stones, and other products found in western countries. He adds various miraculous tales, which at that time may have circulated among the Persians.]

The 獅子 *Shi-tze* (lion).¹⁸⁸ The mane and the tail of the male

186. It is difficult to say what country is meant by *Wu-lin*, and what sultan by *A-dsao* or *A-bie-ding*. These names cannot be identified with any name of countries or princes mentioned by the Persian authors.

187. The Chinese authors evidently speak of *Kerman*, which is up to this day, the name of a city and a province in southern Persia. The Chinese author is right in calling Kerman the kingdom of the *Black K'titan* (Carakitai). *Cara* means "black" in Mongol as well as in Turkish. The name of Carakitai used by the Persian historians therefore is not a Persian name. In a previous note (see Ch'ang-te's travels, note 83), I have spoken of this dynasty originating in eastern Asia, and reigning in central and western Asia nearly a century, until it was overthrown by Tchingiz khan in 1218. After Tchingiz had left western Asia, *Borac Hadjih*, at first an officer of the khan of Carakitai, afterwards entering the service of the sultan of Khovaresm, had succeeded in establishing himself in Kerman, and founded a dynasty, which maintained itself there until 1809. This is the dynasty of the Carakitai in Kerman, spoken of by the Chinese author. The city of *Ba-la-sze* mentioned there, seems to be the city of *Barsis*, which is quoted in D'Herbelot's *Bibl. Orient.* p. 176, as a city of Kerman, or perhaps *Berdardshir* or *Conshahr*, which D'Herbelot states to have been the ancient capital of Kerman. D'Olsson (l. c. tom. iii, p. 6) spells the name *Kevashir*. On the ancient Chinese map there is a place 濞刺失 *Sie-la-shi* marked, east of Shiraz, which by its position might be identified with *Kevashir* or Kerman. The sultan *Hu-du-ma-ding* of the Chinese author seems to be *Kotb-ed-din*, who reigned about that time in Kerman. But he is stated by D'Olsson to have died in 1258.

188. The proper name of the lion in Chinese is 獅 *shi*, and so it is called in the *Pen ts'ao*. The character *子 tze* properly meaning "son," in the popular spoken language is often appended to words, without having any signification. The lion, although an inhabitant only of Africa and western Asia, was known to the Chinese in early times. It seems,

lion are like tassels. By a blow with the tail it can seriously hurt men. When it roars the sound comes out from the belly. The horses hear the roar are seized with great terror and urinate blood.

This animal is first mentioned in Chinese books in the second century before our era. In the "History of the Anterior Han" (*Ts'ien han shu*, chap. 961), it is stated, that in the kingdom of 烏戈山離 *Wu-ko-shan-li* the animal 獅 *shi* is found. The designation given of this country points evidently to some part of Persia. All accounts regarding the countries in western Asia, as found in the *Ts'ien han shu*, seem to have been gathered

from the general Chang Kien, who went there about B. C. 120. The character 獅 *shi* properly means "master." There is some probability for the view, that this character was intended to render the Persian name of the lion, which is *shar*. The "History of the Posterior Han" (*Hou han shu*, chap. 118) reports, that in the year A. D. 87, the emperor of An-shi (ancient Parthia) sent a *shi*, or "lion," and an ostrich as presents to the emperor of China. In the year 101 another lion was sent from there to China. In the "History of the Northern Wei," 386-658, where Persia is first described under the name of *Ts'ien*, lions are mentioned as beasts of that country, and the "History of the T'ang"

speaks of a lion sent by the ruler of the country of 康 *K'ang* (which is generally believed to refer to the present Samarcand), to the emperor of China, in the 7th century. Up to the time the lion in Chinese books was not designated by a distinct character as now, but

only by 獅 *shi*, meaning properly "master." As may be found in Kanghi's Dictionary, the character 獅 *shi* for "lion" was invented about A. D. 600, for it appears first in the Chinese Dictionary *T'ang yin*. At the time of the Ming dynasty in the 16th century, lions were repeatedly carried from western Asia to China. Detailed accounts of this may be found in the *Ming shi*, chap. 382, art. *Sa-ma-r-lan* (Samarcand). It is

stated there, that in 1476 the *so-lu-tan* (sultan) *A-hei-ma* of Samarcand (it seems to be *Ak-Kowad*, the son of *Abusaid*, and the great-grandson of Tamerlan is meant), sent to the ruler of *Yi-sze-pa-han* (Ispahan), sent two lions as a present to the emperor of China. When the ambassadors arrived at *Su-chow* in the present province of

the great highway from western Asia to Peking at that time, still led through *Su-chow* at the time of Maroo Polo), they requested high officers from the Chinese emperor to meet them, and to receive the lions. This subject was discussed in the presence of Chinese ministers, and from different sides it was objected, that lions are useless

and they cannot be employed in sacrifice, they are also unfit to be yoked to a cart; and that they should be refused. But the emperor ordered an eunuch to be sent to receive the lions. The food of the lions consisted in two living sheep, two jars of 醋釘 (a kind of sour soup) and two jars of milk with honey, every day. The objections made by the council of ministers against lions, were not in harmony with the popularity

of the animal enjoys in China even in our days, where the Chinese know the lion only from ancient paintings, or from the grotesque ancient marble lions guarding the entrances of the palaces of princes or their cemeteries. *Li Shi-chen*, the author of the repeatedly-mentioned *Pen ts'ao kang mu*, who wrote in the second half of the 16th century, gives (book 10, p. 1) some interesting accounts regarding this animal, which prove, that the lion has

made the same lofty impression upon the Chinese as upon western nations, who in their popular traditions always consider the lion as the king of animals. *Li Shi-chen* in explaining the Chinese name of the lion, suggests that it was called *shi* (master) as being

the king of animals (百獸長). (This etymology does not invalidate my view, that the Chinese originally intended the Persian *shar*). He terms the Sanscrit (梵) name 僧伽 (the Sanscrit name of the lion is *sinha*). He states further: "The lion is found in all countries of western Asia. It resembles the tiger, but is smaller. The colour of the skin is yellow or like gold. The head is large and like copper, the forehead is like iron, the claws are like iron hooks, the teeth like a saw, the ears are pointed, the nose is

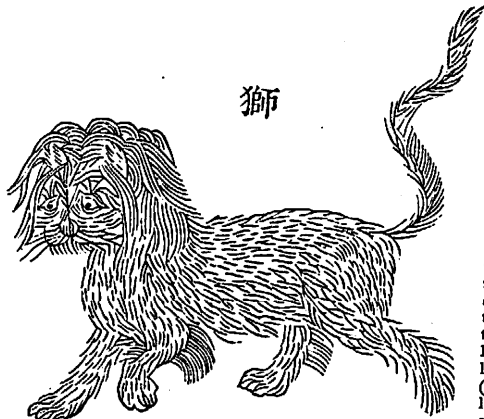
shaped up, the eyes shine like lightning, the roar resembles thunder. When the lion is angry it is imposing by its teeth; when it is cheerful, it is imposing by its tail. The tail of the male lion has at its end a large tuft of hair. The face is provided with whiskers. When the lion roars, all other beasts flee away, and the horses urinate blood."

A good drawing of the lion is found in the ancient dictionary 爾雅 *Er-ya*. The commentator of this dictionary who wrote in the 4th century, tries to identify the lion (*shi*) with a beast 狻猊 *suan-ni* mentioned in ancient Chinese books, as eating tigers and leopards, a completely arbitrary identification. In the last edition of the *Er-ya* (1802), in the preface it is stated, that the drawings appended to that work date from the time of the Sung

The wolves in those countries have also manes.¹³⁹

The 孔雀 *k'ung-t'io* (peacocks) of the western countries are like the peacocks represented in our paintings, only they have their tails covered by the wings. But every day at noon the tail opens like a splendid green screen.¹⁴⁰

There are also 香猫 *hiang-mao* (fragrant cats),¹⁴¹ resembling our



dynasty, and that they have been carefully copied. Thus the drawing of the lion, I present to the reader was made originally between the 10th and 12th centuries. The lion seems to have spread in ancient times over the whole of western Asia, as far even as Transoxiana. Alexander the Great is reported by Curtius to have killed a lion in that country, between the present Samarcand and Bokhara. We are told by the Persian authors, that Houlgou in 1256 arranged a lion hunt near the Djihoun (Oxus), and that ten lions were killed. (D'Olsson, tom. iii, p. 140.)

As far as I know, at the present day in western Asia, lions are found only in southern Persia, especially near Shiraz.

139. Perhaps the author speaks of hyenas.

140. Rémusat translates the three characters 翡翠屏 *jo ts'ui p'ing* by, "comme fait l'oiseau leoni." He does not translate the character *p'ing* at all, which means "screen." 翡翠 *Fei-ts'ui* is the Chinese name of the kingfisher (alcedo bengalensis), the beautiful green feathers of which are made up into different ornaments. Therefore *ts'ui* means also "green." I need not mention, that the kingfisher never spreads out his tail like the peacock, as Rémusat states. 孔雀 *K'ung-t'io* is the Chinese name for the peacock. In European books relating to China, I have often seen the Chinese name of the peacock translated by "bird of Confucius." Indeed the character *K'ung* represents Confucius' name and *t'io* means "bird." But the Chinese do not intend this meaning. *K'ung* means also "great, excellent," and at the time of Confucius the peacock was not known in China. The *Pen ts'ao* (book xlix, f. 17), in explaining the name of the peacock states, that *k'ung* means "great;" but that perhaps by this sound a southern (foreign) word is intended. 摩由邁 *Mo-yu-to* is given there as the Sanscrit name of the bird. (According to Crawford's *Dictionary of the Indian islands*, p. 833, its Sanscrit name is *mantra*.) The peacock seems to be first mentioned in Chinese books in the beginning of our era. I have not been able to find any allusion to it in the Chinese classics. In the "History of the Posterior Han," which began its rule A. D. 25 (*Hou han shu*, chap. 118), the *k'ung-t'io* is enumerated amongst the animals found in *T'iao-chi*, which country is generally identified with Persia (Tadjik). The *Pen ts'ao* states, that the peacock occurs in *Kiao-chi* (Cochinchina). In China it has always been considered as a rare bird, and our traveller Ch'ang Ts'ao seems only to have seen paintings of it in China. Now Chinese mandarins wear peacock feathers on their caps, as a mark of distinction, but the bird is not frequently met with. I have seen it occasionally kept by bird-sellers in Peking. The native country of the peacock is India.

141. *Hiang-mao*, "fragrant cat." The author means doubtless the civet cat, which produces the perfume known under the name of civet and highly prized by the orientals. There

土豹 *t'u-pao*.¹⁴² Their excrements and urine are fragrant like musk.

There are 鸚鵡 *ying-wu* of five colours (*i. e.* variegated parrots).

風駝 *Feng-t'o* (wind camels) are used for despatching couriers.

They make a thousand *li* in one day.¹⁴³ But there are 鸚鵡 *po-ko*

(pigeons),¹⁴⁴ which also transmit news to a distance of a thousand *li* in

one day.

There are two species of *viverra* yielding this perfume, *v. civetta* in Africa, and *v. zibetha* in India. Both are kept in a half-domesticated state, for the purpose of yielding civet. I am not aware whether the civet cat is met with in western Asia in a wild state, but as the Persians and Arabs in ancient times were very fond of civet, they probably kept the animal.

In the mountains west of Peking there are two kinds of paphers. The smaller species is called *ts'ao* by the Chinese.

By *ts'ao*, or as the *Pen ts'ao* (book 1, f. 88) writes the name 風脚駝 *feng-t'o* (wind-footed camel), explaining that it means swift like the wind, the Chinese authors understand the one-humped camel or dromedary (*camelus dromedarius*). The

name is derived from the Greek *δρομας, αδος*—"swift." So Strabo terms the swift camel (book xv, p. 724) with which Alexander Magnus pursued Darius, and afterwards became the murderer of the Persian king, to Bactria. The one-humped camel is a native of Africa and the south-western part of Asia, whilst the two-humped camel (*camelus bactrianus*) is an inhabitant of central Asia and Mongolia. But it is found also in Persia.

Remarkable that the existence of camels, and their usefulness as beasts of burden, in opposite parts of the ancient world, depends upon certain climatic conditions, which are

essentially opposite. The two-humped camel inhabiting the vast plateau of Mongolia, where the winter is exceedingly cold, is not fit for supporting heat; but in winter it is qualified to bear extreme cold, snow-storms and want of nourishment for a long time. In winter

the Russian mail between Kiachta and Peking can only be carried by camels through the Mongolian desert. The western camels, on the contrary, are beasts fit only for the hot deserts of Africa and Asia, where the temperature in winter does not attain to extreme cold, and is very sensitive to snow and cold. Numbers of camel skeletons can

be seen on the roads crossing mountain ranges in Persia, and covered with snow in winter. The one-humped and the two-humped camels, although confused originally to different

species, were both known in early times to the eastern as well as to the western world. I possess some photographs of the ruins of Persepolis, taken by my late friend

General Puce, in which the two-humped camel repeatedly appears in the bas-reliefs of the

ancient capital. On the other side it can be proved from the Chinese annals, that the Chinese knew dromedaries in the second century before our era. It was again the general

Ma Huan who brought the first accounts of the 一封駝 *yi-feng-t'o-t'o*, "one-humped camel," he saw in the country of the *Ta-yü-ti* (*Massagete*, according to Ritter, Compare *T'ien han shu*, chap. 96. Afterwards they are often men-

tioned in the dynastic histories, sometimes also under the name of 獨峯駝 *tu-feng-t'o* (meaning also "one-humped camel"), as camels of western Asia. The two-humped camel of the Mongolian deserts is larger and plumper-shaped than the one-humped, and cannot

be trained for swift racing like the slender-shaped dromedary, which has been noticed by the Chinese traveller as the "wind camel." Chardin, a French traveller in Persia, about two hundred years ago, states, that the camels in Persia trained for the service of the

Arabians are called *revahie*, "runner," and adds, that the same camels were known to the Hebrews under the name of *genela fareka*, meaning "chameau volant." I have not been able to find in McClinton's valuable *Encyclopaedia of Biblical Literature* a term

meaning like that. As regards wild camels, the *Pen ts'ao* quotes an author of the 11th century, who states, that 野駝 *ye-t'o* (wild camels) are met with only in the deserts north-west of China proper. Their existence there, up to our days, has been ascertained not only by the Russian traveller Mr. Przewalsky, but Mr. Elias (*Proceed. R. Geogr. Soc.* vol. xviii, p. 1) quotes other modern travellers, who notice the wild camel in the deserts of central Asia.

The conveyance of letters by means of pigeons is an oriental invention. The Persian medieval authors mention repeatedly carrier pigeons used in western Asia, even in time of war. In 1262, when the Mongols besieged the city of Mossul, a tired pigeon, destined for the besieged, sat down on one of the catapults of the Mongols and was caught. It was found that the pigeon carried the news of the approach of an army sent to relieve

珊瑚 *Shan-hu* (corals) grow in the south-western (Mediterranean) sea. They are taken with iron nets; some of them being three feet in height.¹⁴⁵

The 蘭赤 *lan-ch'i* is found on the rocks of the mountains in the south-western countries. There is also the 鴨息 *ya-sze* of five (different) colours; which is of a very high price.¹⁴⁶

Mosul. The Mongols had just time to send a corps against the enemy which was defeated. (D'Oshson l. c. tom. iii, p. 372.) Carrier pigeons are known also in China. The *Pen ts'ao* informs us (book xlviii, f. 34, art. 鴿 *ko*, "pigeon") that the pigeons which carry letters are termed 飛奴 *fei-nu* (flying slaves). We are also informed, that the Sanscrit name for pigeon is 迦布德迦 *ka-bu-de-ka* (intended for *kupota*). The Persian name for pigeon is *kebuter*.

145. *Shan-hu*. The same name is used up to this time in China to designate corals, which are highly valued here. The *Pen ts'ao* treating of the coral (book viii, f. 53; it is ranged there among the precious stones), ventures no explanation of the name *shan-hu*. It seems not to be a Chinese name. Corals are not found in China. I find them for the first time mentioned in the "History of the Posterior Han," A. D. 25—221 (*Hou han shu*, chap. 116). Corals are said there to be a product of *Ta-ts'in kuo* (the Roman empire; see note 131). In the "History of the T'ang dynasty," 618-907 (*T'ang shu*, chap. 258b, article *P'o-hin*, "the Greek empire"; see note 131), some accounts of coral-fishing are given in the following terms: "The coral tree grows in the sea on rocks like mushrooms. It comes red. The branches are much entangled. The coral tree, which attains a height of three to four feet, is fished up by iron nets, by means of which it is broken off from the rocks." This is a short but quite correct description of coral-fishing as it is even now practised in the Mediterranean, the only sea where true red corals, *corallium rubrum*, are found. The *Pen ts'ao* gives as the Sanscrit name of the coral 鉢擺娑福羅 *ho-bai-so-fu-lo*.

146. I have not been able to find either in the *Pen ts'ao*, in any Chinese dictionary or other Chinese book, an explanation regarding the products *lan-ch'i* and *ya-sze* mentioned in the above passage. Pauthier translates the first by—*epidendrum rouge* (?) and the second by—*canards sauvages qui semblent toujours méditer*. The character 蘭 *lan* in Chinese, means indeed a plant of the order of orchids, and *ch'i* means "red;" but Pauthier should have known, that in Chinese the adjective is never placed after the substantive as in French, and in translating these two characters they could only be rendered by "la rouge d'épidendron." The character *ya* means not "wild ducks," but on the contrary "tame ducks; *sze* means "meditate." Pauthier is also in error in translating 生西南海山中 *sheng si-nan-hai shan zhong* "crot dans des montagnes rocheuses situées au milieu de la mer du sud-ouest (le golfe Persique)." *Si-nan-hai* (meaning literally "south-western sea") is a general term always used in Chinese books to designate the countries towards or near the south-western sea, just as *nan-hai* (southern sea) means the islands of the Archipelago. The Chinese author when speaking of products found in the south-western sea, adds the character 中 *chung* (in, in the middle) as we shall see further on. I am of opinion, that the Chinese author does not intend by the names *lan-ch'i* and *ya-sze* "flowers" and "philosophic ducks," but speaks of precious stones; for he enumerates the products of the countries in a certain order, and after having spoken of coral, he mentions the *lan-ch'i*, the *ya-sze* of five different colours, and after that diamonds. He states also that the *ya-sze* is highly prized. I think, therefore, there can be no doubt, that precious stones are meant, and different stones, I came to the conclusion, that *lan-ch'i* is the same as *landshiver*, the Arabic name for *lapis-lazuli*, and by the *ya-sze* of five colours probably *jasper* is meant, which is termed in Arabic *yashm*. As is known the *ya-sh-peh*, which is the same as *jasper*, was one of the twelve stones in the breastplate of the high priest, as mentioned in the Bible. Mr. Emanuel in his history of diamonds and precious stones, 1867, pp. 173, 174 and 232 states, that the *jasper* found near Smyrna, in Greece and in Egypt of various colours (yellow, red, green, black, brown) was most highly prized by the ancients. But Emanuel is wrong in stating, that *jasper* is highly prized also in China, and that the seal of the emperor is made of it. The imperial seal in China is made of "jade," 玉 *yu*. I am not aware, that the Chinese now know *jasper*, at least I have not seen it here, and know not the present Chinese name of it. But *lapis-lazuli* is well known to the Chinese, and

The 金剛鑽 *kin-kang-tsuan* (diamonds) come from *Yin-du* (Hindustan). The people take flesh and throw it into the great valleys

the modern name of it is 青金 *ts'ing-kin* (azure gold). China, and especially the capital, is very rich in precious stones; but as very few kinds of them are produced in this country, they evidently have been brought from abroad, and I suppose most of the beautiful rubies, sapphires, emeralds, etc. sold in Peking, and emanating for the greater part from the establishments of impoverished princes and nobles, came to China in early times, and especially at the time western Asia was devastated and plundered by the Mongols. Most of the ancient names of precious stones in China are changed at the present day. I apologize for a digression from the subject, when inserting here a small notice, — dating from the Mongol time, — on western precious stones. In the 輟耕錄 *Ch'e keng lu*, notes on different matters referring to the time of the Mongol dynasty, written by a learned Chinese in the 14th century, an article is found (chap. 7) entitled 回回石頭 *Hui hui shi tou*, (Precious) stones of the Mohammedans. In the introduction the author says:—"The (precious) stones in the countries of the Mohammedans are different in appearance and in price. At the close of the 13th century, one of the rich Mohammedan merchants sold a 紅刺 *hung-la* ('Balas ruby' as we shall see further on) to the Chinese government. It weighed 1 *liang* and 3 *ts'ien*, and was estimated at 140,000 錠 *ting* paid in bank-notes. (N. B. 1 *liang* = 10 *ts'ien* = 1; or, av. 1 *ting* at the time of the Mongols was 50 *liang* silver, not as Pauthier erroneously states, *M. Polo*, p. 320, *ten liang*. But the paper money was worth only a tenth of its nominal value.) The emperor placed it on the top of his cap, and thus it was afterwards successively transmitted from one emperor to another. The emperors always put it on at the new year, on their birth-days and on other solemn occasions. The following are the stones I (i. e. the Chinese author) know, and I shall give a list of them:—

1. 紅石頭 *Hung-shi-tou*, 'red stones.' There are four kinds.

The 刺 *la*. When of a pale red colour, it is very beautiful.

The 避者遠 *bi-dje-du*. The stones which are of a deep red colour and thin, are the most valuable.

The 昔刺泥 *si-la-ni* is of a dark red colour.

The 古木蘭 *gu-mu-lan* has an irregular colour; it is red mixed with dark yellow. Although this stone is found in large pieces, it is the least valuable of the above-mentioned."

M. R. La denotes *lah*, which is the Persian name for *Balas ruby*. This stone is of a rose red colour (Keferstein, p. 20; Emanuel, p. 220). *Bidje-du* of the Chinese author means the Persian *bidjade*, by which name another kind of ruby is meant (Keferstein, p. 23). *Si-la-ni* denotes probably "from Caylon." It is known, that very fine rubies come from that country; I do not know what red stone is meant by *gu-mu-lan*; perhaps *k'iu-ma-la*, a kind of opal (Keferstein, p. 66). At the present day, the names given above for rubies are unknown in China. The ruby is called 紅寶石 *hung-pao-shi* (red precious stone) in Peking.

2. 綠石頭 *Li-shi-tou*, 'green stones.' There are three kinds found together in the same mines.

The 助把避 *dju-ba-bi* takes the first rank. It is of a deep green colour.

The 助木刺 *dju-mu-la* is of medium quality.

The 撒卜泥 *sa-bu-ni*, which is of a pale green belongs to a lower class."

M. R. These three green stones are without doubt *emeralds*, and the names given to them by the Chinese author can easily be recognized as Arabic and Persian names for different varieties of this stone. See Keferstein, p. 43. The name *disobab* (meaning "cantharides," a deep green colour) was applied by the Arabs to a first-quality emerald of kind of a pale colour. *Dju-mu-la* is probably intended for *emerud* or *samrud*, general terms for emerald in Persian and Arabic. Even now the emerald in Peking bears a similar name, being termed 祖母綠 *Tsu-mu-lu*. It is also known under the name *li-pao-shi*, "green precious stone."

3. The stones called 鴉石 *ya-shi* or 亞姑 *ya-gu*. The red *ya-gu* has on the surface a white water, (this expression refers evidently to the lustre of the stone).

The 馬思良底 *ma-sze-gen-di*. Without lustre. A variegated stone. This stone and the red *ya-gu* are dug from the same mines.

(of the mountains). Then birds come and eat this flesh; after which diamonds are found in their excrements.¹⁴⁷

The 撒巴爾 *sa-ba-r*¹⁴⁸ is a product of the western sea. It is

Blue *ya-gu* { The 青亞姑 *ts'ing-ya-gu*, 'blue ya-gu.' First quality of a deep blue colour.
The 你藍 *ni-lan*; medium quality, of a pale blue colour.
The 蜃撲你藍 *wu-p'o-ni-lan*; lower quality, of a muddy blue colour.
The yellow *ya-gu*.
The white *ya-gu*.

N. B. By *ya-hu* or *ya-gu* the Chinese author renders the Arabic and Persian *yacut*, a name applied to what we call *ruby* and *corundum* (Kesterstein, pp. 11, 28). The Mohammedan authors mention a *red yacut* = "the *ruby*," and a *blue* one with many varieties, which we call *sapphire* or *blue corundum*. The name *ni-lan* of the Chinese author represents the Sanscrit *nīla*, in Malayan *nīlan*, applied to the blue *sapphire*. The *yellow ya-gu* is the yellow corundum or sapphire, known to jewellers under the name of *oriental topaz* (Kesterstein, p. 17). Finally the *white ya-gu* is what we call the white sapphire. At the present time, the blue sapphire in Peking is called 藍寶石 *lan-pao-shi*, "blue precious stone."

4. Stones belonging to the category 貓睛 *mao-tsing*.
The (true) *mao-tsing* has a fibre of lustre in the interior.

The 走水石 *tsou-shui-shi* when dug from the mines, resembles the *mao-tsing*.

N. B. *Mao-tsing* means "cat's-pupil," and denotes the same stone as known to us under the name of *cat's-eye*. The Chinese as well as Europeans derived this name from the peculiar lustre of this stone, resembling, when held towards the light, the contracted pupil of the eye of a cat. *Tsou-shui-shi* means "stone with walking water" (undulating lustre is to be understood). This stone may be identified with the *chrysoberyl* or *cymophane*. The latter name means in Greek,—"floating light." At the present day, the *cat's-eye* is called in Peking 貓兒眼 *mao-er-yan* (cat's-eye).

5. Stones called 甸子 *tien-tze*.

The 你舍卜的 *ni-she-bu-di*. This is the species, which is found in the country of the Mohammedans, and is distinguished by its fine structure.

The 乞里馬泥 *k'i-li-ma-ni*. It is also called 河西甸子 *ho-si-tien-tze* (*Ho-si* means 'west of the Yellow river') and has a coarse structure.

The 荊州石 *King-chou-shi* is called also 襄陽甸子 *siang-yang-tien-tze*. (*Siung-yang* is a city in the province of Hupel). It changes its colour.

N. B. The Chinese author says nothing about the colour of these stones, and it is difficult to say what stone he means by *tien-tze*. Perhaps the *turquoise* was known by this name in China. This beautiful blue stone is dug near Nishapur in Persia, and the Chinese *ni-she-bu-di* sounds like this name. The *Juauer namch*, a Persian treatise on precious stones, quotes four places in Asia, where turquoisees are found, viz. *Nishapur*, *Khodjend*, *Shebovek* in *Kerman* (evidently the *K'i-li-ma-ni* of the Chinese author) and a mountain in *Adjerbeizan*. See Ouseley's *Travels in Persia*, vol. i, p. 211. Emanuel states (l. c. p. 178) that the precious turquoise is found near Nishapur, and inferior varieties of it occur also in Thibet and China, that it changes its colour, etc. The Persian name of the turquoise is *firuze*. Now very miserable turquoisees of a greenish colour are sold at Peking under the name 松兒石 *sung-er-shi*.

147. Rémusat states in a note, that a similar fable regarding the origin of diamonds is recorded in the narrative of the travels of *Sindbad the sailor*. The same is also reported by Marco Polo. (See Col. Yule's *M. Polo*, vol. ii, p. 295.)

148. *Sa-ba-r*. The description given of this drug, found in the sea, can only point to *ambergris*, the *amber* of the Arabs, highly valued in perfumery by the orientals. I find in Ebu Baitar's *materia medica* (translated by Sontheimer, vol. ii, p. 210), the following notice about the origin of amber: "There is at the bottom of the sea, some substance which the sea beasts eat and then vomit it; which is amber." The *Pen ts'ao* mentions *ambergris* (book xliii, f. 5), under the name 龍涎香 *lung-sien-kiang*, "dragon's saliva perfume," and describes it as a sweet-scented product, which is obtained from the south-western sea. It is greasy, and at first yellowish white; when dry it forms pieces of a yellowish black colour. In spring whole herds of dragons swim in that sea, and vomit it out. Others say, that it is found in the belly of a large fish. This description also doubtless points to *ambergris*, which in reality is the pathological concretion of the

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the essence of tortoise-shell (瑇瑁之遺精). The 蛟魚 *kiao-yu* (crocodiles)¹⁴⁹ eat the tortoises and then vomit. In a year the vomited substance hardens. (That is the *sabar*.) The price of it equals that of gold. It is adulterated with rhinoceros excrements.

The 骨篤犀 *gu-du-si* is the horn of a large snake. It has the property of neutralizing poison.¹⁵⁰

The 龍種馬 *lung-chung-ma* (dragon-horses) are found in the western sea. They are provided with scales and horns. People do not allow mares with colts to graze near (the sea shore). The colts are drawn into the sea and do not come back.¹⁵¹

¹⁴⁹ *Macrocephalus*, a large cetaceous animal. The best *ambergris* is collected on the Arabian coast. The History of the Ming (*Ming shi*, chap. 826) mentions the *ambergris* as a product of 不刺哇 *Bu-la-wa* (Brawa, on the east coast of Africa). I am astonished, that Pauthier tries to identify the sea product *sa-ba-r* of the Chinese author, with the precious stone sapphire.

¹⁵⁰ I translate *kiao-yü* by "crocodile," for in the *Pen ts'ao* (book xliii, f. 8), this kind of "scaley dragon" is stated to be called in Sanscrit 骨篤犀 *kung-tsi-lo*; and in Büsching's *Deftaden*, vol. ii, p. 888, I find, that *kumbhira* is the Sanscrit name for crocodile. The *Pen ts'ao* explains the name *kiao* by "crossed eye-brows;" it means probably the two prominent nose ridges, which stretch from the margin of the orbits to the nose of the crocodile, bipocentrus. In Bridgman's *Christianity*, p. 477, 鱷魚 *o-yü* and 龍龍 *lung-lung* are given as the Chinese names for "crocodile." The second name appears in the *Pen ts'ao* (book xliii, f. 9), and the drawing given there of this beast represents exactly a crocodile. The name *o-yü* is not found in the *Pen ts'ao*, but it is met in other Chinese books, and refers also unquestionably to the crocodile. I cannot enter here into a detailed discussion on this subject; it may suffice to note, that very correct descriptions of the crocodile and its habits are found in ancient Chinese works. The crocodile lived in ancient times in southern China, but I have not heard of its being found there at the present day.

¹⁵¹ *Dragon* (*yu* = "horn"; *si* = "rhinoceros"). Rémusat translates these two characters by, "La corne du rhinocéros a la dureté d'un os;" which translation conflicts with the rules of Chinese syntax. Besides, this *gu-du-si* is not to be identified, for it is the name (probably the foreign name) of a medicine. Rémusat has translated the translation of the next four characters, which explain, that it is the horn of a large snake. The *gu-du-si* is mentioned in the *Pen ts'ao*, book xi, p. 40, which repeats the statement of the *Si shi ki*, that it neutralizes every poison (解諸毒 does not mean as Rémusat translates: "elle est excellente pour découvrir toute sorte de venin").

The rhinoceros' horn (犀角 *si-ko*) is likewise reputed from time immemorial for its anti-poisonous virtues. The *Shen nung pen ts'ao*, an ancient materia medica, attributed by tradition to the emperor *Shen-nung*, u. c. 2700, at all events the most ancient Chinese medical existing, states that the rhinoceros-horn 主百毒 *chu po tu*, "cures the hundred poisons." The rhinoceros and goblets made from rhinoceros-horn are repeatedly mentioned in the Chinese classics, and even at the present day the latter can be purchased everywhere in China, as at the time of Confucius. It is a remarkable fact, that in India the people from time immemorial, attribute the same anti-poisonous virtues to the rhinoceros-horn as the Chinese do. (See Büsching's *Asien*, vol. ii, p. 593.) I cannot believe that the Chinese have borrowed this practice from the Indians or vice-versa.

¹⁵² *Lung-chung-ma*, "dragon-horses." The Chinese author had probably heard of the large cetaceous animal, which is described in zoology under the name of *duyong* or *dwyong*, *Asiatic cetaceus*. This beast is found in the Indian ocean, and also in the Red sea and the Persian gulf, and frequents the shallow sea and the coasts, where it feeds on the submarine sea-grass pastures. (Compare *Brehm's Illustr. Thierleben*, vol. ii, p. 817.) According to Büsching (l. c. vol. ii, p. 838), the dugong is called *kudakudira* or "sea-horse" by the Malays. Buffon in denominating it *tricheus equus marinus dugon*, compares it also with a horse. The dugong has given rise, in ancient times, to many ridiculous tales, circulating among the Arabs and Persians, and we ought not to wonder,

There is also a black eagle (鳥雕 *ts'ao-tiao*). It lays only three eggs in one brood. From one of these eggs a dog comes out; it is of a gray colour and short-haired. It follows the shadow of its mother (when she flies). In hunting game it is always successful.

The 羴種羊 *lung-chung-yang* (literally, "sheep planted on hillocks") are also produced in the western countries. The people take the navel of a sheep, plant it in the ground and water it. When it hears thunder it grows; the navel retaining a connection with the ground. After the beast has become full grown, they take a stick and frighten it. Then the navel breaks off and the sheep begins to walk and eats grass. In autumn it can be eaten. The flesh of the navel (of the butchered sheep) can be planted again.¹⁵²

when the Chinese author attributes to it horns and scales, according to Chinese views indispensable decorations for a marvellous animal.

152. *Lung-chung-yang*. Pauthier again translates incorrectly that this kind of sheep (which P. calls "mouton de montagnes") is produced in the western sea, whilst the Chinese text 出西海 means in the countries near the western sea (see note 146). Rémusat has not rendered what is stated in his text about the *lung-chung-yang*. Pauthier translated boldly, but he did not understand the subject in hand. He renders 以羊臍種土中 概以水開雷而生 "qui a de la ressemblance avec les moutons de notre pays que nous nommons, 'espèce de moutons à ombilic' (*yang-tsi-tch'ung*). Quand on lave leurs mères dans l'eau et qu'elles entendent le tonnerre, elles mettent bas cette espèce de moutons." Pauthier took the characters 長 *chang* and 驚 *king*, which I translate by "to grow" and "to frighten," for the name of the famous Chinese general Chang Kien, whose name however is always written 張騫. (See P's translation, "Selon Tch'ang-kien, etc."). 至秋可食 (in autumn the lamb may be eaten), Pauthier translates, "en automne (quand il n'y en a plus), il puisse manger autre chose." 臍肉 復有種 has been rendered by Pauthier, "La chair de l'ombilic est aussi d'une espèce particulière." It is not difficult to divine, that this miraculous story of a lamb, which grows like a plant, is nothing other than a reproduction of the mediæval tale of the *agnus scythicus* or "Tartarian lamb," which is alluded to also by Friar Odorio (Yule's *Cathay*, p. 144); but it must have been current much earlier in western countries, for the Chinese authors mention it in the 9th century. I find the following account in the "History of the 'T'ang dynasty" (*T'ang shu*, chap. 258b), "There are in the country of Fo-liu (the Byzantium empire, see note 131), sheep which grow from the ground. The people wait till they shoot out, and then surround (the plant or beast), with a wall, to protect it against wild beasts. If the umbilical cord connecting the lamb with the ground is cut off, it will die. (There is another method to keep it living.) A man duly caparisoned, mounts a horse and rushes upon the lamb. At the same time a great noise is made to frighten it. Then the lamb cries, the umbilical cord breaks off, and it goes to grass." Let me compare with these ancient Chinese statements, an account, given by Scalliger in the first half of the 16th century, of the Tartar lamb. (See Yule l. c.) "It is found in the lands of the noble Tartar horde called *Zavalha* (means probably beyond the Wolga, for *za* in Russian="beyond"). The seed is like that of a melon, but the plant, which is called *barometz* or "the lamb" (*baran*="sheep" in Russian) grows to the height of about three feet in the form of that animal, with feet, hoofs, ears, etc., complete, only having in lieu of horns two curly locks of hair. If wounded it bleeds; wolves are greedily fond of it." It is believed at the present day, that we can explain the origin of the mediæval tale regarding the *agnus scythicus*. The *sarants* of the last as well as Dr. Boyne of Dantzig first declared that the pretended *agnus scythicus* was nothing more than the root of a large fern covered with its natural villus or yellow down, and accompanied by some of the stems, etc., in order when placed in an inverted position, the better to represent the appearance of the legs and horns of a quadruped. Linnaeus afterwards received a fern from China (evidently from southern China; perhaps his countryman Osbeck brought it), and did not hesitate in declaring it to be the *agnus scythicus*, and to

There is a woman in those western countries, who understands the language of the horses and can predict (in this way?) good and evil.

Many other marvellous things are seen there, but all cannot be reported. Ch'ang Te's journey to the western countries and back had taken eleven months.*

(Here the report of Ch'ang Te's journey concludes. Liu Yu, the author of the *Si shi ki*, adds the following critical remarks.)

The *Si-ya* (countries of the west) was first opened (for China) by the general Chang Kien (about B. C. 120, he penetrated as far as Bactria, see note 152). The countries, their hills and rivers, are up to our days the same; but as those times belong to remote antiquity, the names of the countries have changed, and it is difficult to enquire into their political changes. What at the present day is called 瀚海 *Han-hai*, was in ancient time 金山 *Kin-shan*.¹⁵³ The 印毒 *Yin-du* of our days is the same as 身毒 *Shen-du* of the Han dynasty.¹⁵⁴ The camel (now found in western countries) is the *ta-ma-t'iao* of the kingdom of *Ma* (mentioned at the time of the Han, see note 132). 密昔爾 *Ma-si-er* is the same as the kingdom 拂菻 *Fo-lin* (lan) mentioned at the

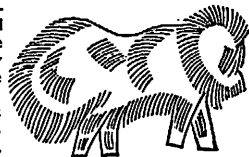
same time as *Barometz* (Lamarck, *Encycl. Bot.* vol. v, p. 552). Loureiro in his *Essai sur les plantes de la Chine*, tom. II, p. 675, states, that the same plant is found in Cochinchina and elsewhere. He gives the name as the Chinese name. He intends evidently 狗脊 *kou-ki* (狗脊 *ko-ki*), a plant described in the *Pen ts'ao* (book xii, f. 82), and represented in the *Pen ts'ao* as a fern. The Chinese botany *Chi sui ming shi* ('u *ts'ao*, book viii, f. 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100) has several names of the root to a dog's back, and states, that several species of this fern occur in the mountains of the west of the Wolga, derived its information probably from a mediæval traveller, not from a botanical work. How then can Mr. Th. Moore state in Lindley's *Treasury of Botany*, that the *agnus scythicus* of mediæval travellers is without doubt the *ciobolium barometz*? Mediæval travellers as well as the Chinese authors agree in assigning to this marvellous plant-animal the countries of western Asia or eastern Europe.

The Chinese author is wrong. *Hun-hui* and *K'ia-shan* are not the same. (Compare *Chi'ang-t'ien's* travels, notes 51, 53 and *Si shi ki*, note 31.)

By the latter name India was known to the Chinese, about the commencement of our era.

* See note E.

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CIOBOLIUM BAROMETZ.
from Lindley's
Treasury of Botany.

time of the T'ang dynasty.¹⁵⁵ This can be proved by comparing the products, customs etc. of the respective countries (as mentioned in different times). For instance the T'ang shu states that Fo-lin is forty thousand li distant from the (Chinese) capital, that it is situated on the borders of the sea, and that it is rich in rare and precious products. All agree very well with the recent statements (about Mi-si-r), and there can be no doubt as to the identification.

Written by 劉郁 Liu Yu, in the third month of the year 1263.

NOTES BY THE EDITOR.

E. A reprint in the *Hae kwō t'ōō chē* has "four thousand *lc.*"

F. The *Hae kwō t'ōō chē* has "fourteen months."

MOVABLE TYPES FOR PRINTING CHINESE

By S. WELLS WILLIAMS, LL. D.

THE perpetuation of writings by engraving characters upon wood or stone, and then printing from the plates, is generally supposed to have originated among the Chinese in the reign of Ming-tsung of the After T'ang dynasty about the year A. D. 932. The account states, that the ministers Fang Tau and Li Yu proposed to the officers of the *Kwoh-tsz' kien*, to revise the classics and engrave the texts on plates of wood, for the purpose of printing them for sale; but the design was interfered with by political troubles, and was not carried into effect until twenty years after.

From the quiet way this plan is mentioned, however, one may justly infer that this mode of producing books was already known, and by a reference to vol. 39 of the Chinese encyclopædia *Keh-chi king-yuen* 格致鏡原 such is shown to have been the case. It is there stated, that in the 4th year of Kao-tsu, the founder of the Sui dynasty (A. D. 593), he commanded that all the worn-out designs and unedited texts should be collected, and engraved on wood for publication; and thus, adds the writer, "occurred the commencement of printing on plates of wood." But it is very probable that an invention of this kind must already have become somewhat common, before a monarch so busy as Kao-tsu would have ordered such a vast undertaking as this decree involved; and a note, in a work called the *Pi-tsang* 秘藏, says that printing from wooden plates was invented in A. D. 581, at the beginning of the Sui dynasty, expanded sensibly under the T'ang dynasty, and reached its perfection under the Sung dynasty. The above-mentioned date of 581 is about contemporary with the most flourishing period of the

155. The Chinese author is mistaken again; see note 131.

of the hierarchy, and the year before Maurice became emperor at Constantinople. We may reasonably suppose, therefore, that if Europe had had commercial intercourse with China, her literary men would have been induced to imitate this mode of reproducing copies of valuable works, and thus have preserved many books now irrecoverably lost. It is a well-known fact, however, that the Chinese had begun to engrave texts upon stone, in order to preserve them unaltered. It does not appear that they thought of engraving the characters in reverse until about the year 986, when the emperor Tai-tsung, of the Sung dynasty, ordered fac-similes of all the ancient manuscripts he had been able to collect, to be cut upon slabs of stone in such a manner that impressions could be produced by means of pressure of the hand. Up to the year 1243, this mode was in use to make copies of ancient books and ancient inscriptions in large pages, the characters always being in white on a black ground. Some of these impressions will still be seen in the elegance and perfection of their characters do not differ from the best editions printed from wooden plates.

The first authentic account of printing with movable types occurs in the *Shung-ki pih-tan* 夢溪筆談, in the biographical notice of Chia Hsuan (who became a *tsin-sz* in A. D. 1056), where it is stated that a man named Pi Shing, invented a mode of printing by means of movable blocks. According to the account, this man took some fine plastic clay, of which he made small square plates, about as thick as a cash, and engraved thereon the characters in most frequent use. For each character he made a small oval or type, and then baked it in the fire to harden it. He then placed on the table an iron plate, which he covered with a fusible mixture of resin, wax and lime; and having prepared a frame or chase of wood, divided within by iron strips from top to bottom, he laid it on the iron plate in the covering of cement; the types were arranged within these rows, beginning at the right, and placing them one against the other. When the chase was filled with types, it was placed near the fire to melt the cement, and fasten in the types, after which a smooth block of wood was pressed upon them to bring them all to the same level. They were then ready for the printing, which was done by rubbing; and when all the impressions wanted, were struck off, the cement was melted by putting the plate near the fire, and the earthenware types easily were cleared of the dirt, and ready for setting up another page. The types were arranged according to their tones, and we may safely assume, by their syllables too,—that is, characters like 刀, 巴 and 邦 were not put together in one case because they all came under the first tone.