CHINESE MATERIA MEDICA

pt. 7

DRAGON AND SNAKE DRUGS

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VII. DRAGONS AND SNAKES.

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The first group of 'scaly animals', 鱗 lin, includes *DRAGONS* and those things which for centuries have held the popular imagination as being like or kin to dragons. The famous expeditions to China in recent years and their scientific studies of the remains of gigantic extinct saurians give weight to the old conceptions of and belief in these fabulous monsters. A study of the Pen T'sao upon this subject lends a new light to current ideas concerning the term "dragon", which has been said to have no zoological meaning. In China since the third millenium B. C. this term has been applied to the mixed fossil deposits in Shansi which included a number of the larger prehistoric animals. The term could scarcely be regarded as specific or even general, but it did refer to a definite entity, "animals which yielded large fossilized bones." Considered in its regional aspect this fact gives the name dragon a reality of which the numerous myths associated with the cultures of other parts of the world cannot boast, for however solid a basis of truth such myths might have had in the dim past, there is no record of it and no basis today except in the old interwoven mythologies of mankind.

Elliot-Smith says, "There can be no doubt that the Chinese dragon is the descendant of the early Babylonian monster, and that the inspiration to create it reached Shensi during the third millenium B. C." As set forth by numerous writers the symbolism associated with the dragon appears to have worldwide associations, and the Babylonian myths coming to China may have well attached themselves to these fossil remains, though it would seem likely that this very ancient myth of the dragon may have come to China even earlier and with the finding of fossil remains became established on a material basis.

The other members of this group were added apparently either on account of their large size or because they had somewhat the form of a dragon. In scientific classification the genus *Draco* includes a number of species of lizards, which indicates how throughout the world this term dragon was applied to a general group of dragon-like reptiles.

The second group of this chapter, the snakes, brings together groups of animals some of which are only remotely related zoologically, but culturally of the closest origin. The Greek word 'drakon' was originally used of any large serpent, so that the dragons of mythology were essentially snakes. Frazer's accounts of serpent cults and

dragon myths show the free use of these two terms, how interchangeable they are in religious literature, and they bring out the origins of many of the ideas associated with the dragon and the various snakes with regard to their supposed virtues and uses in medicine.

Seeing that there are more than 100 known species of snakes in China it is surprising that as compared with the larger animals so few snakes are mentioned in the Pen T'sao. This may be accounted for by the fact that early Chinese civilization was north of the Yangtse where only one genus of poisonous snakes is known and the snake cults of the tropics have been slow in penetrating South China. There is need here for good research by modern naturalists.

On the whole this chapter reflects a large degree of cultural exchange with the rest of the world. It revives many outworn theories, and sustains a classification long since revised, but it holds the key to the secret of the dragon myth which has led up to the marvellous discovery of primitive man and prehistoric animal life in North China, which are of immeasurable value to scientific thought.

This free translation of the Pen T'sao has been made with the able assistance of Mr. Li Yü-tien. A little comparative material was taken from the Severance Collection made by Dr. Ralph G. Mills, his notes on the terms for disease were particularly valuable. I am indebted to Mr. P. S. Chao and Mr. Y. C. Yuan for help in the preparation of this manuscript and to Mr. R. V. Dent for the excellent photographs reproduced in this article.

PEN TS'AO KANG MU.

Chapter 43. SCALY ANIMALS. 鱗 部 *Lin Pu.*

There are two groups of scaly animals, terrestrial and aquatic. Although different, they are classed together on account of their scales. The dragons and snakes are clever, but fish are just water animals. Although different their behaviour is the same. This is because the same natural influences act upon different substances (gametes). The scaly animals are all oviparous except the pit viper which is viviparous (placental birth). The aquatic animals are not able to close their eyes except the globe fish (*Tetrodon*) which is able to wink.

The tail of the indigo snake (an Agkistrodon) is an antidote to the poison in its head, also shark's skin can dissolve indigestible preserved fish. This can only be unravelled by men of learning and experience.

The Pen-Ts'aos of the T'ang and Sung dynasties did not separate the insects and scaly animals. Now (Li Shih-Chen's time) we have cut off ninety-four species into a separate group of scaly animals. This group is subdivided into the four classes :— dragons, snakes, fish, & nonscaly fish. Formerly there were only fifty-eight species in these four classes.

The original monographs are from the following authorities in old Chinese literature.

7 species from Shen-Nung's Pen Ts'ao Ching, commentary written by T'ao Hung-Ching.
10 species from Ming-Yi Pieh-Lu, T'ao Hung-Ching, (Liang).
1 species from T'ang Pen-Ts'ao, Su Kung, (T'ang).
28 species from Pen-Ts'ao Shih-Yi, Ch'en Ts'ang-Ch'i, (T'ang).
6 species from Shih-Liao Pen-Ts'ao, Meng Hsien and Chang Ting, (T'ang).
11 species from K'ai Pao Pen-Ts'ao, Ma Chih, (Sung).
1 species from Chia-Yu Pen-Ts'ao, Chang Yu-Hsi, (Sung).
1 species from Jih-Hua Pen-Ts'ao, Jen Ta-Ming, (Sung).
1 species from Shih-Chien Pen-Ts'ao, Ning Yuan, (Ming).
28 species from Pen-Ts'ao Kang Mu, Li Shih-Chen, (Ming).

SECONDARY REFERENCES :—

Wu-P'u Pen-Ts'ao, Wei dynasty.
Li Tang Chih Yao Lu, Wei dynasty.
Lei Hsiao (Lei Kung) Pao Chih Lun, Sung dynasty.
Hsü Chih Ts'ai Yao Tui, Ch'i dynasty.
Chen Ch'uan Yao Hsing, T'ang dynasty.
Sun Ssu Mo's Ch'ien Chin Shih Chih, T'ang dynasty.
Li Hsun Hai Yao, T'ang dynasty,
Yang Sun Chih Shan Fan, T'ang dynasty.
Ch'en Shih-Liang Shih Hsing, Southern T'ang.
Han Pao-Sheng, Ch'ung Chu, Shu dynasty.
Su-Sung T'u-Ching, Sung dynasty.
Shen-Wei Cheng-Lei Pen-Ts'ao, T'ang dynasty.
K'ou Tsung-Shih Yen-Yi Pen-Ts'ao, Sung dynasty.
Ch'en-Ch'eng Pieh-Shuo, Sung dynasty.
Chang Yuan-Su Chen-Chu-Nang, Chin dynasty.
Li-Kao Fa-Hsiang, Yuan dynasty.
Wang Hao-Ku T'ang-Yeh, Yuan dynasty.
Wu-Jui Jih-Yung Pen-Ts'ao, Yuan dynasty.
Chu Chen-Heng Pu-Yi, Yuan Dynasty.
Wang-Ying Shih-Wu, Ming dynasty.
Wang-Chi Hui-Pien, Ming dynasty.
Ch'en Chia-Mo Meng Ch'uan, Ming dynasty.

PEN TS'AO KANG MU

Chapter 43. **SCALY ANIMALS** Nos. 1 & 2.

No.	Chinese	Romanization	English
1. DRAGONS. 9 SPECIES.			
102	龍	Lung	Dragons.
103	鯨	Tiao	Whales.
104	鮫 龍	Chiao Lung	Crocodiles.
105	鼉 龍	T'o Lung	Alligators.
106	蠽 鯉	Ling Li	Scaly Ant-eaters or Pangolins.
107	石 龍 子	Shih Lung Tzu	Lizards.
108	守 宮	Shou Kung	Geckos.
109	蛤 蚑	Ke Chieh	Toad-headed Lizards.
110	蜥 龍	Yen Lung	Monitors.
2. SNAKES. 17 SPECIES.			
111	蛇 蛻	She T'o	Snake Sloughs.
112	蚺 蛇	Jan She	Embroidered Pythons.
113	鱗 蛇	Lin She	Pythons.
114	白 花 蛇	Pai Hua She	Embroidered Pit-vipers.
115	烏 蛇	Wu She	Black Grass Snakes.
116	金 蛇	Chin She	Golden Snakes.
117	水 蛇	Shui She	Water Snakes.
118	蛇 婆	She P'o	Sea Snakes.
119	黃 頷 蛇	Huang Han She	Chicken-snakes.
120	蝮 蛇	Fu She	Southern Pit-vipers.
121	鼠	Yuan	Bamboo Vipers.
122	藍 蛇	Lan She	Indigo Vipers.
123	兩 頭 蛇	Liang T'ou She	Two-headed Snakes.
124	天 蛇	T'ien She	*Bipalium*
125	苟 印	Kou Yin	Unidentified.
126	蛇 角	She Chueh	Rhinoceros Vipers.
127	諸 蛇	Chu She	Snakes, General Characters.

a. **A MYTHOLOGICAL ANIMAL**

102. 龍. *LUNG.* DRAGONS.

b. **A SYMBOLIC FIGURE**

c. **A METAPHYSICAL CONCEPT**

REFERENCES. Shen-Nung Pen-Ts'ao 1st group: Dragons and dragon lore, E. Ingersoll, New York 1928: The Evolution of the Dragon, G. Elliot Smith, Manchester, 1919: The Dragon in China and Japan, M. W. de Visser, London 1913: Lion and the Dragon in Northern China, R. F. Johnston, New York, 1910: Included in *Historia Animalium* by Conrad Gesner, d. 1564: Porter Smith p. 89: Pliny's Natural History, XXX. 27: S. W. Williams, China Repository, vii, 250: Encyclopedia Britannica 14th edit. Volume 7, p. 569: F. Carter, "The Dragon of the Alchemists," London, 1926:

"According to the *Shuo Wen* the original seal character was a pictogram. The *Sheng-Hsiao-Lun* says that the ear of the dragon lacks perception hence the character was called '*Lung*' which in the spoken word means deaf (1). The Sanscrit name is 那伽 *Na-Chia*."(2) (Japanese name, *Tatsu*.)

According to the *Erh Ya Yi* written by *Lo Yuan*, the dragon is the chief of all scaly animals. *Wang Fu* described the dragon as being like 9 other animals(3): the head is like a camel's (extended), horns like a deer's (long), eyes like a hare's (protruding), cow's ears, neck like a snake's, belly like a seaserpent's, scales like a carp's, claws like a hawk's(4), and feet like a tiger's. It has 81 scales(5) on its back, nine times nine, the largest positive (Yang) digit or odd number(6); it makes a noise like the rattle of a copper tray; it has a moustache and whiskers; it has a pearl under its chin(7); below the neck it has a reversed set of scales; on the head it has a prominence called 博 山 *Po-Shan* or 尺 木 *Ch'ih Mu* (the foot-rule); without this knob it cannot ascend the heavens(8). Its out-breathings form clouds which change into either water or fire(9).

Lu Tien's Pi Ya says that the fire of a dragon when it comes in contact with water vapour bursts into flame, with water it creates a blaze which can be extinguished with ordinary fire(10). Hence it can be compared with the creative powers of man, (sexual power)(11). The dragon is oviparous, it hatches its eggs with its thoughts. The male calls with the wind and the female responds against the wind, the wind is thus used to produce a metamorphosis in the egg.

The *Shih Tien* (Buddhist) states that in mating, dragons change themselves into two small snakes(12). Folklore has it that the dragon is a wild fierce animal which loves pretty jade and malachite. It likes to eat the flesh of swallows(13) and is afraid of iron, *Bechmannia erucaeformis*, centipedes, neem leaves, and five colored silk. Hence if people eat swallow's flesh they should not go out and cross a river (dragons will eat them if they do); when there is lack of rain swallows

are used as an offering; as a preventive against flood and water disasters iron objects are used; as a provocative to action the Bechmannia herb is used upon the dragon; at the patriotic sacrifices to *Ch'u Yuan* on the 5th of the 5th lunar month neem leaves and colored silk are used to wrap up the rice dumplings which are thrown in the river (to drive away the dragons which cause drowning). Dragon bones[14] are used in medical practice so doctors ought to know the likes and dislikes of this animal, (i.e. the adjuvants and incompatibilities)."

102A. 龍骨. *LUNG KU.* DRAGON'S BONES. PREHISTORIC ANIMAL BONES, FOSSILIZED.[15,16,17,18]

Davidson Black,[19]: Ingersoll, E., Dragons and dragon lore, Chapter 8, New York, 1928: Granger, W., Natural History, May 1922, New York: Hanbury, D., Pharmaceutical Journal 1860-62: Porter Smith F. Chinese materia medica, 1861, p. 95: Hübotter p. 132. :Braun p. 26:

In the time of the *Pieh-Lu* they were obtained from the rivers and valleys of Shansi, from the cliffs of high hills, and from the caves in the earthy banks of rivers, where there were dead dragons.

They are collected in any season of the year.

In *T'ao Hung-Ching's* time (T'ang dynasty) they were found more in Honan, and *I-Chou* and *Pa-Chou* (Szechuan)[17]. The head and vertebrae were sought for, with a white background covered with embroidered lines. When licked the good kinds stick to the tongue. The teeth are somewhat hard and are like teeth in shape. The horns are strong and not hollow. They are the bones shed by the dragon and not bones from the dead animal.

Lei-Hsiao recorded that the best kinds came from *Yenchou* (Chekiang), *Ts'angchou* (Hopei) and *T'aiyuan* (Shansi)[19]. The thin bones with wide lines are from the female dragon, and the coarse bones with finely netted veins are from the male. The best samples are variegated in colour (5 coloured red, yellow, blue, white & black), the white and yellow bones are of medium quality, the black ones are of inferior quality. Bones that have been near a menstruating woman are not used. *Wu P'u* considered those coloured white and dark green to be the best. In *Su Kung's* time (Wei dynasty) dragon bones came from Shensi. The very hard ones were not good. The bones had various colors, dark green, yellow, pink, white, and black; and according to their colour they were used to treat the organ in the body which was supposed to have a colour corresponding to it. This is similar to the use of the five colored kinds of fungi, five kinds of quartz and the five coloured siliceous earths[20], but these are not discussed in *Shew-Nung's* original *Pen Ts'ao*.

In *Su Sung's* time (Sung dynasty) all of the districts of Shansi produced dragon's bones. In the spring when the waters rose in the yellow river and

fish had come upstream as far as the *Lungmen*, many bones of the five colours were shed and collected for medicine. *Lungmen* is in Shensi which corresponds to the Shen Nung records. *Su Sung* questions whether this material was not really fish bone. (The popular idea was that the fish changed into dragons at the Dragon Gate, i. e. *Lungmen*.) *Sun Kwang-Hsien* stated that in the time of the Five Dynasties (A.D. 907-959) at *Chenchou*, (afterwards called Cheng Ting Fu, Hopei) two dragons fought and one was killed. *Ts'ao K'uan*, the headman of the village, removed the horns, in the forepart of which was a body covered in bluish lines like irregular embroidery which no one was able to identify. This is evidence of the death of a dragon.

Tsung Shih said the above ideas were imaginative. Once upon a time from a rocky mountain there burst forth a body with a dragon's head and horns complete but it was not plain whether they were the shed article or whether they came from a dead animal. However although they were of the correct style the live animal had not been seen, hence they were said to be from a fossilized animal, which had not changed in shape.

Li Shih-Chen said that the dragon was usually considered a supernatural animal which could not have a natural death, but *Su Kung* records the death of a warring dragon, and in the *Tso Chuan* it tells of dragon breeders who prepared dragonmeat sauce for food. In the *Han* dynasty at the time of *Ho Ti* when there was a great flood a dragon fell down in the palace yard and the Emperor ordered that it be made into broth to be given to the people. *Chang Hua* in the *Po-Wu-Chih* also says that preserved dragon's flesh with vinegar produces five colours, and dragons can die a natural death, so one may conclude that *Shen-Nung's Pen Ts'ao* was right in this matter.

PREPARATION OF THE DRUG. In the time of *Lei Hsiao* (Sung) dragon bones were washed clean, twice over, in a decoction of fragrant herbs, then after drying they were broken up and put into small silk bags. A swallow was taken, the stomach and bowels removed, and a bag of the dragon bones put in their place. It was then hung at the mouth of a well one whole night, the bones were taken out rubbed to a fine powder, and added to kidney tonics with marvellous effects.

In *Li Shih-Chen's* time (Ming) the bones were just roasted red and then powdered, and they were also used unroasted. In the *Shin-Lin Kuang-Chi*, the bones were placed in alcohol one night, then fire dried and powdered. A process of elutriation was then used, the powder being stirred up in water three times, only the suspended material being used; but if one was in a hurry they were just boiled in wine, then dried over a fire; or they were just elutriated in water and subsequently sundried, then they were steamed with one gallon of black beans, sundried and used. If they are not properly prepared they settle on the bowels and stomach & in old age cause inflammation.

Sweet, bland, nonpoisonous. *Chen-Ch'uan* (T'ang) stated they were slightly poisonous and incompatible with fish and iron utensils. *Hsu Chih-Ts'ai* (Sung) said they should be used with ginseng and cow bezoar, but not with gypsum. *Li Shih-Chen* cited *Hsu-Hung's* opinion that while dragon bones and cow bezoar are a bad mixture, the latter is a good adjuvant to the action of the former, for thus its action as a 'Yang' drug has the addition of the 'Yin' principle, which can enter the Shou-Tsu Shao-Yin and the Chueh-Yin parts of the circulation. (See Hubotter).

Given for gaseous distention of the stomach and and abdomen, for stoppage and ulceration of the bowels, for paralysis of the extremies, for night sweats and frightening dreams, to contract the penis, for hematuria, a seminal tonic. A mental and general sedative. The white bones are specially good for spermatorrhoea, gonorrhoea, and nymphomania; they quieten the mind and prevent troublesome dreams and dispel noxious influences, such as devil possession and spells. For diarrhoea resulting from a cold, intermittent dysentery, bloody stools, for leucorrhoea and menorrhagia, placental bleeding during pregnancy, for intestinal flatulence, epistaxis, and hematemesis. For the thirst sickness (diabetes), a spleen tonic and astringent to the stomach and bowels. A sexual tonic, anticonvulsant, for feverish children, for chronic malaria, prolapse of the rectum, astringent to wounds forming new tissue. For absent mindedness, enuresis, chronic diarrhoea, for the diarrhoea of typhoid fever and other fevers.

Applied to bloody discharges from the ear, epistaxis, umbilical sores in children, and to a sweaty irritant scrotum[21].

102B. 龍齒. *LUNG CH'IH.* **DRAGON'S TEETH. FOSSILIZED TEETH OF PREHISTORIC ANIMALS,** chiefly rhinoceros, horse and deer:

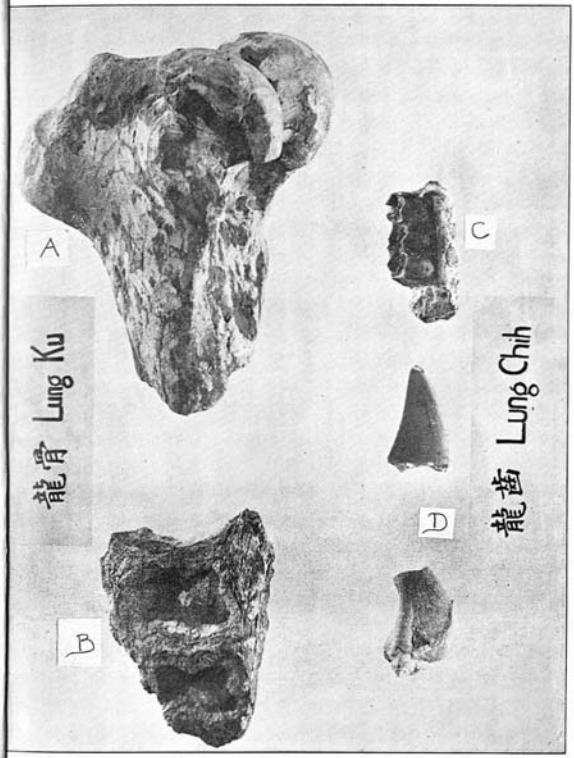
Porter-Smith p. 89 states they[23] are the fossil teeth of *Stegodon sinensis*, Owen[22]: Hanbury, Science Papers, p. 273: Kingsmill[24].

The teeth and horns are prepared by the same washing methods as dragon's bones, or they may be roasted with cream.

Astringent, cooling, nonpoisonous.

Able to kill sprites and bogeys. A cure for convulsions in the adult, all kinds of arthritis, madness, and running amok. For gastralgia, nervous fear and convulsions of all types in children. For raging fever in children, osteomyelitis, worm toxemia. It quietens the mind and spirit. It cures a feeling of depression, delerium, and devil possession.

The dragon is one of the spirits of the east (wood)[25], hence the bones, teeth and horns are good for liver diseases. The liver as the seat of the soul makes it fluid in its behaviour, but the astrigent character of dragon teeth fixes it in the liver substance.



102. A. and B. Dragon's Bones. C. and D. Dragon's Teeth.

102C. 龍角. *LUNG CHUEH.* **DRAGON'S HORNS. FOSSILIZED HORNS OF THE CHALICOTHERIUM SINENSE,** Swinhoe: Porter Smith, p. 96.

Sweet, bland, nonpoisonous.

Incompatible with shellac, xanthoxylum, and marble.

For convulsions, fevers, diarrhoea with fever and hardened belly. Taken continuously it lightens the body, enlightens the soul and prolongs life. For infantile fevers, convulsive fevers.

102D. 龍腦. *LUNG NAO.* **DRAGON'S BRAINS. A CALCAREOUS ALGA, COLLENIA SINENSIS?** type of Sinian limestone.

T'ao Hung-Ching used this fatty soft substance to stop diarrhoea.

102E. 龍胎. *LUNG T'AI.* **DRAGON'S PLACENTA.** Unidentified.

Also called 龍胞 *Lung Pao.* Obtained from *Pa-Chou* (Chung-shan) in Szechuan, like dried fish scales which boiled with water stink like fish.

For diseases after childbirth and for amenorrhoea.

102F. 龍涎. *LUNG YEN.* **(DRAGON'S SALIVA). AMBERGRIS**[26,27,28]

Porter-Smith p. 89: Nadkarni p. 1072: Martindale, Extra Pharmacopoeia, London 1920, p. 778: United States Dispensatory 21st. edition, p. 1195: Arabic medicine, for the heart milder than musk. Avicenna's writings. Ebn Baithar, 13th century, upon Foods and Drugs: Martius, Lehrbuch der pharmazeutischen Zoologie, Stuttgart, 1838, concerning uses and identity: Tschirch, A., Allgemeine Pharmacognosie, Leipzig, 1932, II, p. 858, used extensively in old Europe:

Syn. 龍涎香 Lung Yen Hsiang:

From the oceans of the southwest.[29] In spring when schools of dragons[30] (whales) are about they vomit their saliva which floats on the surface of the water. It is collected by the shore natives who sell it for a 1,000 cash an ounce. It is also obtained from the bellies of the big fish they cut up.[31] When fresh it is like a fatty gum of yellowish white colour[32]. When dry it forms yellowish black lumps like 白崇熬 *Po Yao Chiên*, with a fine grain. The old material is purplish-black like flying-fox dung, shiny and slippery, light in weight, floating on water like pumice-stone and with a rank odour[33].

1. Psalm 58 refers to the, "deaf adder that stoppeth her ear." The Greek word 'drakon' simply meant serpent or snake. Robin says this idea of deaf snakes or dragons is frequently mentioned by patristic and medieval writers, e.g. Isadore who gives Augustine as his authority.

2. The Indian word 'naja' refers to the hooded cobra. Naja worship was a generalised ophiolatry with origins in Egyptian, Babylonian and Vedic cults, see Elliot-Smith, Visser and Ingersoll. The latter states that sun worship, serpent worship, phallicism, and dragons are inextricably interwoven in Oriental mythology. "In the Indian '*makara*' we have the link between the western conception and that of the Chinese as to the shape of this fabulous water spirit."

3. G. D. Hornblower in "Man" May 1933 discusses the form, origin and distribution of the dragon, and states that Scythian elements were introduced into China during the Han and T'sin dynasties. This interesting article is the basis of further discussion by Sowerby in the China Journal 1933, *19*, 64. Elliot-Smith says, "There can be no doubt that the Chinese dragon is the descendant of the early Babylonian monster, and that the inspiration to create it reached Shensi during the third millenium B.C."

4. Eagles and birds in general usually have four claws. Old Chinese coins and standards show four-clawed dragons driven by the early Emperors. In recent history the dragon according to social standing is distinguished by the number of its claws. Imperial dragons proper alone had five claws, those of the nobility had four claws and plebian forms had three. These forms have varied throughout the centuries, also the addition of wings in the Han dynasty was a variation dropped in later years. See Ingersoll

5. The scales are regarded as piscine rather than ophidian. Both golden and silver scales are spoken of in the Classics, there is a story on this point cited by Ingersoll from the annals of Weihaiwei studied by R. F. Johnston.

6. Translated, "The extreme of a lucky number," H. L. Joly, Legend in Japanese Art, London, 1908. The extremely lucky number of the 'yin' would be six times six.

7. Joly adds, "In front of its horns it carries a pearl of bluish colour striated with more or less symbolical lines." Carter in discussing the metaphysics and mythology of the dragon emphasizes the importance of the dragon constellation Draco, and its place in the astrology of the ancients making a distinction between their mythopoeic thought, by which they attempted to show man's relation to the stars in his life, habits and mind, contrasting it with the Alchemists (Chinese Taoists) who sought for a soul in all matter with transmutations and analogies in man and the protean force found in their philosophic chemistry. The constellation Draco has the appearance of guarding and

encircling the northern pole which is the centre of the movement of the fixed stars. The Chinese paintings of the Dragon straining after a mystical "Pearl" undoubtedly relate to this relationship to the North Pole star, though other explanations are given for this; Plopper says really this is a spider which the dragon fears will enwrap him in its net, Werner considers that this explanation seems less plausible than that which interprets the ball as representing the sun, the idea being that swallowing the sun is impossible. Dictionary of Chinese mythology, Shanghai, 1932.

8. The dragon holds first place in old mythology as a rain god. In China the dragon is not usually regarded as a power for evil, but a beneficent being producing rain and representing the fecundating principle in nature. See "Myths of the waters" by E. T. C. Werner chap. VII, Myths and Legends of China, London, 1922. The Chinese Classics have many legends and stories of dragons, with drawings and accounts in the *Erh Ya* 爾雅 and the *Shan-Hai Ching* 山海經. *Yuan Chien lei han* 淵鑑類函 has eighty pages of quotations, and other Chinese writers cited in Werner's Dictionary of Chinese Mythology.

While the dragon in China is regarded as a beneficent being, droughts, floods and all disasters of aquatic origin are associated with the behaviour of the dragon. See Du Bose, H. C.; Dragon, Image and Demon, London, 1886; Johnston, and others.

9. See Werner's Myths, Chapter VIII.

10. Ingersoll traces the idea of the dragon as a fire-god back to Zoroaster, whose religion was based upon the practices of the Medes and the Vedic legends of India.

11. "The great winged serpent, in the old Gentile belief, generated and hatched out of the egg of the Aeon. The new terrific vision of life, encoiled in its folds, burst from the world egg, after the winds of the four quarters had blown upon it, setting up a rotatory motion, whilst the fire within caused it to burst into being.....called alternatively Pan, Phanes, Dionysos etc. according to the cult.....This myth is important, particularly on account of the frequency with which the symbol of the Dragon or serpent is used, as if it had simply a generative or sexual meaning." Carter.

12. "The old tag that a serpent becomes not a dragon save by devouring another serpent, has an alchemical sense. There are two dragons, male and female: they destroy one another, or one destroys the other and a new or mightier one is born." Carter.

13. Joly adds the flesh of sparrows.

14. "There are three dragons, the *lung* in the sky, the *li* in the sea and the *kiao* in the marshes." "The type of the dragon is probably the Boaconstrictor or sea serpent, or other similar monster, though the researches of geology have

brought to light such a near counterpart of the *lung* in the iguanadon as to tempt one to believe that this has been the prototype." Williams, Middle kingdom, Vol. I, p. 344, London, 1883. Werner also gives a list of different kinds of dragons, dragon kings, dragongods &c. and as shewn under subsequent headings the word *lung* compounded with other characters refers to various large animals, but the Pen T'sao here attempts to be specific, and regards the t'ien lung 天龍 as the only authentic animal while the above description is purely mythological, the conclusion shows that Li Shih-chen associated this animal in his mind only with the genuinely fossilized material described below which is of prehistoric origin.

15. The investigations of 1927-28 by the Geological Survey of China are recorded by Teilhard de Chardin and C. C. Young, and establish the age of some of these fossil deposits as Early Pleistocene. (Bulletin of the Geological Society of China, 1929, Vol. VIII, No. 3, p. 173.) These palaeontological studies establish the exact identity of our material, which shows a very wide range of prehistoric animal forms. However it is assumed that they are all of equal therapeutic value as calcium compounds of special psychological value.

16. Porter Smith describes them as broken masses of large fossil bones of proboscidians, portions of limestone matrix being sold with these genuine fossils he cites 'Belemnite' under the heading Dragon's bones as coming from Wuchang and doubtless many other places in China, the siphuncle often very distinct. As some small stalactites have a central cavity they are sometimes confounded with these true fossils. Tatarinov associates them with the stalactitic masses called 鐘乳石 chung-ju-shih. T24 a picul, Braun.

17. Granger reports upon the dragon bones from the fossil pits of Stegodon, Elephant, Bison, Bos, Cervus, Tapirus, Sus, Rhinoceros, small ruminants, several carnivores and many rodents; "no horses queerly enough." Granger paid about $20 a picul (133 lbs).

The material sold in Peping is from the big drug market at Ch'ichou in Hopei, which secures its supplies from pits in the nearby mountains on the West, relatively close to the caves, where the skulls of *Sinanthropus* were discovered together with great quantities of fossilized bones from prehistoric animals as reported from Szechuan by Granger. However the Ch'ichou material includes numerous horse teeth.

18. It was in 1903 that Professor Schlosser published his report upon the collection of "dragon-bones" purchased by Dr. K.A. Haberer in a Peking drug shop, in which he described various types of animals, the section upon primates even included," a left upper third molar either of a man or a hitherto unknown anthropoid ape". Abhandlungen der Königl. Bayerisch-Akademie, Wissensch. Math. Phys. Klasse, Bd. XXII, 1903. The subsequent work upon the fossils of prehistoric man, *Sinanthropus pekinensis*, are fully described by Davidson Black in the Palaeontologia Sinica, 1927, Series D, Vol. 7 and later.

19. The recently published memoir upon, "Fossil man in China" edited by Dr. Davidson Black gives such a comprehensive review of the fossil deposits in China that to deal with the subject of Dragon's bones in an adequate manner full reference should be made to that work. Hanbury's earlier examinations of dragon bones and teeth purchased upon the Chinese drug market did not include any reference to the hominid material which Schlosser in 1903 reported as occurring among the material purchased by Dr. K.A. Haberer from the drug merchants of Peking, but this is of minor importance here where the bulk of the material is from numerous other fossilized animal bones. Black gives a short summary of the most characteristic fauna of the Lower Pliocene, Middle Pliocene, Late Pliocene, and Upper Pleistocene to be found in North China which includes various carnivora, rodents, perissodactyles, artiodactyles, and proboscidians. When sold for therapeutic use there is no apparent distinction made in the fossil material chosen, so it would be out of place for a more detailed report to appear in this monograph. However it is important to note how these ancient writers recognised the existence of these fossils. We have drawn a map compounding the four maps published by Black from the four formations above mentioned, marking the cities mentioned in old Chinese literature famous for their dragon bone markets. The provinces mentioned in the Pen T'sao text are in exact accord with the present known facts. & the cities marked for the most part come within the areas of these fossil deposits. Further detailed reference can be made to the work of :—

K. M. Wang, Die Hohlenablagerungen und Fauna in der Drachenmaul-Hohle von Kiangsen, Chekiang. 1931, Contributions from the National Research Institute of Geology. No. 1, pp. 41-67: Davidson Black, *Sinanthropus pekinensis*, 1926 Nature, *118*, 773; 1930 Bull. Geol. Soc. China, *8*, 207: 1931 ibid, *11*, 365: and many other papers, q.v.: A.W. Grabau, 1927, Summary of the Cenozoic and Psychozoic deposits with special reference to Asia. Bull. Geol. Soc. China, *6*, 151: E. Koken, 1885 Uber fossile Saugetiere aus China. Palaeont. Abhandl. Bd III: W. D. Matthew and W. Granger, 1923, New Fossil Mammals from the Pliocene of Szechuan, Bull. Amer. Mus. Nat Hist., Vol. 48; Teilhard de Chardin and C.C. Young, 1932, Fossil Mammals from the late cenozoic of China, Pal. Sin. Series C Vol. IX, Fasc. 1, pp. 1-84: with 118 other references in Geological Memoirs, Series A, No. 11, upon "Fossil man in China" Edited by Davidson Black, Peiping 1933:

20. These are kaolin, fullers earth, red bole, graphite, and blue clay. Read and Pak, "Minerals and Stones of the Pen T'sao", Peking Soc. Nat. Hist. Bulletin, 1928. *3*. *11*. 42.

The five organs are: liver, lung, heart, kidney and spleen.

21. Belemnites and various fossils have been used in Ancient Western Medicine for numerous purposes, concerning which reference can be made to Tschirch, A., Allegemeine Pharmacognosie, Vol. II, pp. 882-889, who summarizes the information from the old pharmacopoeias of Europe and Egypt.

22. Porter Smith says that the fossil teeth of *Stegodon sinensis* Owen were found in the marshy beds of the country around Shanghai, by Lockhart, and Swinhoe found another species near Ch'ung-king-fu in Szechuan. He also mentions the teeth of *Hyla sinensis*, and the molars of mastodons, elephants, sheep &c.

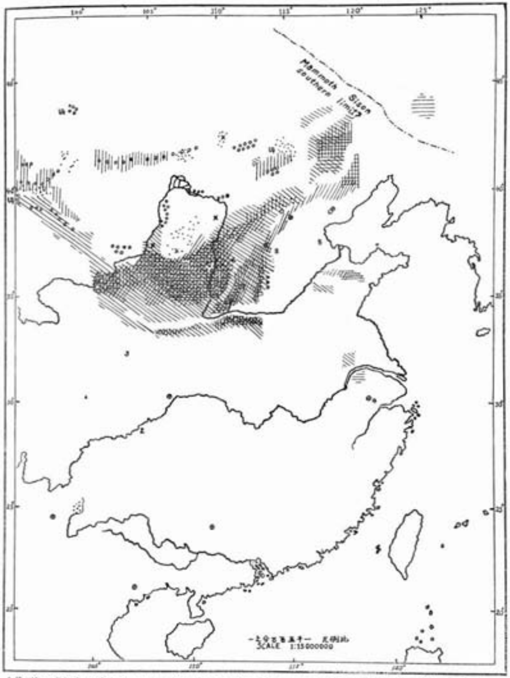
23. Mr. G.R. Waterhouse of the British Museum examined the specimens collected by Daniel Hanbury and was able to distinguish the following:—Molars of the lower jaw of *Rhinoceros tichorhinus*, Cuv., fragments of tooth of *Mastodon*; of *Elephas* near *E. inaegnis*, Fet C.; many molars of *Equus*, teeth of *Hippotherium*, comprising molars of both jaws, agreeing perfectly with those of the *Hippotherium* of Germany and France; and upper molar of a *Hippotherium* probably distinct from the preceding; portion of an upper jaw, with the four posterior molars, of a Ruminant allied to the sheep, but of smaller size: molar teeth of two species of stag; molar tooth of bear. Hanbury states that Prof. W. Boyd Dawkins of Owens College Manchester, has ascertained that there are caves in Borneo which are extensively worked for teeth for the Chinese Market. This may refer to the Canton market or the overseas Chinese drug markets which are quite large. D. Hanbury, Pharmaceutical Journal London, 1860-62.

24. "Subfossil teeth of both these species, (viz. *Elephas primigenius* and *Rhinoceros tichorhinus*,) are commonly to be found in the medicine shops, and one of the localities given for their occurrence is North China and Mongolia". T. W. Kingsmill, Proc. N. China Royal Asiat. Soc. 1877. *II*. 1.

25. DeGroot expresses these theories as "an unfathomable lake of metaphysical wisdom". The dragon plays the most important part in geomancy, and is said to have made possible the golden age. It symbolises the season of Spring, the colour Blue, and represents all the most important features of the water part of "*feng-shui*", of wood in its associations with the East, and of heaven with the *Yang* principle, the latter being the predominant idea in its use as a therapeutic agent. Cf. J. J. M. DeGroot, the Religious Systems of China, London, 1901.

26. This subheading together with that under "semen of the tiao" No. 103, and the extensive notes in the Pen T'sao Appendix are given at length by the author in the Chinese Medical Journal 1932, *46*, 478. Porter Smith thought that it was probably the origin of William's *Lung-yen-hsiang*, a name applied to a counterfeit ambergris made by mixing together Borneo camphor and musk. The Pen-t'sao appendix leaves no doubt that it referred to genuine ambergris, a substance well known to the ancient Chinese, by whom it was collected from the sperm-whale in the China Seas.

27. Nadkarni gives the following note upon Indian material:- a single excretion has been found to weigh 750 lbs. It is opaque, seldom white, often darkish brown, grey or of a pink colour..........nearly tasteless. It contains ambrein 85 per cent. It is stimulant and antispasmodic; used in general



1. Yi Chou (Kuang Han Hsien, near Chengtu, Szechuan) 2. Pa Chou (Pa Hsien, Szechuan) 3. Liang Chou (Nan Cheng Hsien, Shensi) 4. Yen Chou (Near Tien Tai Hsien, Chekiang) 5. Tsang Chou (Tsang Hsien, Hopei) 6. Tai Yuan (Yang-ku, Shansi) 7. Lung Men (Between Hochin Shansi & Hancheng, Shensi) 8. Chen Chou (Chengting, Hopei.)

102. Distribution of DRAGON BONES in China,
Fossil fauna from the formations of,
Lower Pliocene , Late Pliocene .
⊕ Early Pleistocene , Late Pleistocene .
Compounded from "Fossil Man in China", by Davidson Black, see text.
The numbered places refer to the Pen T'sao records.

weakness, epilepsy, spasms, and nervous debility &c. Dose 5 to 15 grains; used as a confection. Indian Materia Medica, Bombay, 1927.

28. This is discussed in the *Pen T'sao Shih Yi* as *Lung Yen Hsiang*, synonym 龍涎 *Lung hsieh*, exudation of the dragon. There are three classes of ambergris. (1) 汎水 *fan shui*, a very light material which can float. The fishermen wait around until it is emitted from the mouth of the whale and collect it. (2) 渣沙 *t'sao sha*, the old samples collected on the sands. (3) 魚食 *yu shih*, which is the feces excreted by the whale on the shore. The fecal kind is said to be inferior. It is incompatible with gypsum, and iron utensils should not be used in its preparation.

It is a circulatory stimulant, aphrodisiac, and promotes the growth of marrow and semen. The *Liao Yung-Yen* recommends it as a diuretic, for gravel and stoppage of the bowels, and for asthma.

29. The *Ao-Men-Chi-Lueh* 澳門記略 ways the Arabian ambergris is the best. The material on the Western markets comes from the Persian Gulf. The *K'un Yu T'u Chi* 坤輿圖記 says that it is obtainable chiefly from the Bay of Bengal and the Arabian Sea, either side of India.

30. The *Hai-Tung-Cha-Chi* 海東札記 refers this to the 海翁魚 *hai weng yu*, a fish weighing three to four thousand catties (4000 to 5330 lbs), which it says is the same as the 海鼠 *hai ch'iu*. These exact terms are not cited in modern literature but similar ones are to be found applying to large animals such as the sperm whale. Zoological Nomenclature, Commerical Press, Shanghai, 1924.

31. Ainslie writing upon Indian drugs in which ambergris is cited as an aphrodisiac, states that, "it seems a fact now generally understood that all ambergris is generated in the bowels of the whale.....the spermaceti whale".

Ainslie, W., Materia Medica of the Hindoos, London, 1826.

32. Mohammedan travellers of the 9th century record the finding of huge lumps of this material on the Islands of the Indian Archipelago, and say the best is of a whitish colour. Renaudot, E., Translation from the Arabic of, "Ancient accounts of India and China by two Mohammedan travellers, 9th century A.D.," London, 1733 A.D.

33. It is used today in the West in perfumery more for the purpose of fixing delicate floral odours than for any odour that it contributes to the mixture itself. In Western medicine it was formerly regarded as a cordial and antispasmodic like musk, useful in typhoid fever and various nervous diseases. U. S. Dispensatory and the Extra Pharmacopoeia.

103. 鯈. *TIAO.* WHALES. CETACEA.(1)(12)

Pen-Ts'ao Shih-Yi: Porter Smith p. 89 a kind of sea serpent, the name is singularly like the Greek name for a sea-monster: Encyclopedia Britannica V, 166-174, 14th edition: Roy Chapman Andrews,

Whale hunting with gun and camera, New York, 1916: Sowerby, Naturalist in Manchuria, Vol. II, chapter 8, "Whales and Dolphins", Tientsin, 1923: Watts, Dict. Econ. Prod. India, Vol, VI, 4,303: A half fabulous amphibian animal of Southern China, W.

Syn. 吉弔 *Chi Tiao*, PT, W: Korean, *Chyo*:

There was formerly no proper description of this animal. *Su Kung* records the fat, and says that they are born of dragons.

It is a kind of dragon(2) which produces a light labile oil. Apparently in transcribing the books about dragons various errors crept in, particularly concerning this one. The character *Tiao* was changed to 予 in the *Kwang-chou-chi*, and a mistake in reading the original words led to the false idea that it had a body like a turtle and a serpent's head, and that the fat was good for leech bites, but there is no foundation for the truth of such statements. The name of the semen is 紫稍花 *Tzu-Shao-Hua*, i.e. ambergris, (the uses of which are given in the appendix to the *Pen-Ts'ao*.)

Ch'en Tzu-Ming in his *Fu-Yen-Liang-Fang* says that *Tzu-Shao-Hua* is found in ponds and pools, the eggs of fish and shrimps which collect on the bamboos and trees. It is like granulated sugar in appearance. This description differs from *Sun Kuang-hsien's* who wrote that fishermen said that the Chi-Tiao is hatched from one of every two eggs laid by dragons, and that it goes about like the deer, producing an excretion which drops and dries out on the trees at the waters edge;(3) like the top of a bullrush, coloured dark-yellow or greyish, termed *Tzu-Shao-Hua* and used in making broths.

In *Li Shih-Chen's* time they used a greyish-white light brittle material as a domestic sexual tonic but he doubted if it was the genuine article. It was probably the same class of thing as ambergris.(4)

The older writers like *Ch'en Ts'ang-Ch'i* said that the *Tiao* occurred in Canton, serpent headed and with a body like a tortoise, residing in the water or on trees. The fat was exceedingly labile, able to seep through copper or pottery, but it could not filter through an egg shell. The part which could filter through was more limpid than ghee, and most effective for rubbing on septic sores.

Su Sung's record says that the oil came from Fukien and that it was exceedingly rare. It must be stored in a glass bottle kept in a camphor wood box, otherwise it sweats through the container & is lost.

弔脂. *Tiao Chih*. **CETACEUM. SPERMACETI.**(4)(5)

References. U. S. Dispensatory 1926, 21st edition, p. 319, preparation, properties and uses: Br. Pharmacop.: Tschirch II 882: Nadkarni, Indian Materia Medica, p. 1083:

Syn. 弔喬 Tiao Kao, PT: 吉弔脂 Chi Tiao Chih, PT: Modern term 鯨脂.

Poisonous.

Applied to scabies, pruritis, septic boils, cold sores, hemorrhoids and fistula, surface anesthesia, sprained ankle, fractures, internal injuries with areas of blood stasis, dropped into the ear for earache.

紫稍花. *Tzu Shao Hua*.(6) **AMBERGRIS.**(8) (A concretion from the sperm Whale.)

Read, B. E., Chinese Med. J. 1932. *46*. 478: Tschirch, A. Allegemeine Pharmacognosie, Leipzic 1932, II, 858: Many references under *Lung-yen* 102E: F. R. Morris, Sydney Technological Museum, 1929, Bulletin No. 15, "Ambergris and how to recognise it.": Watts, Dict. Econom. Products India, No. 956:

Syn. 弔精 Tiao Ching, PT. Dragon's Semen.(7)

Sweet, warming, nonpoisonous, in pill or a decoction.

Aphrodisiac to the male, curing sexual neurasthenia, impotency, spermatorrhoea, gonorrhoea, incontinence, wet eczema of the scrotum, given for lack of sexual desire in women.

If one is unable to secure this drug, the horsetail (equisetum) may be used in its place.(10)(11)

1. There is little in the text to indicate which family is meant. A number of whales occur in the China Seas and Rivers, one of the *Platanistidae*, *Lipotes vexillifer* occurs in Tung Ting lake, species of *Sotalia* occur in fresh water in China, and one of the dolphins *Neomeris* occurs up the Yangtse Kiang, hundreds of miles from the sea. E. B. The last mentioned has skin-tubercles and corresponds to the 海猪魚 *hai-weng-yu* or 海鰍 *hai-ch'iu* mentioned in the *Hai-tung-cha-chi* 海東札記, which is said to have nodules on the skin and to spurt out ambergris. *Fan-Hsien's* Formosan Record says that according to folklore ambergris is the semen of the 鰍 ch'iu, which floating on the surface of the water congeals. That obtained from non-saline waters is light yellow and never black. It is more probable that this monograph only refers to SPERM WHALES, PHYSETERIDAE, which occur in all tropical seas and yield spermaceti wax, and ambergris, the two products from this animal indicated below. With numerous other references, Read, China. Med. J. 1932, *46*. 478.

2. In Biblical literature the terms dragon and whale are alternate readings in various passages, see Psalm *74*. 13. In old English literature dragons of the deep refer to whales.

3. This suggests the musk droppings from the musk-deer which is also highly valued as a sexual stimulant.

4. Sperm whales (Physeter) occur in the North Pacific. Barratt-Hamilton, Proc. Zool. Soc. 1897, p. 267. Quoted from Sowerby.

According to Andrews the *Physeter macrocephalus* is taken at Aikawa, Japan; although it keeps to warm currents and is normally found in the Southern Seas. The old Chinese whaling expeditions in search of ambergris are well described in the appendix to the Pen T'sao.

5. Whale oil is produced by all Cetacea but the sperm oil of the sperm whales and beaked whales differs in constitution from the train oil or whale oil of other whales. The Chinese names *Tiao chih* and *Tiao kao* suggest *spermaceti*, the solid part that separates out of sperm oil, but its limpid character repeatedly emphasized leaves it rather in the category of whale oil including spermaceti.

6. Porter Smith's remarks are quite confused regarding this substance—"the egg of the dragon or a kind of sea serpent named 吉弔 *chi tiao*.....a similar substance to ambergris."

There is no basis for these ideas in the Chinese text.

7. Magnus also had the idea that ambergris (fragrant amber) was the semen of the whale, see Tschirch.

8. Ambergris is said to be a pathological product, supposed by some to be caused by indigestible portions of the Whale's food setting up irritation in the intestine (Morris). Cuttle fish are often found in it, and according to the Kwangtung T'ung Chih the flowers of the marine plant *Hibiscus mutabilis* drop into the sea and are eaten by the whales and subsequently cause them to vomit. We are inclined to group '*Lung yen*' as the first grade light yellow ambergris, and to define *Tzu-Sh'ao-hua*, as the dark or deep violet type possibly the feces of the whale. The Pen T'sao Appendix recognised three grades of Ambergris according to colour.

9. In India it is also regarded as aphrodisiac, see Watts.

10. This is hard to follow, and may mean that *equisetum* might be used to replace Hibiscus as an emetic for the whale.

11. "The genitalia of the whale" is included in the old pharmacopoeias of Ratisbonense and Taxe, Vienna and Wurtemburg, 1727 to 1798. Used as an aphrodisiac. Tschirch II. 846: This class of oil was listed in the Swedish Pharmacopoeia 1917:

12. The occurrence of whales off the Shantung coast has been the subject of recent comment in the China Journal, 1933, *19*, 268.

104. 蛟龍. *CHIAO LUNG.* CROCODILES. CROCODILUS POROSUS, Schneider(1)

Pen-T'sao Kang-Mu: ZN. 2616 syn. 鱷 *O:* A. A. Fauvel, J. N. China Roy. As. Soc., 1879, *13*, 8: Encycl. Brit. 14th edit. *6*. 734: Sowerby Naturalist's note book p. 61: W. 92: G1309: Schneider, Hist Amph. 1799, Vol. 2, p. 159: Fauna Brit. Ind. Rept. and Batrach. 1890, p. 4: Specimen in Shanghai Museum, A. Stanley, J. N. China Roy. As Soc. 1914, *45*, 21: Watts, Dict. Econ. Prod. India, II, 591: Gadow p. 458:

According to the *Shu-Yi-Chi* written by *Jen-Fang*, the *Chiao* is a kind of dragon, the eyebrows of which run together in a continuous growth (交生). Four kinds are cited, (1) those with scales are called 蛟龍 *Chiao Lung*, (ZN, 1782 *Mosasaurus*,) (2) winged species are 應龍 *Ying Lung*, (3) horned species are 虯龍 *Ch'iu Lung*, (4) without horns 螭龍 *Ch'in Lung*. The Sanscrit name is 宮哦羅 *Kung P'i Lo*. (ZN, 宮龍 Kung Lung = Naosaurus.)

In the *Kwang-Chou-Chi* by *P'ei-yuan* it says the crocodile is over 10 feet long, like a serpent with four feet, flat shaped like a shield; it has a small head and thin neck, the throat is tasselled; the check is vermilion red; on the back are numerous dark markings; the sides have an embroidered pattern; the tail is corrugated with fleshy rings. The large species have a girth several armslengths. The eggs are big.(2) It is a swift leader to all the other fish, but the presence of a turtle prevents this. The *Shih-Yi-Lu* of *Wang-Tze-min* states that in the Han dynasty the Emperor *Chao-ti* caught a white crocodile in the Wei river (tributary of the Yellow River in Shensi).(1) It was like a scaleless snake, the head had soft horns, and the teeth protruded from its mouth. He ordered the official caterer to pickle it for food, which was very tasty.(3) The bones were dark colored and the meat was purple. From which it is known that crocodiles are edible.

104B. 唇. *CH' UN.*

G, 656 *Ch'en*, a huge sea monster, sea-serpent, etc.

W, perhaps refers to the great *Chama*, or gigantic clam.

A kind of crocodile shaped like a huge serpent. Horned like a dragon, with a red mane. Below the middle of the back it has scales inversely arranged. It lives on swallows. It spurts forth clouds of vapour in huge rings. It appears when it is going to rain. The fat and wax is made into candles which have a fragrant smoke noticeable 100 steps away, and ascend in layers in the air. The *Yueh-Ling* says the pheasant metamorphoses into a *Ch'un* when it enters the water. *Lu-Tien* says that serpents and tortoises together produce tortoises but cohabitation of tortoises and pheasants produce *Ch'un*, although they are different animals they are moved by the same influences. Other records refer to its relationship to the clam.

精. *Ching.* **CROCODILE SEMEN.**

Poisonous.

In spring and summer crocodiles shed their semen on to *Ch'in Ts'ai*, celery like plants, which are then poisonous. The poisoning is treated by swallowing 2 to 3 catties of brown sugar and thus causing emesis.

髓. *Sui*. **CROCODILE MARROW.**(4)

For difficult childbirth, and applied to improve the complexion.

1. This is erroneously given by some writers as *Crocodilus vulgaris*, Cuv.. Sowerby says this species, the estuarine crocodile *C. porosus*, is found in the rivers of South China, its range extends from India to Australia. The Encyclopedia Britannica states that its extends from South China to Bengal. Earlier records note that it is accidental on the coasts of Hainan and Kwangtung. N. Gist Gee, Peking Nat. Hist. Bulletin, 1929-30, *4*, II, 56. This early Han record may refer to the crocodile or it may have been confused with the alligators found in Chinese rivers. Sowerby says that it is probable that in ancient times crocodilians were more widely distributed in the Yangtse basin than today. Williams says it has been nearly driven out of South China into Siam, and is now regarded as mythical, by the Chinese.

2. In the Revised Version of the Old Testament the alternative reading of crocodiles is suggested in the margin for the Authorised Version reading 'dragon', though in most instances jackals are substituted. Giles translates it as a scaly dragon.

3. The Severance collection included some 鮫龍卵 *Chiao-lung-luan*, *Eggs*, identified as Lizard's roe, *Takydromus septentrionalis*, Gunther. Origin not stated. This material apparently is limited to use in Korea. True crocodiles' eggs of the *C. porosus* are well illustrated in the Encyclop. Britannica.

4. Crocodile fat was used in the 13th century for crocodile bite and fever; the Ebers Papyrus, BC. 1600 quotes it as a hair tonic. It was also used for earache and nerve and muscle pain. Tschirch II 841. In India the flesh is said to be used medicinally, Watts.

5. Crocodile flesh in Indian medicine is considered sweet and soothing, cooling, strengthening, vitalizing, increases faecal refuse, checks *Vayu* and *Pitta*. Nadkarni, Indian Materia Medica, p. 1074 :

105. 鼉龍. *T'O LUNG*. ALLIGATORS. ALLIGATOR SINENSIS, Fauvel(1)

Shen-Nung Pen-Ts'ao 2nd class: A.A. Fauvel, J.N. China Roy. Asiat. Soc., 1879, *13*, 1-36: Stanley, ibid, 1914, *45*, 21, (2): Encyclopedia Britannica, 14th. edit. *6*, 734: Sowerby, Naturalist's note book in China, Chap. IX, 1925, Shanghai: N. Gist Gee, Peking Nat. Hist. Bull. 1929-30, 4, II, 56: W. 802: G, 7479 – the gavial (3): Bull. Amer. Mus. Nat. Hist. 1927, *54*, 476: Couling p. 479: Gadow p. 471:

Syn. 鮫魚 *T'o Yu*, PT: 土龍 *T'u Lung*, PT; Po Wu Chih: 鼉婆龍 Chu P'o Lung, ZN: 鼉 T'o, ZN :

The skins were used in olden times for drums, see the *Shih Ching* and *Li Chi*, (Fauvel, q. v.)

Ch'en Ts'ang Ch'i states that it is shaped like a dragon, making a fearful noise, it grows up to ten feet long (4), it can give out clouds which descend like rain. Although *Shen-Nung's Pen-Ts'ao* called it a 鮫 *T'o*, it is a dragon and the fish radical should be omitted.

The character is a pictogram of the head, belly, feet and tail. The scales were listed in the *Pieh Lu* and were said to come from the seas and waterways of the south (5), at all times of the year. *T'ao Hung-Ching* said the skins were used for covering drums. An animal very hard to kill. Quite a long time after boiling water has been poured down its throat, it dies and is skinned.

It is a sleepy animal, lying about with its eyes constantly closed. Exceedingly strong and fierce. It can break down the banks of rivers. People dig it out of its hole. In the time of *Su Sung* they were exceedingly common. They are shaped like a lizard or a pangolin. Ten to twenty feet long (4) with scales on the back and tail. It makes a great noise at night and is feared by boatmen.

Alligator holes are exceedingly deep. Fishermen take a line made of pigs bristles and bait it. They wait until it has swallowed the hook and gradually draw it out. It can fly sideways but not upwards. It makes a noise like a drum and sounds the watches in the night. The natives foretell rain by its call. The skeleton of the head is cleaner and more shiny than that of a fish. It lays many eggs up to one hundred in number, which it eats itself. Southerners prize its flesh which they use for wedding presents. *Lu-Tien* said that the alligator resembled twelve other animals; the scales in the tail are like a snake's and are most poisonous.

鼉甲. *T'o Chia*. **ALLIGATOR SCALES.** Cooked in butter or wine.

Acid, slightly warming, poisonous.

Used with Szechuan lacquer. Incompatible with dog's gall, *Euphorbia sieboldiana* and *Daphne genkwa*.

For stoppage of the bowels, for pain in the lower abdomen in women, for menorrhagia; for scabies, necrotic sores, and boils. For hypersecretion from the eyes and nose with periodic fits of nervousness. For lumbago. For children with apnoea & constant lachrymation. For pyorrhoea and toothache. Anthelmintic. For scrophula, hemorrhoids, rheumatism, and the itch.

肉. *Jou*. **ALLIGATOR FLESH.** (6)

Sweet but slightly poisonous. (The saliva is poisonous)

For asthmatic spasms with collapse, edemas, for all kinds of intestinal parasites, stoppage of the bowels, and toxic boils. While it is a vitalizing remedy, it is not a good food for it will cause chronic complaints to break out afresh.

脂. *Chih.* **ALLIGATOR FAT.**

Applied to cold sores and toxic boils.

肝. *Kan.* **ALLIGATOR LIVER.**

One whole organ cooked with leeks is given for the five kinds of infections spread from corpses.

(1) The Zoological Dictionary p. 2618 lists it without identity next to the Alligator mississipiensis 短吻鱷 *Tuan-wen-e*, which is similarly divided in the nasal bones by a nasal aperture. The Zool. Dict. p. 2620 gives the Chinese name for *A. sinensis* as 揚子鱷 *yang-tse-e*, about six feet long, used in medicine as a digestive, and as a heart medicine.

(2) Stanley says that the first intimation of its existence in the Yangtse River was made by Swinhoe in 1870. Described nine years later by Fauvel as *A. sinensis*. According to Boulenger it is a near ally of *A. mississippiensis*. A torpid creature on the way to extinction, it is the last living reminder of the former periarctic distribution of the order.

(3) The gavial is listed in the Zoological Dictionary as 長吻鱷 *ch'ang-wen-e*.

(4) The length of the largest in the Shanghai Museum is 5 to 8 inches, Stanley. Sowerby says the largest recently caught was about six feet long, but usually the specimens that make their appearance in these parts are only three to four feet. *Su Sung's* record of the Sung dynasty making them ten to twenty feet long may be lack of proper measurement at the time, or it may be in accord with Sowerby's idea that the present alligator represents the last of a once numerous group of reptiles in Asia.

(5) According to Sowerby it occurs in certain swamps of the Lower Yangtse, and possibly in most of the large lakes. Said to be quite common in the Wuhu district, where Clifford Pope secured nineteen specimens.

(6) Fauvel says the skin with the head attached was common as a medicine at Wuhu, Chinkiang.

106. 鯪鯉. *LING LI.* PANGOLIN. (SCALY ANT EATER) MANIS DALMANNI, Sun. And M. AURITA, Hodgson. (1) (2)

Pieh-Lu 3rd group: ZN, 2376: Porter Smith, p. 166: G, 7236: W 530: SC, M. tetradactyla: Williams, China Repository VII. 44: Sowerby, Naturalists note book, chap. VII; China J. 1930, p. 338: 1925, *3*, 151 R. I. Pocock, Proc. Zool. Soc. London 1924, p. 707; ibid 1929: Watson p. 455: Kubota, a popular Japanese medicine: Hooper, Gardener's Bulletin, Strait Settlements, 1929, *6*, 1-163: Couling p. 29-Swinhoe. Proc. Zool. Soc. 1870, pp. 236, 650: Hubotter 134: Perrot p. 61:

Syn. 龍鯉 Lung Li, PT: 穿山甲 Ch'uan Shan Chia, PT: 石鮧魚 Shih Ling Yü, PT: Fukien name, *La Li*, Sowerby:

It is shaped like a carp (3) and lives in burrows at the tops of hills, hence the name *Ling Li*. The *Lin-Hai-Chi* says that its scales are triangular spines like the water calthrop, "*Ling Li*", hence the name *Shih Ling*.

In *Su Sung's* time they were obtained from Hupeh, Hunan, Kwangsi and Kwangtung. All of the deep mountain ranges of southern Canton had them.

Shaped like a small alligator, (5) with a back like a very broad carp, head like a toothless rat, the belly is hairy without scales, tongue long in a tapered snout, the tail is as long as the body, the scales on the tail are thick and triangular in shape, the viscera are complete but the stomach is unusually large, the tongue is constantly protruding to induce ants to feed on it, later if the stomach be cut open the debris of the ants may be found therein.

T'ao Hung-Ching adds further that it has four feet, it is black, it can live both on land and in the water. At midday it comes out on the river bank and lies as if dead with its scales open, for the ants to settle upon it. It closes its scales and enters the water when the ants float to the surface and are gobbled up.

106A. 甲. *CHIA.* SCALES OF THE PANGOLIN. (6) (7)

Porter-Smith p. 166: Watson p.455: Kubota p. 96: Hooper, No. 429: Braun p. 2, 甲片 chia p'ien: Perrot p. 61:

Those from the tail are most potent. Roasted, ashed, cooked in oil, butter, vinegar, boys urine, or roasted with earth or oyster shells according to the prescription. Never eaten fresh.

Saline, slightly warming and poisonous.

For excessive nervousness and hysterical crying in children. For nervous prostration from grief. For women possessed by devils and ogres (hysteria and madness?). Given with aconite and oyster shells for paralysis of the hands or feet; scales from the right side of the animal are given for affections on the left side of the body and vice versa. For malaria fever. For bloody dysentery. Charred and given with powdered nutmegs for hemorrhoids. For fistula. For painful vagina with hard swollen labia. In powder form one teaspoonful of the charred material is given as a galactogogue, and for breast abscess. Given with *Akebia* for sore breasts. With oyster shells, musk and wine for black smallpox. Roasted in rice husks and subsequently powdered given with a trace of musk in doses of about 10 grams for newly formed toxic swellings, and with *Fritillaria* for toxic boils. For chancre and infectious sores on the penis.

21 scales burnt and powdered are applied to scrophula. Scales from the shoulder region are similarly prepared and applied to eczema of the eyebrows. The powder is mixed with water and introduced into the ear to remove ants, for ears running with pus, and for earache. The ash of one big piece is mixed with oyster shell, seven scorpions tails, a little musk, linseed oil and wax to form a small rod which is wrapped in cotton and rammed in the ear for ringing sounds and deafness due to sexual weakness. The scale is powdered and made into a spill with ordinary white paper and burnt; the fumes are used to treat conjunctivitis. For 2 months the powdered ash blown into the nose while the patient holds water in the mouth is used to cure eyelashes which curve inwards. For scabies. Expectorant and anthelmintic.

106B. 肉. *JOU.* FLESH OF THE PANGOLIN. (5)

Sweet, astringent, warming, poisonous.

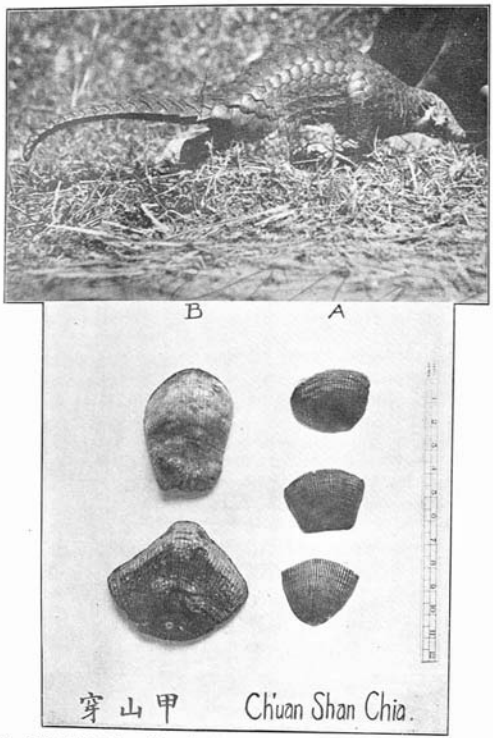
When eaten by rheumatic subjects a few bites will immediately accentuate their trouble and cripple the four extremities. (This is said to apply to subjects of 風 Feng diseases, which might include anything from insanity to leprosy, the more limited interpretation seems more reasonable). Sufferers from "wind" diseases have poor circulation, pangolin meat is a strong circulatory stimulant and causes marked disturbance in the system. It is so unpalatable that it is not usually eaten. (A comparison of the ideas associated with wind diseases and the old humeral theories, especially the neighbouring Ayurvedic system with its interpretations of nerve force &c., suggests that this word might cover all those factors which influence both the peripheral and central nervous systems. In this case particularly stasis of the circulation and lack of oxygenation of the tissues.)

1. Porter-Smith gives Manis javanica, L. This species is found in Java and Malay, and is more than two feet long. The Chinese pangolin is often referred to the *M. pentadactyla*, L., but this species is only found in India and Ceylon. However as far as the material on the market is concerned Hooper says much is collected in the Malay States for export to China, in which case the scales should be larger.

2. The chief difference between these two species is that the latter has 16 and the former 19 keeled scales along the border of the tail. Sowerby.

3. The supposed metamorphosis of the carp into the dragon when it attains the upper reaches of the Yangtse River is part of the folklore which links up this class of animals. Williams.

4. Porter Smith gives Hupeh, Kiangnan and the Southern provinces. Sowerby states they range as from Chekiang (possibly Southern Kiangsu), through Southern Kiangsi, Southern Anhui, Fukien, Kwangtung, Southern Hunan, Kwangsi, and Yunnan into Indo-China. It may also occur in Kweichow and Southern Szechuan. Pope found them extremely common in Hainan. Kubot



106. Chinese Pangolin. (Reproduced by kind permission of Mr. Arthur de C. Sowerby from the China Journal)
A. The dry scales. B. Prepared by boiling in boy's urine.
Specimens from Shanghai Drug Stores.

gives Yunnan as the place of origin. Hosie states that one frequently meets loads of the dried scaly skins being carried north into Szechuan from Yunnan. The East coast obtains its supplies from Canton. Braun gives Hupeh and Kiangnan, Tls. 80 a picul.

5. Sowerby gives a good modern description, see figure. His specimens reached a maximum of four feet long, of which over one third is taken up by the tail. Its flesh is said to be very good eating. The medicine shops will pay up to $8.00 for a specimen. The Japanese use it as a galactogogue.

6. Those of the tail are considered the finest. Brown semitransparent scales, roughly triangular, concavoconvex, marked at the attached end with fine grooves like a bivalve shell. Nowadays principally used for scratching itching surfaces, for which purpose they are fixed on a length of bamboo as a kind of curry-comb. Porter Smith.

7. Watson says the entire skin with scales attached is sometimes found in Chinese commerce, but as a rule the scales are sold detached from the skin. All of the shops and markets visited had the detached scales, usually in the dry natural state, some places had them as prepared by boiling in boy's urine, the boiling making them swell to nearly twice their original size, light in texture like an arabella coloured driedout fungus, measuring up to 60 by 50 millimetres and weighing up to 3 grams. The original scales are thin horny plates, shaped and marked with grooves like a flat triangular bivalve shell; they vary in size up to about 40 by 30 millimeters (1 3/5 by 1 1/5 inches), some are squat 30 by 34 millimeters, others are more acute 35 by 27 mm., with an average weight of about one gram (0.65 to 1.42 grams). See figure. The under surface has a rough line marking the place of attachment to the skin. We have never seen these scales used in the north for making curry combs. Watson says they are used chiefly in the treatment of venereal diseases, the above text indicates a much wider therapeutic interest. In Annam they are used for various skin diseases, hemorrhoids &c. Annamese name, Vày-con-tê-tê.

107. 石龍子. *SHIH LUNG TZU.* LIZARDS. THE SAURIA. (Scincidae)[1]

Shen-Nung 2nd group: ZN, 327: CP, chameleon see No. 108 A: VM, a lizard: G, 9964: Pliny XXX. 18-40: Sowerby, IV pp. 7-11; Notebook chap. VIII: Stanley, N. China Roy. Asia. Soc. 1914, *45*, 21: Gee, Peking Nat. Hist. Bull. 1929 *4*. II. 57: Encyclop. Br. XIV. 244: Bull. 58 U. S. Nat. Mus. 1907: Bull. Am. Mus. Nat. Hist. 1929, *58*, 384: Watts, Econ. Prod. India VI, 1, 430: W. 926: Couling p. 479:

Syn. 山龍子 Shan Lung Tzu, PT: 泉龍 Ch'uan Lung, PT: 石蜴 Shih Yi, PT, G 5500: 蜥蜴 Hsi Yi, PT, G 4047, ZN 347: 竈壕蛇 Chu P'o She, PT; W 396: 守宮 Shou Kung, PT. see No. 108;

Korean name, *Suk ryong cha*: Canton 狗蛆蛇 *Kou Tsu She* W. 296:

It is called a "dragon's offspring" because it lives in hill valleys, can spit out hail stones, and is used to petition rain. *Lu Tien* explained the 'Yi' as meaning an animal easily changed (chameleon-like) according to environmental influences. *Hsu-Shen* (Shuo Wen) says that the character is a pictogram.

Li Shih-Chen in commenting on the confused state of the earlier literature says there are distinct groups (2):—

107a. 石龍. *SHIH LUNG or SHAN LUNG.* (Rocky dragons.) **SCINCIDAE,** Skinks. (4)

Sowerby IV. p. 7; Notebook p. 48: ZN 347: Gee, Peking Nat. Hist. Bull. 1929. 4. II. 62: Stanley p. 23: Cat. Liz. Br. Museum 1887, 3, 371:

This is the *Hsi Yi*, or *Chu P'o She*. Found in rocky hills.

Like a four-footed snake, with a flat head and long tail. The body is thin, 7 to 8 inches long. There is a large kind, one to two feet long, which has fine scales with a blue-green metallic lustre; the male is 5 coloured and is the best kind for making medicine.

108b. 蛇醫. *SHE YI* (The snake doctor) **LACERTIDAE.**(4)

ZN, 1320: Sowerby IV p. 9: Gee p 60: Stanley No. 10:

Syn. 蛇師 *She Shih*, 鳥兒 *Chiu Mu*, 水蜴蜥 *Shui Hsi Yi*, 螳螂 *Jung Yuan*, also colloquially known as *Chu P'o She*, because when serpents are wounded it drops into the grass and applies herbs to the wound. They are found in marshy grasslands. It can interbreed with fish hence the various names. It is shaped just like a lizard but the head is large, the tail is short (1), and the body is thick, and it is greenish yellow, sometimes striped white. It is not used in medicine.

107c. 蜓蜒. *YEN T'ING*, Geckos. **GEKKONIDAE.** (See No. 108) or 守宮 *SHOU KUNG*. ZN, 382. Sowerby IV, p. 8:

Like group 107b, but it is small and short, and of a greyish brown coloru. It does not sting people. It is found in peoples houses.

According to the *Yi-Chien-Chih*, *Liu Chu-Chung* saw a hundred large lizards in the hills, three to four feet long, as glossy as fat, they spat out hailstones as large as marbles and after awhile there was a thunderstorm with wind, rain and hail.

The *Shen-Nung Pen-Ts'ao* used the name *Shih Lung*, which later doctors called *Hsi Yi*, they are both the same thing, but later *Su Kung* used the *She Yi* in medicine which was an entire change in the practice. Worse still the geomancers used the *Shou Kung* for obtaining rain instead of the *Hsi Yi*.

The *Pieh-Lu* indicates that the lizard is collected at P'ing-Yang-Fu (Shansi) and Chingchow (Hupeh) in the month of June, and dried out on the stones. *Pao-Sheng* stated that they were collected in April, May, September and October, and were smoke-dried after the entrails had been removed.

Saline, cooling, slightly poisonous.

Its action is antagonised by sulphur, elm bark or cantharides.

For anuria, hematuria, stone in the bladder, gravel, and strangury. For edema. It should not be taken by pregnant women. For all kinds of fistula. (5)

肝. *Kan.* **LIVER OF THE LIZARD.** (6)

Mixed with cicada skin and alcohol and rubbed on the navel it produces abortion.

(1) The Zoological Dictionary (Chinese-English) lists these as *Eumeces quinquelineatus* and *E. latiscutatus*, Hallowell. As Li Shih-chen points out in the text this name *Shih lung tze* is not specific nor even generic, it refers to the large class of lizards, a cosmopolitan group of which about 2500 species are known in the world, but which by subdivision and elimination reduces this class for practical purposes in Chinese medicine to the very common genus *Eumeces*, of which Sowerby says the commonest form is *E. elegans* which extends from Fukien to Central China. Von Mollendorf's identification *Phrynocephalus caudivolvulus* is certainly incorrect, which more likely refers to *Ke chieh*, No. 109. Williams says this is a species of lizard like the *Lacertes muralis*.

(2) Sowerby gives the distinctive points of these three families of lizards, which were so confused in old Chinese literature. The Lacertidae have long tails and there are other wrong details in the text, but Li Shih-chen clearly recognised the three main divisions of this class, of which the first only is intended here, the Lacertidae not being used in medicine, and the Gekkos are dealt with under the next heading, 108.

(3) Gee lists 33 skinks of which the only one from Hupeh is *Eumeces elegans*, Boulenger. However, large and small kinds are mentioned, and Shansi is not referred to by Gee or Stanley, as the habitat of that genus, so probably other genera in this family are included.

(4) According to Gee the true lizards have 13 species in China of *Takydromus* and *Eremias*, of which the most widely spread is *T. septentrionalis*, Gunther, the common long-tailed lizard which ranges north from Fukien throughout East China and west to Shansi, Szechuan and Kansu.

(5) The flesh of several species of lizards in India is recommended as a domestic medicine. It is credited with tonic, stimulant and alterative properties, and is particularly useful in syphilis. Watts, p. 430: The ash of lizard's skins was applied to wounds. Tschirch II. 837.

(6) Lizard's liver was used by Dioscorides and Galen. Tschirch II 830.

108. 守宮. *SHOU KUNG.* **THE GECKOS. GECKONIDAE.** (1)

Pen-Ts'ao Kang-Mu: ZN, 383: VM, *Gecko Japonicus*, C & B.; SC. Korean name, *Sookoong*, *Eun Chung:* G, 10012, it also means a eunuch: Stejneger, Proc. U. S. Nation. Mus. 1932. Vol 82, No. 2943; also 1907. *58*. 166: Gunther, Reptiles Br. India 1864, p. 104, pl. XII fig A: Stanley, J. N. China R. Asiat. Soc. 1914. *45*. 21: Sowerby IV, 7-9, notebook p. 45: W 484: Gee, Peking Nat. Hist. Bull. 1929, *4*, II, 57: Pope, Bull. Am. Mus. Nat. Hist. 1929, *58*, 365: Watts, Econ. Prod. India VI, 1, 434: Kubota, Japanese Domestic Medicine: Gadow p. 506: Perrot p. 63:

Syn. 壁宮 Pi Kung, PT: 壁虎 Pi Hu, PT: 蠏虎 Hsieh Hu, (2) PT: 蠏蝝 Yen T'ien (T'ing) PT:

It loves to crawl on fences and walls. It is fed cinnabar until 3 catties have been consumed, when it is killed, dried and powdered, then it is used for painting on the legs of young virgins (some books say it is tattooed), defloration removes the colour otherwise it remains on the skin as a mark of virginity. This is the explanation given by *T'ao Hung-Ching* for the name *Shou-Kung*, meaning guardian of the chamber. The gecko is good for catching flies and scorpions, hence it is called the scorpion-tiger, *Hsieh Hu*. The statements of *Huai Nan Tzu* and others that it is tattooed on the arms is incorrect, there are other methods now, this one being lost. In *Su Kung's* time this practice was not in vogue, he denies its existence and says the name *Hhou-Hung* comes from the constant occurrence of the gecko in people's rooms protecting them from scorpions &c.

The gecko in China is said to be found everywhere on the walls and fences of peoples houses. Shaped like a 蛇蜴 She Yi, greyish black in colour, with a flat head, long neck, fine scales, and four feet. It is six to seven inches long, (2) and is said not to bite people. In the south there is a 5 coloured, species, like the chameleon.

108. A. 十二時蟲. *SHIH ERH SHIH CH'UNG.* **CALOTES ALTICRISTATUS,** Schmidt. (3) (5) (7)

Gee, Peking Nat. Hist. Bull. 1929, *4*, II, 59: ZN, 2215: Pliny, Natural History XXVII. 29: Galen q.v.: Encylc. Brit. *10*. 247: Gadow p. 518: Couling p. 479:

Syn. 避役 Pi Yi, ZN: 五色守宮 Wu Se Shou Kung, PT, ZN: 變色龍 Pien Se Lung, PT, ZN:

It occurs at Jungchow and Chiaochow (Yunnan) in people's houses and on trees and logs. It is a kind of lizard, fingershaped, with a fleshy comb extending from the head down the back. Long neck and legs. The body is a dark green

color. The large ones are about a foot long with the tail as long as the body. If they bite a person there is no cure. The Lingnan *Yi-Wu-Chih* says that the head according to the hour of the day changes its colour. It is very lucky to see one. The *Po-Wu-Chih* says the genitalia are a light yellow green colour. It changes colour at midday, either dark green, green, vermilion, or red. The *Pei Hu Lu* says that it cannot turn into 12 different colours, only the four colours yellow, brown, dark green, and vermilion are possible. It is certainly not an ordinary lizard for its bite is fatal and its pigments are used for tattooing on girls arms.

Saline, cooling and slightly poisonous.

For paralysis of the hands and feet, rheumatism of the joints, convulsions, chronic diarrhoea in children, blood stasis, scrophula, and scorpion stings. For abdominal colds in children, tetanus, excessive nervousness, cold sores, opisthotonic convulsions and lockjaw. For indigestion and wind. (4)

糞. *Fen.* **EXCRETA OF THE GECKO.**

For conjunctivitis.

(1) Gee lists sixteen geckos in China, of which eight belong to the genus *Gekko*. The north China species is *G. swinhonis*, Gunther, which Stejneger says occupies the country north of Chefoo, Sowerby says Peking and from thence into the interior of North China. The coastal form is *G. japonicus* D & B, from Kiangsu to Kwangtung, a third form from Szechuan, Chekiang and Fukien is *G. subpalmatus*, Gunther. The others appear less common.

(2) Sowerby says Swinhoe's gekko is five inches long including the tail, and that the Chinese always express fear of its poisonous character, the name might have a wider significance than here indicated. Specimens on the Shanghai drug market have an average length of five inches, including the tail which is two inches long. They weigh about three grams. See figure.

(3) The ordinary chameleon is not listed in China by any of the above authors. The geographical range of this group is limited to the whole of Africa and Madagascar, Arabia, Southern India and Ceylon. This lizard as a native of Yunnan may be connected with the fauna of India, or it may be one of the other numerous lizards to be found in that province, such as the Calotes, though the Zoological Dictionary calls this the *Chameleon vulgaris*.

(4) Galen used them for toothache and killing mice, see Kühn's Claudii Galeni Opera Omnia, Leipzig, 1821-33, XIV. 427: Hindu doctors consider the gecko good for leprosy. Watts.

(5) Hubotter p. 133 translates chameleon as *hai-ma* 海馬

(6) In Annam it is used for hemoptysis, asthma, phthisis &c. Perrot p. 63.

(7) The *Calotes versicolor* occurs in South China. Gadow, Stanley.

109. 蛤蚧. *KÉ CHIEH.* TOAD-HEADED LIZARD. PHRYNOCEPHALUS FRONTALIS (1), STRAUCH.

Sung K'ai-Pao Pen-Ts'ao: ZN, 497: W; G, 1526 a red spotted lizard: Korean name *Hap Kai* SC: Kubota p. 97: Gadow p. 522: Boring p. 53: Gee Peking Nat. Hist. p. 60: Sowerby, Notebook p. 47 figure
Syn. 蛤解 Kê Hsieh, PT: 僊蝘 Hsien Ch'an, PT:

The name *Ke Chieh* is phonogrammatic. *Hsien Ch'an* the fairy toad, refers to its toadlike appearance. The Cantonese name for a frog is *Ke* 蛤, because this animal has a toad or froglike head. *Lei Hsiao* said *Ke* refers to the male, and *Chieh* to the female. They always call out their own names.

It is found in the hill valleys of Kwangtung on the city walls, and in the big trees. It is shaped like a large lizard (2) with a body four to five inches long and a tail of equal length, of which it is particularly proud, so much so that when it spies a man hunting for it, it will bite off its tail and run away. The therapeutic virtue resides in the tail, which must be complete for it to be effective. In the *Yang-Hsiung-Fang-Yen* it says there are lizard-like animals, called *Ke Chieh*, in the cinnamon forests which can sing.

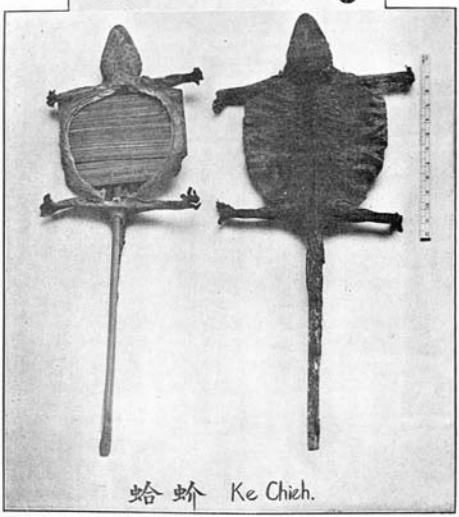
Li Shih-Chen's description is taken from *Tuan Kung-Lu's Pei-Hu-Lu* which says it has a head like a toad, green backed with yellow spots like old embroidery, about a foot long, and short-tailed. It has a very loud voice, and lives chiefly in the hollows of trees, and is a kind of lizard. *Ku-Chieh's Hai-Ch'a-Lu* says that they are very plentiful in Kwanghsi at Hengchow, where they are found on the trees one mate calling to the other up and down the tree trunks. After two or three days courtship they mate in close embrace falling to the ground unconscious even of capture, and even when torn to death they are inseparable. They are bound up with vines, steamed, sundried and sold for the preparation of very effective aphrodisiac remedies. For veterinary purposes or for unimportant uses the mixed material is prepared, but *Su Sung* definitely directed that men should use the male animals and women the female.

According to the *Ling-Piao-Lu-Yi*, it not only had a frog-shaped head, it also had fine scales on its back like silkworm eggs, a yellow earth colour. (3) The body was short, tail long, found chiefly in the bastard banyan trees or in the city gate towers in pairs. They call once in the morning and once at night, other reports say they only call once in a year. The natives who sell them recommend them for lung diseases.

Li Hsun's record states that this lizard is found in the south of Canton, in watery places; it resides in the bastard banyan trees at night. They always travel in pairs, so that if one is found there is always another to be caught. In his time

守宮 Shou Kung.

108. Geckos. Shanghai Drug Stores.



蛤蚧 Ke Chieh.

109. Toad-headed Lizards. Shanghai Drug Stores.

they also occurred in Kwanghsi, where the species is small but they are equally effective. The natives catch them, split up their bellies, stretch them open with bamboo and dry them in the sun for sale.

Su Sung noted that if one wished to secure whole specimens, a 2 pronged iron fork should be used to spear them through the head and tail at one blow so as to prevent them biting off their tails. Men use the male animals and women take the females as medicine.

The eyes contain poison, so they should be removed, also the hair from the scales, tail, and belly, then after steeping the specimens in alcohol, they are taken out, wrapped in two thicknesses of paper, and dried in a warm place. Placed in a porcelain pot and hung in the east corner of the room, after one night the potency is increased tenfold, but one must be careful not to injure the tail.

The *Jih-Hua* says the head and feet should be removed, and the dirt thoroughly washed from the scales and mane. It is then cooked in butter or honey till it is a crisp brown, and powdered. A little of the genuine article held in the mouth while one runs very fast will prevent any sign of breathlessness. It is made up into pills and powders.

Saline, bland, slightly poisonous.

Given for chronic cough, phthisis, and to dispel all evil influences of supernatural origin. A diuretic. For stone in the bladder and gravel. For amenorrhoea, hemoptysis, and dyspnoea. For fractures. A respiratory stimulant, good for asthma and a cough-sedative. Aphrodisiac. For diabetes.

(1) The toad-headed lizard (*Phrynocephalus frontalis*) occurs in North China and Mongolia. Sowerby, Naturalist in Manch. IV, 11. The three species of toad-headed lizards listed by Gee are all from the extreme North. Kubota calls this "Giant lizard", and refers it to *Phrynocephalus frontalis* from the 國本, as bought at Ch'i Chow in the Hopei market. The Zoological Dictionary calls this the *Phrynosoma cornuta* (horned toad) which does not correspond with the Pen T'sao description.

(2) This is a common article on the Chinese market, measuring up to 1 foot in length including the tail which may be fully six inches long. In smaller specimens the tail is about 3 inches and the whole length over eight inches. The big thick head measures nearly two inches long and one and a quarter inches broad. The legs are 1½ to 1¾ inches long. The back is studded in regular rows from the head to the tail. The greyish black skin is marked with rusty brown spots particularly clear on the lighter under-part of the body. When detached from the wooden sticks over which it is stretched to dry, it weighs ½ to 1 ounce. See figure.

(3) The *Phrynocephalus frontalis* is described by Sowerby: —Sandy colou with mottlings of grey or dusky on the back, and a bright mauve patch on the sid of the body just behind the fore limb. Notebook p. 48. Gee. p. 60, lists two othe species from the Ordos & Mongolia; Proc. U.S. Nat. Mus. 1925 *66*, 43-44 *P. Potanini*, Bedriaga.

110. 蠪龍. *YEN LUNG.* **MONITOR. VARANUS SALVATOR,** Laurenti

Pen-Ts'ao Kang-Mu: Gee, Peking Nat. Hist. Bull. 1929, *4*, II, 60:

In Ho-Yuan's Ch'un-Chu-Chi-Wen there is mention of the "*Yen Lung*" captured by the military general *Hsiao-Chu* who conquered the southern borderlan tribes in the reign of *Hui Tsung*, of the Sung dynasty. These animals were ove a foot long, which when put in a silver dish with a jade drinking cup and fe seasalt with a pair of jade chopsticks, from each scale there was a salty exuda tion(1) which people collected and used as an aphrodisiac.(2) One drachm wa taken with warm wine.

Later on *Ts'ai-Ching* found one, which died and was salted for some days and was found to be still quite potent. *Li Shih-Chen* found that it was not nativ to China and even as brought in by southern tribes it was quite rare.

(1) The scales of lizards are sometimes underlaid by bony plates, and th horny outer scales are shed piecemeal at irregular intervals.

(2) The monitor is recommended by the Vytians as a strengthenin medicine. Watts. The aphrodisiac properties of lizards were extensively believe in by ancient people, see references by Tschirch.

鱗之二 SECOND GROUP OF SCALY ANIMALS.

蛇類 THE SNAKES. SEVENTEEN KINDS.

111. 蛇蛻. *SHE T'O.* **THE SLOUGH OF A SNAKE. PELLIS SERPENTIS.**(1) (She T'ui)

Shen-Nung's Pen-Ts'ao, third group: G. 11377: W: SC, Korean name *Se T'wai*: Porter-Smith p. 204-states they are of many sources: Tschirch II, 851: Hooper No. 430: Kubota p. 97: Braun p. 36: Perrot p. 60:

Syn. 蛇皮 She P'i, PT: 蛇殼 She Ch'ueh, PT: 龍隱 Lung T'ui, PT: 龍子衣 Lung Tzu Yi, PT: 龍子皮 Lung Tzu P'i, PT: 弓皮 Kung P'i, PT: 蛇符 She Fu, PT: 蛇筋 She Chin, PT:

The orginal character for a snake was a pictogram of its contorted body. The specific character *T'o* has the same meaning as the ordinary word for shedding or sloughing off a body. The various synonyms are fanciful expressions of the same ideas associated with the shape of the snake or its slough.

In the time of the *Pieh Lu* the best were collected in the mountain valleys and grasslands of Chingchou in Hupeh on the 5th and 15th of the fifth month. *T'ao Hung-Ching* found that very few sloughs of vipers could be collected in the fields, there are simply the long specimens of red snakes and cobras which are hard to identify, so only those complete ones found on stones were considered good. *Su-Sung* said that snakes shed their skins at no particular season, whenever they became dirty or if they had overeaten, and that in the south they were found on trees, stones or in private dwellings. *Lei-Hsiao* said that green, yellow and brown skins should not be used, only white silvery looking ones were good, which should be put in a pit one foot two inches deep for one night. They were then steeped in vinegar and subsequently taken out and heated to dryness and used. In *Li Shih-Chen's* time they were always washed with soap-bean water, and then twined on a bamboo stick, steeped in wine, vinegar or honey, and then roasted till yellow, or charred, or packed in salt or earth and roasted.

Saline, bland, nonpoisonous. The best is made by prolonged fire-drying. *Chen-Ch'uan* states they are poisonous. (Many spurious specimens are certainly likely to be so.) Incompatible with magnetite and alcohol. Not to be taken during pregnancy.

Given for the 120 different kinds of convulsions in children. For insanity, epilepsy, feverish colds, rectal fistula and worm toxemia. For delirium and devil possession. To cure vomiting, to clarify the vision. Ashed it is applied to all kinds of toxic boils. For nervousness in children, swollen sores, difficult labour, and as a foetal sedative. For malaria. Anthelmintic. For tonsilitis and throat

affections in children, for inflamed breast, swelling of the tongue and gums in children. For hematemesis in children. Diuretic. For transverse presentation and abnormal conditions at childbirth. For hard nonsuppurating boils. For suppurating boils, corneal ulcers, suppurating fistulas and sudden earache &c (2)(3).

(1) There is a difference between the shed skin, the slough of the snake, and the article skinned from the animal, which Hooper does not make clear in his notes upon Chinese drugs in Malay. The slough is a keratinous dry wrapper free from all ordinary muscle tissue and is semitransparent, the skins of the *Ch'i she* & others which are scraped have the original markings with a much denser texture.

(2) Dioscorides cooked them in wine and used them for earache, and bad teeth, also as an eye medicine. Galen used them cooked in vinegar for toothache. Mansur muwaffak (10th century) used them for painful hemorrhoids. Avicenna applied the ash for baldness. Schroder (Frankfurt 1718) records the use of the powder or the ash for falling hair and for skin eruptions: For epilepsy, Tschirch:

(3) A general note on Western mythology with regard to Snakes would apply to this whole group. The well known figure of Aesculapius with a serpent, or Apollo with a snake in the right hand, is associated with the power accredited to him of restoring the dead to life. The association of ideas in the shedding of the snakes slough and immortality is discussed in detail by Frazer. Then there is the story of Melampus who when asleep had his ears treated by snakes, so that when he awoke he could easily understand the language of birds and hear a thousand things previously hidden from man. Wootton. The majority of the supposed virtues of snake slough are undoubtedly in one way and another related to mythology.

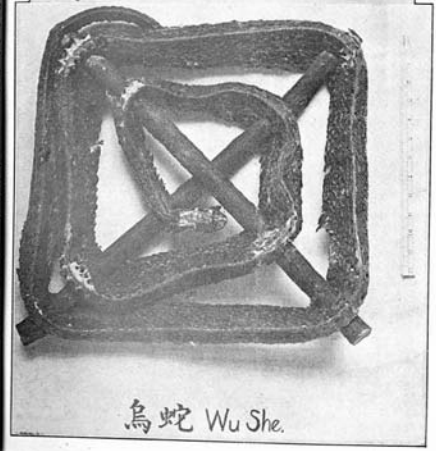
112. 鱘蛇. *JAN SHE.* **THE PYTHON. PYTHON MOLURUS,** L. (1)

Pieh-Lu, 3rd group: ZN, 1137: Gee, PSNH, *4*, II, 65: G, 6858 Boa constrictor: Linnaeus, Syst. Nat. I, 387: Sowerby, Notebook, p. 51: Stanley, J. N. Ch. Roy. Asiat Soy. 1914, *45*, 21: Watts, Economic Prod. India, VI, 1, 435: W. 403: Gadow p. 600: Perrot p. 60: Couling p. 479:

Syn. 南蛇 Nan She, PT, ZN: 埋頭蛇 Mai T'ou She, PT; G; W: 蟒 Mang, ZN; W 558: (4)

The tortuous movement of this snake causing such gradual progress accounts for the name *Jan*. It is also said to be called a *Jan-She* because the scales are hairy or whiskered 髯 Jan. It is found in Kwangtung and is differentiated from other kinds by holding its head downwards, which fact accounts for its other Chinese name, *mai t'ou she*.

111. Snake Slough.



115. Black Grass Snake.

Shanghai Drug Market

According to *Liu-Hsuo's Lu-Yi-Chi* the python is 50 to 60 feet long, with a girth of 4 to 5 feet, even the small ones are at least 30 to 40 feet long. (2) The skin is mottled like old embroidery. In spring and summer they prey upon deer in the mountain forests. After swallowing a deer their tissues are quite thin for its takes all their reserve strength to digest the animal, after which they become fat. It is said they eat one deer a year. In *Ku Chieh's Hai-Ch'a-Lu* it says that pythons swallow their victims hind quarters first, and that by breathing their poison on to the horns they spontaneously drop off. Those with small gall-bladders are preferred. *Wang Chi's Shou-Chi* states that pythons are common in the hills of Nan-Ning-Fu Kwanghsi. The large ones are more than 100 feet long. They live on deer and can digest their bones and horns. The natives gather poisonous vines and plug up their holes, and the poisonous fumes narcotise the snakes, then the nest is broken up and the snakes easily taken out. The flesh is good eating. The skins are used to cover drums, knife handles, and musical instruments. *Fan Ch'eng-Ta's Yu-Heng-Chih* states that armed troops catch pythons for food by camoflaging their heads with many branches of flowering shrubs and creeping up on them and beheading them. The *Shan-Hai-Ching* says that pythons can eat elephants, the bones of which they emit every three years. Gentlemen who take these bones as medicine never suffer from heart or visceral ailments. They are referred to as 巴蛇 *Pa She*, that is the great snake.

T'ao Hung-Ching said they were found in his day in Fukien, Kueilin (Kwanghsi), and in southern Kwangtung. He also pointed out that the gall is often adulterated with the fat. *Hau Pao-Sheng* found them about one foot in circumference. The Cantonese make them into dried meat to make the most highly esteemed dishes. If dipped into vinegar the slices wind themselves round the chopsticks and cannot be removed, unless the chopsticks be made of *Erianthus* wood from which they are easily pulled off.

Tuan Ch'eng-Shih found them 100 feet long and states that after eating and digesting a deer they wind themselves round tree trunks to get rid of the bones which come out between the scales, while healing the tears in the skin they are very fat and tasty, and can be caught by throwing women's clothing to them. They encircle the dress without further movement.

蛇膽. *Tan.* PYTHON'S BILE. (3)

Watts, p. 435:

Su Sung says that at Leichow (Kwangtung) people raise snakes, on the 5th of the 5th moon every year they take them to the Yamen to extract the bile which is dried and sent as tribute to the throne. Each python is brought in a basket with straw. Ten or a dozen people come with forks, take the python out of the basket and hold it on its back, while after careful measurement the gall-bladder is

taken out and everything is sewn up again. The bladder is the size of a duck's egg. *T'ao Hung-Ching* said that the true article was narrow and long in a very thin black skin. It has a bitter sweet taste, dropped into water it sinks and does not dissolve. *Su Kung* has pointed out that if one takes just a tiny grain of the dried material and place it in water, it floats around rapidly on the surface. Spurious pig's bile sinks at once. Other have found pig's bile and tiger's bile float but they do not swim around rapidly on the surface like python's bile.

Sweet, bitter, cooling, slightly poisonous.

Used for applying with alum to pyorrhoea and toothache. It clarifies the vision and removes growths over the eyes and is good for painful and swollen eyes. For infantile convulsions, also given for diarrhoea and bloody dysentery. Anthelmintic. Mixed with water it is poured into the nose to cool a child with feverred brow. Applied to painful fistula.

肉. *Jou.* **PYTHON FLESH.** Not eaten in the 4th moon (May). (3)

Sweet, warming, slightly poisonous.

Given for paralysis, rheumatism and arthritis. People travelling through Kwangtung take it to prevent malaria. Anthelmintic & taken to cure scabies and ringworm. It removes necrotic tissue, & is taken in half drachm doses three times a day for dogbite.

膏. *Kao.* **PYTHON FAT.**

Sweet, bland, and slightly poisonous.

It occurs in very small pellets, specimens as large as plum stones come from other snakes.

Used for scabies, for pain after childbirth, and for cold sores. Wrapped in cotton it is inserted in the ear for deafness.

牙. *Ya.* **PYTHON TEETH.** Six to seven inches long.

Carried as a lucky charm against disease.

油. *Yu.* **PYTHON OIL.** In the Pen T'sao Appendix.

(1) Gee lists three pythons in China. This one is identified by some as the *P. molurus*; seeing that the skin is embroidered and it is so long it would seem more nearly to approach *P. reticulatus*, which is found in Fukien and Hongkong.

(2) Sowerby states that the largest snake in China is the python, the form found being the Indian python, *P. molurus*. It has been stated this does not run over ten feet in size. Stanley lists a 20 foot *Python reticulatus*, Gray, in the Shanghai Museum.

(3) The gall-bladder of the python is much sought after by the natives of Burma for its supposed medicinal virtues. The flesh is eaten by the Karens. Watts p. 435.

(4) The Zoological Dictionary refers to the *Boa constrictor* which is not native to China, ZN. 1137:

113. 鱗蛇. *LIN SHE.* PYTHON. PYTHON BIVITTATUS, Schlegel.

Pen-Ts'ao Kang-Mu: ZN, 1137: CP python=*Mang:* Gee, PSNH Bull., 1929-30, *4*, II, 65: SC, Korean name *In Sa:* W. 558: Perrot p. 60:

Syn. 巨蟒 Chü Mang, PT, The Great python:

According to the *Fang Yu Sheng Lan* this snake is found in Annam, Yunnan Chenk'ang, Chekiang Hangchow, Hunan Linglinghsien, Yunnan Mengyang (borderland tribes). It is over 10 feet long with four feet, with yellow scales and black scales, and lives on deer. In winter and spring it lives in the hills but in summer and autumn it is aquatic. It can injure people, so the natives kill and eat it, and extract the gall for use as a much valued medicine; that from the yellow scaled species is considered best. It is a kind of *Jan She* (No. 112, *Python molurus*) with the addition of feet. *T'ao Hung-Ching* regarded this as a true python, from which the bile could be used in medicine.

膽. *Tan.* **PYTHON'S BILE.**

Bitter, cooling, slightly poisonous.

An antidote to an overdose of any poisonous drug. For toothache and toxic boils.

114. 白花蛇. *PAI HUA SHE.* THE EMBROIDERED PIT-VIPER. AGKISTRODON HALYS BREVICAUDUS, Stejneger.(1)(6)

Sung K'ai-Pao: SC, Korean name *Paik Wha Sya:* ZN, 1965: Gee, PSNH Bull., 1929-30, *4*, II, 82: Porter Smith p. 198: Stejneger, Proc. U. S. Nat. Hist. Mus. 1925, Vol. 66, 97; Herp. Japan. Bull. Stanley, J. N. C. Royal Asiat Soy. 1914, 45, 21: Hooper No. 430 Malay drugs: U. S. Nat. Mus. 1907, *58*. 463: Sowerby IV, 22; notebook p. 57: Kubota p. 97: Braun p. 2: Perrot p. 60:

Syn. 翰蛇 Ch'i She, PT, W. 蜜鼻蛇 Ch'ien Pi She, PT: 五步蛇 Wu Pu She, ZN: 百步蛇 Pai Pu She, ZN *A. blomhoffi:*

This class of snakes alone has the snout turned upwards.(2) On the back it has a double-lozenge marking ⊗, called in Chinese 方勝 *Fang Sheng*, which accounts for the name given to this snake. It occurs in Hupeh and Szechuan, the most famous and highly prized are not common. Those in the shops and those bought by the officials for gifts as tribute come from south of the Yangtse river in the hills at *Hsing Kou Chou* in Kiangsu.

It has a dragon shaped head with a tiger mouth, the skin is embroidered white on a black background with 24 *Fang Sheng* marks on the sides, and dow the middle of the belly is a rosary of spots. It has four long teeth. There is horny covering at the tip of the tail one to two tenths of an inch long (like Buddha's finger nail). The intestines are like a string of beads. They love to ea the leaves and flowers of the *Rhododeron meternichii*. S et Z., where they ar found in the busbes. First a handful of gravel is thrown which causes them t coil up and cease movement, then after spearing them with a fork they are tie up with rope and suspended on a pole. The viscera are cut out, and the bell spread open with a bamboo stick; then the snake is tied up in a coil, and drie over an oven. The Ch'i Chou species even when dried has bright protrudin eyes, others dry out and sink into their sockets. The *Erh Ya Yi* says that a snakes close their eyes when dead, but the pitviper of *Ch'i Chou* keeps its eye open in a lifelike manner. In the district between *Shu Chou* and *Ch'i Chou* th snakes have one eye open and one eye shut. *Yuan Chen* states that of the 10 kinds of snakes in Szechuan, the pitviper is seldom seen, but it bites people wh when poisoned have their hair stand on end. These vipers drink from mountai pools and pits and are eaten by the *T'an Niao* 儋鳥. The people of Pachou 巴 are able to catch the small ones by uttering spells, after smoking them with th fumes of arsenic sulphide their heads split open.

Su Sung said the "white flowered viper" of Kueichow was the same, be *Li Shih-Chen* found those caught at Ch'i Chou (Hupeh) not so poisonous, states that while Szechuan and Kueichow have similar looking snakes they ar not the same species. (Szechuan also has the *A. strauchi*, Bedriaga, Gee.)

In the provincial records this snake is listed in southern China and variou parts of Szechuan. In the ninth and tenth moons they are caught and firedried *Su Sung* recorded them not only from Hupeh, Kweichow and Szechuan, but als from Honan, Nanyanghsien. When they bite people's feet, in Kweichou the foo is immediately amputated and an artificial wooden foot is used in its place When this snake occupies a human dwelling it is detected by a peculiar odour decaying melons, and people keep at a distance till means have been found fo quickly disposing of it.

The head and tail are cut off and used separately, being more poisonou than the other parts. The Kueichow species is large and a foot is cut from eac end, the Ch'i Chou one is smaller and only three inches is cut off. The remainde when skinned and boned even from a large snake only yields 4 ounces of meat Kept a long time it easily becomes wormy, when properly sealed it can be kep ten years without spoiling. The *Sheng Chi Tsung Lu* says that in spring an autumn it should be placed in wine for three nights (days), one day in summe and five days in winter, then it is taken out & dried over a charcoal fire. Afte this process has been repeated three times it is placed in an earthenware pot an buried in the ground one night to remove the smoky taste.

肉. *Jou.* **PIT-VIPER MEAT.**(3)(5)

Tschirch II. 818: Wootten, Chronicles of Pharmacy II. 20, London, 1910; Hubotter 132:

Sweet, saline, warming, poisonous.

For paralysis of the extremities, apoplexy, rheumatism, arthritis, Bell's palsy, hemiplegia, weakness of the ankles, scabies and eczema. For cold in the head with stopped up nose, and cold sores. Scrofula, tetanus infection, feverish colds in children, venereal sores, smallpox. For all types of disease said to come from exposure to cold winds, which include leprosy, the "big wind disease", &c.

頭. *T'ou.* **HEAD OF THE PIT-VIPER.**(4)

Poisonous.

For pityriasis versicolor and for infectious scabby sores (leprosy?)

目睛. *Mu Ching.* **EYEBALL OF THE PIT-VIPER.**

Powdered and given with bamboo decoction to stop childen crying at night.

(1) This should be compared with No. 120 the *Fu She* which is also a pit-viper. The genus *Agkistrodon* has a fairly specific distribution in China. This species which most of the Chinese records refer to North of the Yangtse should be regarded as either *A. halys brevicaudus* Steineger, or *A. halys intermedius*, Strauch., which are the only poisonous snakes in the North. Synonym. *A. blomhoffi*. Sowerby described them both in the fauna of Manchuria. Gee lists them from Chihli, Anhwei, Hunan, Shansi, Szechuan, Kiangsu, Hupeh, Chekiang &c.

(2) Those sold on the market are well marked with an embroidered pattern. Specimens measure up to six feet long, and one inch in diameter. They are common in the North China markets both at Ch'i-chou and Shanghai. Hosie valued them at Tls.3 to 4. A Shanghai specimen measured 110 cm., head 58mm., tail 108 mm., scales 6 mm., weight 214 gms. Kubota purchased specimens on the Manchurian market.

There is also a common 小白花蛇 *hsiao pai hua she*, the young of this same species sold on the market, it measures about a foot long, and one fifth of an inch in diameter. It only weighs about two gms, and the scales are minute, 1 to 1½ mm.. See figures.

(3) Pliny states that he quickly cured inveterate ulcers by this remedy. The Greek physician Craterus recommended it for wasting diseases. In Galen's time vipers were a common medicine. Wootten.

(4) The treatise upon vipers by Charas (1666) included the heads of common viper, grilled and eaten to cure its bite, or hung to the neck to cure quinsy. Wootten.

(5) The cooked flesh was used to strengthen the eyesight, cure nerv pains, and lessen swellings of the joints. Dioscorides, De materia medica, Is century. Galen used it in the form of Trochisci. Andromachus made the famou Theriak with it. In the Pharm. Gallica 1818, Hispanica III 1803, and th Wurtemberg Pharmacopoeias 1798 to 1838; See Tschirch.

(6) Braun says the Ch'i She is only found in the neighbourhood o Ch'i-chou, about 100 miles below Hankow.

(7) Annamese name, Thiên-sa, Perrot p. 60. The flesh is used fo rheumatism, macerated in alcohol.

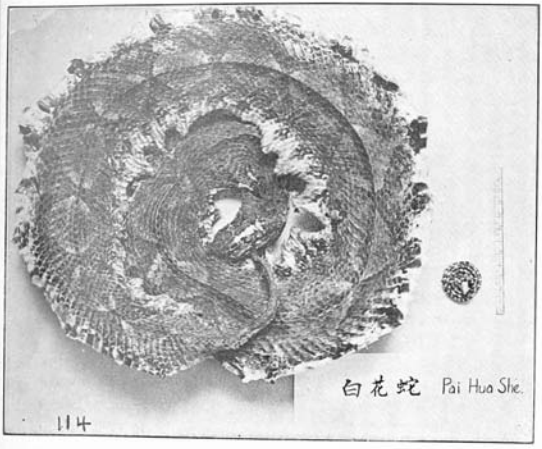
115. 烏蛇. *WU SHE.* **BLACK GRASS SNAKES. NATRICIDAE(**
(Syn. Tropidonotus.)

Sung K'ai-Pao Pen-Ts'ao: Gee, Peking Nat. Hist. Bull., 1929, *4*, II, 78; ZN. 1797 the 烏鮫蛇 *Wu T'iao She* is given as N. *pryeri*, Boulenger Gadow, Cambridge Nat. Hist., p. 610: Sowerby IV. 13 syn Chinese Tiger-snake; Notebook p. 51: Stejneger, Proc. U. S Nat. Mus. 1925, *66*, 49: Stanley, Roy. As Soc. J. 1914, *45*, No 44-49: Boulenger, Fauna India, Reptiles, 1894. p. 350: Günthe Reptiles Brit. Ind. 1864, p. 263:

Syn. 烏稍蛇 Wu Shao She, PT: 黑花蛇 Hei Hua She, PT: 新州劍脊細

There are two kinds, the better kind is knife-backed and thin tailed, th other has a blunt tail and is very long and not knifebacked. The latter is know as 風稍蛇 *Feng Shao She* being used for 'wind' diseases, but it is not as potent a the former.

This grass snake is recorded from *Shang Chou* and *Loyang* in Honan, it ha three ridges on the back, it is a shiny black colour, it is harmless. In Chekian there is a similar snake called 黑稍蛇 *Hei Shao She* which crushes things to death *Su-Sung* reported these snakes from the hills of *Ch'i-Chou* and *Huangchou* Hupeh. The *Ch'ien-Ning-Chi* states that they do not take life and do not injur people. They are found in the reeds and rushes on the south side, they inhale th floral scents. They are very difficult to catch. They have round heads an pointed tails. The eyes are red, which even after they are dead and dried stan open like a live animal. The best weigh from seven drams to one ounce. Thes is a second class material weighing ten to twenty ounces which is big and thic but they are not very potent. The black grass snakes are adulterated with othe that have been smoked black but their eyes are not bright. *Tsung-Shih* record this snake as the commonest one used in medicine. Their length was measur with copper cash, on to the best one could thread one hundred coins.(2) Tho over 10 feet fear rats and wolves. *Lei Hsiao* made a difference between the sex



114. Northern Pit-viper. Shanghai Drug Shop.

snakes and their use in medicine, also the source of production and the character of the district in which they breed. This snake he said had a two inch line of reversed hair on the head, 1/20th of an inch long. Those used in medicine weighed less than one ounce.(2) At the place of origin they are collected in quantity to send to the throne as tribute. The males have a one inch white stripe on the belly and make the best medicine.

It is prepared by beheading, and skinning, so as to remove the scales and striped skin on the belly.(2) Chopped into small pieces it is placed in bitter wine overnight, then dried over a willowcharcoal fire. Subsequently it is fried in butterfat, planted in the ground to the east of the house overnight, and then roasted dry. Or it is boiled in alcohol and simply dried for use.

115a. 肉. *JOU.* FLESH OF THE BLACK GRASS-SNAKE.(5)

Tschirch, II, 814: Hubotter p. 132:

Sweet, bland, nonpoisonous. (It has been said to be slightly poisonous.)

Its action and uses are considered identical with those of the pitviper (114), but is not poisonous. For paralysis, skin eruptions, leprosy, scabies, loss of the eyebrows and moustache, and all kinds of 'wind' diseases affecting the skin(4). (The text implies that on account of cold winds the skin loses it vitality, and subsequently becomes diseased. Snake meat is apparently considered of the greatest importance as a vitalizer to the peripheral circulation.)

115b. 膏. *KAO.* FAT FROM THE BLACK GRASS-SNAKE.(5)

Applied on cotton into the ear for deafness.

115c. 膽. *TAN.* BILE OF THE BLACK GRASS-SNAKE.

For leprosy and plagues. For swollen tongue (a fatal disease with symptoms of paralysis of the nerve endings in the tongue, with loss of taste &c. Its close association with these so-called wind diseases suggests pellagra.)

115d. 皮. *P'I.* SKIN OF THE BLACK GRASS-SNAKE.

Hubotter p. 201:

For ulcers on the lips, toxic infections of the skin, and pterygium caused by an emotional storm. For inflammation of the spleen causing dry and ulcerated lips in children.

115e. 卵. *LAUN.* EGGS OF THE BLACK-SNAKE.

For leprosy and uses similar to the snake-meat.

(1) Thirty nine species of *Natrix* are listed by Gee of which the only on found in Honan, Hupeh and Chekiang is *Natrix tigrina lateralis* Berthold. Thi may be one of the various species indicated in the text, but according to Sowerb it is a brightly marked snake. The fishing snake *N. piscator* Schneider comm to South-east China has no brilliant markings, and for colouring correspond better to the dried material sold in the drug shops of Peking and Shanghai There is a four lined species *N. quadrilineata* Boulenger found in Yunnan. Thi heading may also include some of the closely allied harmless snakes, the Colubers

(2) Those commonly sold on the drug markets of Peking and Shanghai weigh more than this, they have not been beheaded nor skinned. They occur c open, wound round a rough wooden frame, measuring over three feet long, and half to two thirds of an inch thick. Obviously smoke dried, the original marking of the snakes are obscure. The scales are much smaller than those of th pit-vipers, being about 6 by 3 mm. in size. A specimen bought in Shanghai weighed 109 grams. The head measured 25 by 13 mm. See figure.

(3) Cooked in oil black snakes were used by Avicenna, Leonardus d Preda (for fistula), Gilbertus de Anglica (for paralysis), and a snake oil wa used for itching or unclean skin diseases. These are recorded by Manlius d Bosco Alexandrinus and Nicolaus Praepositus 15th century publications: Th Vienna Dispensatory 1729 distilled an oil from the dried snake, used for hysteria

(4) Nadkarni quotes Shafa-ul-Inuraz, that the blood of a black snake is th best application over patches of leucoderma.

(5) Serpent fat was quoted in the early Egyptian records as a hair toni Tschirch II. 843. Also in Mongol medicine, Hubotter p. 200:

116. 金蛇. *CHIN SHE.* GOLDEN SNAKES. CORONELLA BELLA Stanley.?

Sung Kai-Pao Pen-Ts'ao: NGG, Peking Nat. Hist. Bull., 1929, *4* II, 67 SC, Korean name *Kum Sa:* Stanley, Shanghai Museum specimen N. C. Roy. As. Soc. J. 1914, *45*, 21:

Syn. 銀蛇 Yin She, PT: 金星地錦 Chin Hsing Ti Shan, Pen-Ts'ao T Ching: 錫蛇 Hsi She, PT:

These names are all related to the metallic lustre of the scales.

According *Liu Hsun's Ling-Ping-Piao-Lu-Yi* the best are found in Ch'ie Chou (Kueichow) and a second quality comes from Kweichow (Kwanghsi). A large as ones thumb and up to one foot in length, according to the golden c silver colour of the scales they are used as an antidote to gold or silver poisoning

Su-Sung records them from Pinchou (Kwanghsi) and Ch'enchou (Kwang tung). They usually climb the trees to drink the dew. Their scales are so shin

they reflect the light. They are rarely caught. In Kianghsi at *Ling Shan Hsiang* in *Shang-Jao-Hsien* there is a glossy snake exceedingly like this, which is caught in winter and has antidotal properties.

肉. *Jou.* **FLESH OF THE GOLDEN SNAKE.**

Saline, bland, nonpoisonous.

An antidote to metallic poisons. For positive diagnosis a silver coin held in the mouth one whole night will turn a golden yellow. The skin cracks in chicken-claw lines. Four inches of the snake are taken and toasted brown, it is then stewed and constantly sipped until recovery occurs. It cures the diarrhoeas of heavy metal poisonings, it relieves the inflammation, and is also used to treat dysentery.

117. 水蛇. *SHUI SHE.* FRESH-WATER SNAKES. HOMALOPSINAE(1)

Pen-Ts'ao Kang-Mu: SC, Korean name *Soo Sa:* ZN, 1315: Gee, Peking Nat. Hist. Bull. 1929, *4*, II, 73: Stanley, J. N. C. Roy. Asiat. Soc. 1914, *45*, 21: Gadow p. 625:

Syn. 公蝮蛇 Kung Li She, PT: 黑蝮蛇 Hei Li She, ZN:

It is found all over China wherever there are pools and streams. As large as an eel, yellowish-black color with cheque stripes. Its bite is not very poisonous; it should not be mixed up with the mud eels 泥蛇 *Ni She*, which live in mud holes, and are black and toxic.

肉. *Jou.* **FLESH OF THE WATER-SNAKE.**

Sweet, saline, cooling, nonpoisonous.

For diabetes, dysentery, and depression from fever.

皮. *P'i.* **SKIN OF THE WATER-SNAKE.**

Ashed and applied with oil to osteomyelitis in children. Applied fresh to whitlows.

(1) Of the Oriental fresh water snakes Gee lists the *Hypsirhina enhydris* Schneider from Hongkong described in the history of Amphibians, 1799, I, 245. Two species are in the Shanghai Museum from Amoy listed by Stanley as *H. sinensis*, Gray and *H. plumbea*, Boie. This Chinese name is referred by the Zoological Dictionary to *Elaphis bicolor*, Daud. synonym *Hydrophis bicolor*.

118. 蛇婆. *SHE P'O.* SEASNAKES. HYDROPHINAE.(1)

Pen-Ts'ao Shih-Yi: SC, Korean name *Sa Pa:* ZN, 1314: Sowerby IV. 20; Notebook p. 56: Gee, Peking Nat. Hist. Bull., 1929, *4*, II, 73: Gadow, Cambridge Nat. Hist. p. 636-637: *Hydrus platurus* Linnaeus Syst. Nat. 1766, 12th edit. I, 391; U. S. Nat. Mus. Bull. *58*, 1907, 439. (2): Stanley, J. N. C. Roy. Asiat. Soc. 1914, *45*, 21(3):

They are found floating in the deep ocean waters of the Eastern Sea shaped like snakes. There is no particular season for their collection. *Li Shih Chen* says that in form and use they are apparently identical with the fresh wat snake. (117)

Saline, bland, nonpoisonous.

For white and red dysentery, worm toxemia with blood in the stools. F the five kinds of 野鷄病 Yeh Chi Ping (wild fowl sickness?) and for toxic boil Two drachms are taken with rice of the roasted and powdered material.

Of the fourteen species of sea snakes listed by Gee, Sowerby says th *Hydrus platurus*, L., is one of the commonest forms. Three species of *Distei* one *Lapemis* and two *Laticauda* are found off the coast of Kwangtung, characteri ed by their short blunt structure, Bulletin 58, U. S. Nat. Mus. 1907, pp. 402-43 There is another with a head shaped like a turtle, *Emydocephalus ijim* Stejneger recorded from Formosa. The Chinese name means literally "the o snake hag."

(2) The Chinese Zoological Dictionary refers this to *Platurus fasciatu* Duad. or *P. schistorhynchus*.

(3) Stanley records three species in the Shanghai Museum, *Hydr platurus*, L. from Pratas Island *Disteira cyanocincta*, Daud. from Foochow, an *D. melanocephala*, Gray from Wenchow.

119. 黃頷蛇. *HUANG HAN SHE.* **THE CHICKEN-SNAKES. ELAPH (COLUBER)**(1)

Pen-Ts'ao Kang-Mu: Gadow, Cambridge Nat. Hist., p. 626: ZN, 163 Gee, Peking Nat. Hist. Bull., 1929, *4* II, 70: Sowerby's Naturalist Notebook p. 51: Stanley, J. N. C. Roy. Asiat. Soc. 1918, *45*, 24

Syn. 黃頰蛇 Huang Hou She, PT: 桑根蛇 Sang Ken She, PT: 赤鏈 Ch'ih Lien She, PT: 赤蛇 Ch'ih Lien, T'ao Hung-Ching:

The name "Huang Han She" refers to the yellow throated species *Elaphe*. However Li Shih-Chen includes under this heading the whole group snakes commonly used in the old medical classics, the *Ch'ien Chin Fang*, *Ch Hou Fang*, and *Wai T'ai Mi Yao*, which prescribed rats and frogs swallowed snakes and snakes that had died of their own accord. Rats swallowed by vip are dealt with separately. The rats used by the necromancers, *T'ao Hung-Chi* stated, were obtained from the *Huang Han* and *Ch'ih Lien* snakes, which w found chiefly in people's houses where they catch rats and sparrows. Wh people saw them distended, they were caught and cut open, and the conte dried. In discussing the well known remedy snake-slough it is said that o does not often find the shed-skin of vipers they are chiefly from the elap snakes mentioned. Li Shih-Chen then describes various species.

119 A. 赤鏈蛇. *CH'IH LIEN SHE.* **THE SCARLET NEEM SNAKE. NATRIX TIGRINA,** Boie.(2)

ZN, 1797: NGG, Peking Nat. Hist. Bull., 1929, *4*, II, 78; 38 species of Natrix are listed from China: Sowerby IV. 13 describes a subspecies in Manchuria: Boie, Isis 1826, p. 205:

Alternately striped red and black like the neem tree and mulberry tree roots.

119 B. 黃頷蛇. *HUANG HAN SHE.* **THE YELLOW-THROATED SNAKE. ELAPHE CLIMACOPHERA,** Boie.(3)

ZN, 1637: Gee, 24 species of *Elaphe* are listed from China:

Striped yellow and black, yellow throated, large up to 10 feet long, never very poisonous. It is this kind the snake charmers breed for use in exhibitions of their skill. People eat these snakes.

119 C. 竹根蛇. *CHU KEN SHE.* **BAMBOO VIPER. TRIMERESURUS GRAMINEUS,** Shaw. (4)

Gee, Peking Nat. Hist. Bull., 1929, *4*, II, 83: Stanley, 1914, *45*, 21: Shaw, Gen. Zool. 1802, *3*, 420:

Chou Hou Fang name, 青蛙蛇 Ch'ing K'uei She.

It is exceedingly poisonous and not used in medicine. It is usually found on the branches of bamboo, of similar natural coloring. The mature snakes are 4 to 5 feet long, with a tail 3 to 4 inches long.

119 D. 燒尾蛇. *K'AO WEI SHE.* **NATRIX VIBAKARI,** Boie. (5)

ZN, 1796: Gee, p. 78; in Kwangtung: Sowerby IV. 12: Stejneger, Hep. Jap. Bull. U.S. Nat. Mus. 1907, *58*, 266: Boie, Isis 1826 p. 207:

These are most poisonous of all. If bitten by them the bite is immediately cauterized by burning three or four moxa on the place, then the toxin cannot circulate. Subsequently other drugs are applied.

119 E. 柔花蛇. *TS'AI HUA SHE.* **ELAPHE QUADRIVIRGATA,** Boie. (6)

ZN, 1638: Gee, p. 70 Hankow, Hupeh:

A large yellowish green species used in medicine.

肉. *Jou.* **FLESH OF THE ELAPHINE SNAKE.**

Sweet, warming, slightly poisonous.

Made into a tincture, or pills, from snakes which have died a natural death. Roasted, powdered and applied to mad dog bite. Dead snakes collected on the 5th of the 5th moon ashed and given with spring water for hysteria. Placed in a little water and allowed to putrify, the liquified material from which the bones have been removed is applied to ringworm. Internally it is given for eczema and skin diseases, and toxic boils. The expressed fluid from the snakes is applied to scabies. The decoction is given for rheumatism of the arms and wrists. Ashes it is applied with lard to hemorrhoids, eczema, and breast abscess.

蛇頭. *She T'ou.* **HEAD OF THE ELAPHINE.**

The ash is given in powder or pill form for chronic malaria and ulcer of the small intestine. Applied to carbuncles on the back, and fistula.

骨. *Ku.* **BONES OF THE ELAPHINE SNAKES.** (7)

Roasted and powdered. Given for malaria. Applied to necrotic fistulas.

涎. *Yen.* **VENOM OF THE ELAPHINE SNAKE.** Very poisonous. (8)

In Kiangnan the hill-tribes make a poisonous medicine from this venom which causes cancer, this is treated with orpiment (arsenic sulphide) and centipedes.

蛇吞鼠. *She T'un Shu.* **RATS SWALLOWED BY SNAKES.**

Fried in lard, and strained. The lard is applied to buboes and fistulas.

蛇吞蛙. *She T'un Wa.* **FROGS SWALLOWED BY SNAKES.**

Wrapped in mud and roasted. Powdered and given with rice for belching. Green frogs similarly treated are given for chronic cough with purulent sputum. Applied to chronic fistula.

(1) Gee lists twenty four species of *Elaphe* in China. Stanley lists eight species in the Shanghai Museum. Sowerby says there are about a dozen species known from China, of which the commonest in the North is *E. dione* Pall. a frequenter of dry areas. The commonest in the North East and East is the striped water snake *E. rufodorsata*, Cantor. In the Lower Yangtse and southward is the *E. taeniurus*, Cope. The species identification given in our subheadings are taken from the Zoological Dictionary; although these are from different genera Li Shih-chen definitely includes those snakes which in old medical literature were used for the rats and frogs which they were in the habit of swallowing.

(2) This species is only reported from Quelpart Island. This would appear to refer more likely to *Natrix tigrinis lateralis*, Berthold, reported more or less from all over the country.

(3) While a specific name is here given, the text implies that several species were used, large and small, nonpoisonous and those slightly so.

(4) It seems quite doubtful if this be the correct identification. The text above states that the rats swallowed by vipers are dealt with separately, and here it says that this snake is exceedingly poisonous and not used in medicine.

(5) This identification from the Zoological Dictionary is undoubtedly of Japanese origin. Sowerby says the Japanese name for this snake is *Hibakari*, as it is erroneously supposed to be very poisonous. It puts this identification under suspicion both for this Chinese material and for the *Hibakari*. Sowerby describes it as, "a graceful reptile of a smoke-grey colour above, slightly darker on the top of the head and along the middle of the back: Whitish below with a few dusky spots".

(6) This species-name is not listed by Gee. It is of Japanese origin.

(7) The powdered vertebrae of snakes were used in old European medicine, see Dispensatorium Valerii Cordi, (Norimbergense) 1666 A. D.

(8) In Hindu medicine arsenic or bile is considered antidotal to Snake venom. Nadkarni p. 1133. Snake venom was a relatively recent introduction into Ayurvedic medicine in India, its properties and used are discussed by Chopra, Indigenous drugs of India. Calcutta, 1932.

120. 蝮蛇. *FU SHE.* PIT VIPERS. AGKISTRODON ACUTUS, Gunther.(1)

Pieh-Lu 3rd group: ZN, 1964 *A. blomhoffi*, Boie: SC, Korean name, *Pawk Sa*: Gee, Peking Nat. Hist. Bull., 1929, IV, 2, 82 list of 5 species of *Agkistrodon* not including *blomhoffi*: Stanley, J. N-Ch. Roy. Asiat. Socy. 1914 *45*, 21: Günther, Ann. Mag. Nat. Hist. 1888, I, 171: Pope, Bull. Amer. Mus. Nat. Hist. 1929, *58*, 472: Sowerby, Notebook p. 57: G 3716: Kubota, Japanese domestic use p. 105:

Syn. 反谷蛇 Fan Pi She, PT:

In *Wang-Chieh-Fu's* entymological dictionary it says that this snake when hit doubles up from head to tail, and man when bitten does the same thing, hence the name *Fu* which is dervied from 復 *Fu*.

T'ao Hung-Ching differentiated between the Agkistrodon 蝮 and the Trimeresurus 飛 *Hui* (see No. 121) although *Su Kung* regarded them as the same, as did the *Erh Ya*. *Kuo P'u* said that this Agkistrodon was limited in distribution to the south of China (*A. halys* No. 114 occurs north of the Yangtse, *A. acutus* is southern in its distribution.) and was known as *Fan Pi She*, (snake with the turned-up nose), thin necked, big headed, brown tail, on the nose is a needle, its markings are like embroidery, it has hair on its spots like pig's bristles, seven to eight inches long when full grown. The *Trimeresurus* is found all over China.

On account of its earthy colour it has the colloquial name 土龜 T'u Hui. The two genera are easily distinguished for the agkistrodon is long and big, t trimeresurus is short and small.

Liu Tzu-Hou (T'ang dynasty scholar) wrote a treatise on this subject, a stated that the eyes were like wasps and scorpions, the colour was earthy, t neck was contracted and wrinkled, it crawled slowly, the nose upturned, the tee hooked. It came out of its nest and liked to live in hazel bushes. When anger it coils up, gathers its poison in its mouth and darts out at people.

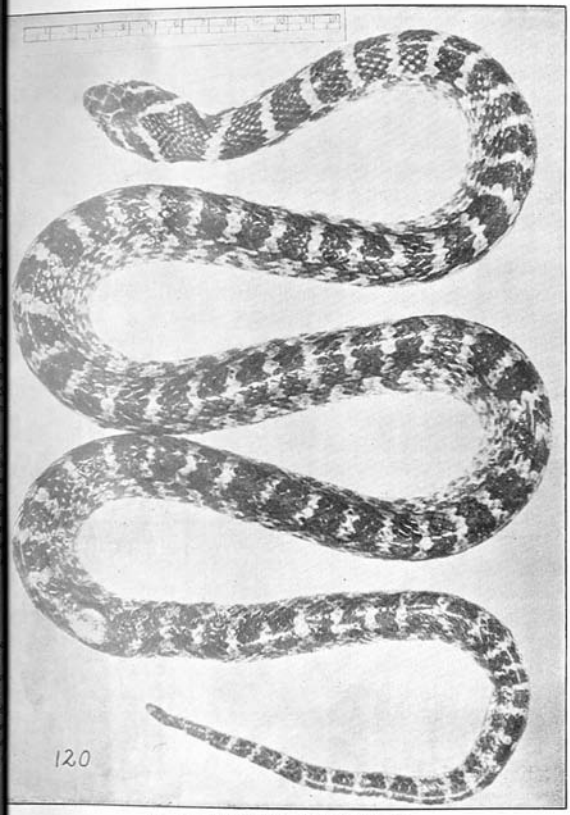
Pao P'u Tzu said that of the numerous kinds of snakes the Agkistrodon w the most poisonous. When people were bitten, the bite should be immediat cut out with a knife, only so can the patient live.

T'ao Hung-Ching said they were a dark yellow colour like earth with wh stripes and yellow throat, pointed mouth and very virulent. Shaped like *Trimeresurus* short and flat, and identical in the character of the poison. Of t many kinds of snakes these two genera with the 青蛇 *Ch'ing K'uei* are the m poisonous, if not immediately attended to, their bite is fatal. South Shansi a Hankow were said by *Su Kung* to be the natural habitat of the vipers(1). *Sung* described it with a short flat head, spotted body with red stripes and so dark green spots.

Ch'en Ts'ang-Ch'i stated that this snake alone was viviparous, (Gadow sa this is true of the vipers and thoroughly aquatic kinds of snakes.) When t foot or hand is bitten it should be cut off, otherwise the whole body becom gangrenous. The venom it most toxic in August and September, when vip feeling uncomfortable may shed their venom on the trees; the trees will s sequently die. If the venom is shed on grass or trees and people come into cont with it they will develop boils with swelling of the body, a condition cal 蛇漠瘡 *She Mo Ch'uang*, which is a long time getting well, and should be trea with the same drugs as for ordinary snake bite.

120 A. 千歲蝮. *CH'IEN SUI FU.*

In the eastern provinces there is a viper much like the ordinary Agkistrod but shorter with four feet, which can spring up and bite people. Its bite absolutely fatal. As soon as it has bitten a person it climbs up a tree and ma a noise (rattles?) "*Ch'e Mu Ch'e Mu*" (chop the tree) which indicates the bite fatal, but if it says "*Po Shu Po Shu*" the bite can be cured by applying immediat equal quantities of *Asarum* and arsenious sulphide and repeating the applicat three or four times a day. People also carry sealed tubes of powdered cinnam and the root of *Trichosanthes Japonica* which is immediately applied in cases snake bite.



120. Southern Pit-viper caught in Shanghai.

Li Shih-Chen describes the 菉葹 *Lu T'ing* listed in the *Tzu Lin*, which says this snake is like a washing baton, the head and tail being of similar appearance, it is like a 蛸蜴 *Hsi Yi* and is found at 魏興 *Wei Hsing*. Colloquial name 合木蛇 *Ho Mu She* (The snake that will put a person in their coffin). One or two feet long. *T'an Yeh-Weng* cites the 斫木蛇 *Ch'e Mu She*, also called 蟠板蟲 *Wang Pan Kuei*, the bite of which is treated by applying the crushed leaves of young vitex plants.

膽. *Tan.* **BILE OF THE PIT VIPER.**

Bitter, slightly cooling, poisonous.

Applied to worm infested wounds. A vermicide for the lower part of the body. For fistula, if too painful apply crushed apricot seeds.

肉. *Jou.* **FLESH OF THE PIT VIPER.**(2)(3)(5)

Tschirch II. 821; 844: Wootton II. 20: Pliny: Galen: Old London Pharmacopoeias: Kubota 105: Hubotter p. 132.

Sweet, warming, poisonous.

Applied to leucoderma. Internally it is given in the form of a tincture made by placing one snake in a gallon of wine, and burying the sealed jar containing it, in the stable under the place where the horses urinate. After one year it is all liquified but the wine has not lost its smell. Not more than one pint is taken as a cure for apopley, leprosy, fistula, stomach and heart pain, colic, worm toxemia, hemorrhoids, flatulence and bleeding from the bowel, all kinds of toxic boils, scrophula, anesthetic areas on the skin, and all serious ailments of the hands, feet, and internal organs.

脂. *Chih.* **FAT OF THE PIT VIPER.**(2)(3)(4)(5)

Tschirch II. 884: Hubotter p. 200

Applied to deaf ears and toxic swellings.

皮. *P'i.* **SKIN OF THE PIT VIPER.**(4)(5)

Ashed and used for treating osteomyelitis and carbuncles.

蛻. *T'o.* **SLOUGH OF THE PIT VIPER.**

For scabies, eczema, itching of the skin, and blisters on the hands.

骨 *Ku.* **BONES OF THE PIT VIPER.**

Three drachms of the ashed material is given for hemorrhagic dysentery.

屎. *Shih.* **FECES OF THE PIT VIPER.**

Obtained in captivity.

For fistulas and hemorrhoids.

甑中死鼠 *Fei Chung Sze Shu.* **DEAD RATS FROM THE STOMACH OF THE PIT VIPER.**

Slightly poisonous.

For buboes. (This term "rat sores" in Peking often refers to suppurating tuberculous neck glands.)

(1) This should be compared with No. 114, the *Pai hua she* which is also a pit-viper. This species *Kuo P'u* says is only of southern distribution. *Su Kung* in adding South Shansi and Hankow must have included the '*pai hua she*' in a generic sense.

(2) Viper fat and wine were used extensively in old European medicine see Pliny, Galen, &c. A. C. Wootton, Chronicles of Pharmacy, II, p. 20, London, 1910.

(3) Present day use in Britain, Pharmaceutical J. 1933, *131*, 368.

(4) According to Charas (1669) the fat was a valuable application for gout and for tumours. The skin fastened round the right thigh of a woman was an excellent aid to delivery in child-birth. It cures mange in dogs.

(5) The skin, flesh, fat, liver and heart of vipers were used in Italy for plague and lung diseases. Tschirch II. 821. The fat was used by Dioscorides for dimness of eyesight, and for the hair. It is quoted in all the official drug books of the 17th and 18th centuries, Tschirch.

121. 蚖. *YUAN* BAMBOO SNAKES. TRIMERESURUS. (1)

Pieh-Lu: ZN, 1966: Gee, Peking Nat. Hist. Bull., 1929, *4*, II, p. 83; W., small venomous snake: Stanley, J. N. C. Roy. Asiat. Socy. 1914, *45*, 21: Sowerby's Notebook p. 57: G 13748:

Syn. 蝮 *Hui*, Pieh-Lu: (2)

A short earth-colored spotless snake. Pieh Lu.

It is in the same class as the "*Fu*" (see No. 120.) The Fu is large, this is small, but the venom is the same. The Crotalidae are called the 蚖蝮 *Yuan Fu* group, in which the *Trimeresurus* should be termed 蝮 *Hui*, another form of the character 虺 *Hui*, which in process of copying became changed to *Yuan* 蚖. This snake is a little over a foot long.

Given for tetanus, leprosy, and toxic sores.

(1) Gee lists eight species in China, of which three were listed by Stanley in the Shanghai Museum. *T. mucrosquamatus*, Cantor is a dull greyish or brownish mottled form, Sowerby.

(2) Giles (No. 5182) translates this, *Trigonocephalus blomhoffi*, Strauch, which is a synonym for *Agkistrodon* δ., which is not a short earth-colored spotless snake.

122. 藍蛇. *LAN SHE.* THE BLUE SNAKE. DISTEIRA CYANOCINCTA, Daud.?

Pen-Ts'ao Shih-Yi: SC, Korean name, *Nam Sa:*

From Kwanghsi, Tsangwu Hsien. It is shaped like an Agkistrodon. The Cantonese call it 藍藥 *Lan Yao*, the blue medicine. The body has a circular furrow, which when cut divides the poisonous head from the harmless tail.

People when poisoned by being given the head to eat, are cured by eating the tail.

123. 兩頭蛇. *LIANG T'OU SHE.* TWO HEADED SNAKES. CALAMARIA SEPTENTRIONALIS, Boulenger.(1)

Pen-Ts'ao Shih-Yi: Gee, p. 67 four species: SC, Korean name, *Yang Too Sa:* Sowerby. Naturalist's notebook p. 53 from Fukien, and *C. berezowskii*, Günther from Szechuan: W. an Amphisbaena or Cecilia: Stanley, J. N. Ch. Roy. Asiat. Soc. 1912, *45*, 21: Boulenger, Proc. Zool. Soc. London, 1890, p. 34: Pope. Bull. Amer. Mus. Nat. Hist. 1929, *58*, 454: Perrot p. 60: Couling p. 480:

Syn. 枳首蛇 Chih Shou She, Erh Ya: 越王蛇 Yüeh Wang She, PT: 越王鈎蛇 Yüeh Wang Yüeh Fa (hooded), Chekiang:

Ch'eu Ts'ang-Ch'i recorded them as big as one's finger with one head with a mouth and eyes, but it could progress either forwards or backwards. It was unlucky to see them. The *Erh Ya* says they occur in the Central Provinces. *Liu Hsun* in the *Ling Piao* says they are common in provinces other than Canton.(2) Over a foot long as thick as the little finger, with an embroidered back and ruddy belly. The *Erh Ya Yi* states they are very common in Anhui,(2) found in nests of ten. They have black scales and white spots. There is a separate species which appears after the summer rains, they look like earth worms, scaled, and with head and tail alike. They are also called *Liang T'ou She*. The Hupeh species is called 山蚓 *Shan Yin*, which moves very slowly in a most circuitous manner.

蚓. *Jou.* FLESH OF THE CALAMARIA.

Harmless, eaten by natives.

For malaria. Worn by the hill tribes as a charm.

(1) Pliny VIII. 25 says "The amphisbaena has two heads, that is, it has one at the rear also." Robin.

(2) Of the four species listed by Gee, two occur in Canton Province, t
others are quoted from Szechuan, Yunnan and Formosa. *Calamaria septentriona*
occurs in Anhui. Sowerby says they doubtless confuse these with the *Calliop*
which is very poisonous. The name *Yueh wang Yueh fa* corresponds more nea
to the masked *Calliophis*.

124. 天蛇. *T'IEN SHE.* BIPALIUM

Pen-Ts'ao Kang-Mu: ZN, 1529:

A Chekiang snake said to come out after the rains. Living in shady spo
Like a chopstick, flat, three to four feet long, a yellowish red colour. It dissol
in vinegar, and will die if lime be sprinkled on it. (There are other descripti
points which cast doubt on its identity, but establish it as a poisonous enemy
man greatly feared by the Chekiang people.)

125. 苟印. *KOU YIN.* UNIDENTIFIED.

Pen-Ts'ao Shih-Yi:

Syn. 苟斗 Kou Tou, Ch'en Ts'ang-Ch'i:

From Kwangtung. Ch'aochow; like a fourfooted snake:

喜. *Kao.* FAT OF THE KOUYIN.

Dropped into deaf ears, the hearing is made quite acute in both ears.

126. 蛇角. *SHE CHIAO.* THE RHINOCEROS VIPER. BITIS NAS
CORNIS.(1)

Pen-Ts'ao Kang-Mu: ZN, 1967 犀角蝰 Hsi Chiao K'uei: Gadow p. 6
West African viper; the horned viper of West Asia is *Cera*
cornutus.

Syn. 骨嚕犀 Ku Ch'o Hsi, PT: 碧犀 Pi Hsi, PT.

The horns of a big snake which is not native to China. T'ang dyna
records refer to this snake from the 古都國 Ku Tu Kuo ?, and the name Ku C
probably came from this. The medicine was famous as a poison antidote l
rhinoceros horn, hence the term 犀 Hsi rhinoceros. The Ming records say t
these horns come from Hami and Turkistan; like pale blue jade, with a yellow
tinge. When struck it has a high clear note like jade. When scraped it ha
fragrant smell. When burnt it does not have a disagreeable smell. The grai
fine like ivory. It is made into costly knife handles.

Poisonous.

It is famous as a poison antidote and as cure for inflamed toxic boils.

(1) The African Snake *Cerastes cornutus* was said by Herodotus to be harmless. Aristotle states that the word horned is metaphorical. Pliny and Solinus state that hidden in the sand with the horns above the surface it moves them and attracts birds within striking distance. Robin.

127. 諸蛇. *CHU SHE.* VARIOUS SNAKES.

Listed by Li Shih-Chen in the Pen-Ts'ao Kang-Mu:

The character 蛇 *She* was originally written 它, which had a colloquial rendering 虵, pronounced in three different ways *She*, *Yi* and *T'o*. The old seal character was a pictogram showing the coils of a snake; this character *She* comes from the slowness (怠 *T'o*) of its movement. The Cantonese eat snakes and call them 訛 *O*, or 茅鱓 *Mao Shan* = grass eels. According to the *Shan Hai Ching*, the people to the Southwest beyond the seas consider worms to be snakes, and real snakes are called fish.

There are numerous kinds of snakes which cannot be included in the genera already mentioned which can be briefly considered as follows.

Snakes are classed with birds in geomancy as winged fire belonging to the south part of the compass. In the *Pa Kua* it is southeast and associated with "wind" (the curing of wind diseases.) The snake god is *Yuan Wu*. The *Shuowen* classes them among the poisonous insects. In the *Pei Hui Lu* they are classified in five groups, marine, fire, grass, wood and earth types. Snakes are found with the following colours, dark green, yellow, red, white, black, golden, bluish-green, spotted, and embroidered. There are poisonous and nonpoisonous snakes, the golden colored and the water snakes are nonpoisonous. Snakes have scales, there are also hairy forms such as the Pit-vipers. They are oviparous also viviparous. They travel on their bellies, there are also those that have four legs such as some of the pythons and others. There are those that have a comb (hooded) which are most poisonous. The 三角蛇 *Shan Chiao She* has horns. The *Hsi-Shen-Ching* lists a snake with six legs and four wings called the 蜚蠵 *Fei Yi*. There are flying snakes without feet such as the 騰蛇 *T'eng She*. The 柰蛇 *Ch'in She* has an animal head with a snakes body. There are said to be snakes with a human face which can call out peoples names and are harmful, named 人面蛇 *Jen Mien She*. Two headed have been already mentioned, *Calamaria* No. 123, there are also snakes with two bodies called 肥遺 *Fei Yi*. In Yunnan there are snakes with forked tails; there are also those with hooked tails by which they can drag their prey under water and eat them. Those with tails three to four inches long of a toasted colour are most poisonous. Those with rudder like tails seven to eight feet long are most poisonous, and are treated by washing with an infusion of shavings from the rudder of an ordinary boat.

In the fourth and fifth month the poisonous snakes are the 青蝰 *Ch'ing K'uei*, 蒼虺 *Ts'ang Hui* 白頸 *Pai Ching*, 大蝮 *Ta Yi*. In the sixth and seventh

months the 白蛇 *Pai K'ueï* 文蛾 *Wen Fu*, 黑甲 *Hei Chia*, 赤目 *Ch'ih Mu*, 黃口 *Huang K'ou*, 反鉤 *Fan Kou*, and the 三角 *San Chiao*. There is a southern snake the 喝蛇 *Ho She* which if injured by a man but not killed, will wait for its aggressor, being able to pick out its man in a crowd of a hundred, one has to get away over 100 li to be safe from its attack.

Snakes come out in spring for food, they hibernate in autumn and winter. During hibernation they swallow earth. In spring they spit up this earth 蛇黃石 *She Huang Shih*. They have a forked tongue, are deaf, (see note to 102) but can hear sounds with their eyes. When curled up, the head points south. The venom is in its spittle, when angry it is said to enter its tail (2) and head. Similar to a dragon it has a pearl in its mouth. (1) It travels in a circuitous manner. It gobbles its food. It sheds its skin repeatedly. It has a knowledge of medicinal plants. In coitus the male enters the belly of the female. They are also said to cohabitate with pheasants, turtles, fish and peahens. Bamboo sticks are said to be able to metamorphose into snakes, and snakes into pheasants &c. The great python has round eyes, and can swallow an elephant. The python (*Jan*) eats deer, the 玄蛇 *Yuan She* eats the very large deer called 麈 *Chu*. The 活脚蛇 *Huo Jo She* is a rat catcher. Rats that eat snakes can also catch them. There are frog eating snakes, there are also some frogs that can control snakes. Snakes can frighten panthers but there are certain species of the latter which eat snakes. Turtles and snakes are of common origin, but there are some turtles that eat snakes. Certain centipedes like to eat snakes. Cranes, storks, kites, eagles and falcons all eat snakes. Tigers, monkeys, musk deer, the "Chi" deer, and cows all eat snakes. Snakes eat frogs, rats, swallows, sparrows, bats, and nestlings. They eat celery, eggplant, rhododendron, *Evodia rutaecarpa*, and *Caidium monneri*. They fear mioga ginger, *Artemesia Keiskiana*, *Polygonum multiflorum*, goose excreta, the sulphides of arsenic, centipedes and antelope horn. If they run into lettuce plants they lose their vision. Their feet are indistinct, and can only be seen if the animal be burnt with a burning mulberry stick. If a snake coil itself around a man's leg it can be removed by pouring on hot urine or scalding hot water, or if a snake penetrate any of the body orifices it should be burnt with a moxa or warmed with powdered chilies rubbed into the cut end of the tail.

Internal antidotes to snake venom are, arsenic sulphide, frittilaria, garlic, shallot, *Xanthium Strumarium*. External remedies are, indigo, "Crane lice", cichorium, 蕭菜 celery, aconite juice, turmeric, ginger, alum, black-soy bean leaves, vitex leaves, *Geum dryadoides*, dog's feces, goose excreta, 蔡貢 Ts'ai Chü and 機婁 Chi Fen.

(1) Pliny XXXVII. 158 "Dracontites or Dracontia is a stone engendered in the brains of serpents". Further reference is made in "Animal Lore of English Literature" by P. Ansell Robin, London, 1932.

(2) See various references in English literature cited by Robin.

SNAKES LISTED IN THE APPENDIX

486. 環蛇. *HUAN SHE.* THE COILED SNAKE.

In the "Snake register" 蛇譜 She P'u, from the 三佛齊國 San Fo Ch'i Kuo (Palembang).

Coiled in a very large circle of more than 10 lengths of 10 feet each, living on wild animals, very swift in action travelling along like a cart wheel on mountains 10,000 feet high. As soon as an animal enters its coils it is killed. The head and eyes are at one side of the circle and the anus diametrically opposite. If people eat the fat it is said that swords and rapiers cannot injure them.

487. 聚蛇. *TS'UI SHE.*

Listed in the *Chen-Yi-Yao-P'iu*, like a bent eel about 5 or 6 inches long, coiled. Used for treating boils.

488. 烙飛. *PI FEI.* CHEKIANG PIT-VIPER. AGKISTRODON

Hu-Chow-Fu-Chih says that at Wu Kang Shan mountains (Chekiang) there are very large pit-vipers with a body as thick as a water-butt, the smaller ones are as thick as a wine cup. The head is expanded like an ax head with the eyes protruding, saw-like teeth, square shaped marks on the skin of a yellow embroidery pattern. The male is a reddish purple, the female is blackish green colour. The eyes and skin are iridescent as a sea serpent. The hill tribes say that although they have eyes they cannot see anything.

In the N. W. of Chekiang all of the hills in the Yu-Ying-Ling district have this one kind of snake. In spring and summer they make a kind of silk which they spread through the grass and bamboo. This silk when touched is very poisonous piercing the skin as sharp as an arrow and is fatal. After the frosts it is very brittle and the snakes climb up the trees, and spit out a white saliva which the birds eat & deer find it good food. The hunters step on the middle of the snake with the left right foot, curl the head and tail up and snap off segments with the right foot, and eat it up entirely without any remains, or it is kept and dried as a medicine.

Used for paralysis. A person bitten by a pit-viper should eat the flesh of this snake and he will live.

According to the 湖志 Hu Chih (Huchow records, Chekiang) the *Pi Fei* occurs plentifully in the hills around Hangchow, with the colloquial name 方勝板 *Fang Sheng Pan*, because the body of the snake is decorated with the Fang Sheng embroidery design and it is flat as a board. Its bite is very poisonous. Wild pigs eat them. The natives say that in winter the snake hibernates in the

ground, and the wild hogs can smell it, they turn over the stones, root up the ground and eat them. Snake meat is very warming, a wild pig can survive the coldest winter if he eats three snakes.

The Pen Ts'ao Kang Mu has two headings the 蝮 *Fu* and 蝰 *Hui*, the former is the Fang Sheng Pan, the latter is known as 土錦 *T'u Chin* "*earth embroidery*" a colloquial name is 灰地區 *Hui Ti Pien*.

Rheumatism, paralysis and diseases associated with the toxic miasmas need drastically hot medicines to eradicate them, and enable a person to use their arms and legs, which otherwise will be constantly crippled. Probably this poison is an antidote to these toxins.

Li says there are a number of different names to this particular class of vipers which need further study.

489. 蟒油. *MANG YU.* **PYTHON FAT.** see 112.

Syn. 蟒王蛇 Mang Wang She, Erh Ya, PT. 王蛇 Wang She, ZN, PT.

It is the largest of the snakes hence the name "snake king". It is found in all the high mountain areas, large and small kinds. It is marked like a 雲花蛇, *Ts'ai Hua She*, a little yellower. They all have a 王 Wang character on the head. There is a black variety called 烏蟒 *Wu Mang*.

Snake catchers have a method of calling them (snake charming methods) which brings out every kind of snake to them, when the python comes out they all fall prostrate and allow the catcher to pick out any that he wants, but if he touch the python they all set on him and bite him. The snake-charmers say that as soon as the python comes, large or small bearing the 王 *Wang* character on the head all the others are quiescent and will not harm people. *Chao Hueh-Min* said he found a beggar at Fenghua with one of these snakes in his hand which he bought for a thousand cash.

The snake fat is heated in a caldron with beeswax and made into a plaster and applied to hemorrhoids.

490. 斷草烏. *TUAN TS'AO WU* **NATRIX.**

One of the 烏蛇 *Wu She*.

In the Kwangtung records it is listed, as thick as ones finger but only five to six inches long. It has a small dragon like head, and completely black body. Wherever it goes, the grass is cut and it is easily caught in trails unless the catcher be too late, for fearing man the snake leaves the trail about ten feet and straightening itself out like an arrow it shoots off into its hole and one can never find it.

The 烏梢蛇 Wu Shao She of the Pen Ts'ao is like it but has no dragon like head.

Cooked in wine it is good for leprosy.

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