



<http://www.numelyo.bm-lyon.fr>

Alligators in China et their history, description & identification

Auteur :Fauvel, Albert-Auguste, 1851-1909

Date :1879

Cote : SJ T 400/22, 6

Permalien : http://numelyo.bm-lyon.fr/BML:BML_00GOO0100137001105492628

T 400/22,6

NORTH-CHINA BRANCH OF THE ROYAL ASIATIC SOCIETY.

ALLIGATORS IN CHINA :

THEIR HISTORY, DESCRIPTION & IDENTIFICATION.

BY

A. A. FAUVEL,

*Imperial Chinese Maritime Customs,
Bachelier ès Sciences de l'Université de Paris and Honorary
Curator of the Shanghai Museum.*

SHANGHAI:

PRINTED AT THE "CELESTIAL EMPIRE" OFFICE.

1879.

By kind permission of the North-China Branch of the Royal Asiatic Society, this Paper was printed in advance of the Society's Journal for 1879.

ALLIGATORS IN CHINA.

I.—PHILOLOGY.

If we consult the oldest of all Chinese records, the Classics, in which most of the natural productions of the country are noted, we find in the twenty-sixth chapter of the Doctrine of the Mean (1) a curious enumeration of the wild animals living in the waters. In Dr. Legge's translation it runs as follows:—"The water now before us appears but a ladleful; yet extending our view to its unfathomable depths, the largest tortoises, *iguanas*, *iguanodons*, dragons, fishes and turtles are produced in them."

(鼃鼃蛟龍魚鼈生焉.) (*Yüan t'o chiao lung yü pieh sheng yen.*) The Chinese commentary (中庸說) on this passage defines the *Yüan* 鼃 as 'the first produced of the chelonia' (介蟲之元); the *Lung* 龍 as 'the chief of scaly animals'; the *Pieh* 鼈 as being 'a kind of *Yüan*'; the *Chiao* 蛟 as being 'a kind of *Lung* 龍'; while the *T'o* 鼉 'has scales like a fish, feet like a dragon, and is related to the *Yüan*.' From this we may infer that the *T'o* is an amphibian with feet and scales and allied to the chelonians.

The *Li Ki* (禮記) says: "in the ninth moon they kill the 蛟 and capture *T'o*" (to be sent to the palace of the Emperor where drums are made from its skin, according to the commentators.)

Proceeding further, we find in the 4th stanza of the eighth ode of the *Shih King*, decade of *King Wang* (2) the following sentence:—鼉鼓逢逢 *T'o ku peng peng*, translated by Dr. Legge "The lizard-skin drums rolled harmonious." The commentary is the same as the preceding one, indeed we find it in every book quoting the *T'o*.

In the Doctrine of the Mean, Dr. Legge translates *T'o* by *Iguana*, and in the *Shih King*, he gives *Lizard*. Not knowing, probably, of the existence of crocodilians in China he was left with Chinese dictionaries to determine the exact meaning of the character *T'o* (鼉), and I must say that the ambiguity of their statements is such as to render it difficult to get at their exact meaning.

Now, according to *Choo's* commentary quoted by the translator (Dr. Legge), the great drum was eight cubits in length and four cubits in diameter at both ends. Other Chinese au-

(1) 中庸. 二十六章. 九節.

(2) 詩經. 大雅三. 靈臺. 四章.

thors say that it was made with the skin of the T'o. How could it be covered with the skin of the Iguana, which never exceeds five feet in length, or with the skin of a lizard which is far too thin and too small for even the smallest of drums? Besides the Iguana cannot be said to be produced in the waters with fishes, chelonians, turtles, etc., for it is not an amphibian animal, and I have never heard of it being found in China. I could say the same of Iguanodons. The T'o then is not an Iguana; let us now try to make out, with the help of the Chinese dictionaries, the exact meaning of the character 鼉.

One of the oldest, the *Shuo Wen* (說文) says: The T'o is an aquatic reptilian (水蟲) (3) resembling the lizard (蜥蜴) and measuring over ten feet in length. A lizard of this size can only be a kind of crocodile or Alligator.

In *Kang hi's dictionary* (康熙字典) we find, besides the above quotation of the *Shuo Wen*, that the T'o has scales as hard as iron and a very thick skin good for making drums. Then quoting the *Shih King* it explains how the sound of drums (逢逢) peng peng resembles the call of the T'o. This is certainly an example of onomatopoeia as anybody who has heard the cry of the Alligator can testify. Indeed we believe that the very name T'o is an imitation of the explosive noise made by the Alligator. The word *resounded* would be a far better translation than the *rolled harmoniously* of Dr. Legge's. Whatever might be the idea of Chinese commentators about music it is difficult to find much harmony in the noise generated by striking a huge drum with a mallet. The Chinese had observed the similarity of the two sounds as the *Po Wu Chih* (博物志) (4) quoted by the *Kang Hi's dictionary*, says: "The T'o is ten feet long; it makes a noise like a drum." *Cheng Chi* (藏器) considers the cry of the T'o as from far harmonious, indeed he says, it is very terrible. "It cries (at night) at each watch (5) thence the phrases: strike the watches T'o keng, beat the drums T'o ku. (See *Pen Tsao Kang Mu*).

The Great Materia Medica (本草綱目 *Pen Tsao Kang Mu*) (6) being a scientific work will probably give us a better description than any dictionary. It gives 鼉龍 T'o dragon, 蛇魚

(3) Dr. Legge translates 鼉 chelonian (see above.)

(4) Written in the latter part of the 3rd century.

(5) These watches were struck every two hours with a drum, now a gong or a hollow bamboo is used.

(6) Written by Li Shih-chin under the Ming dynasty.

T'o fish and 土龍 earth dragon as synonyms. It says: "The nature of the T'o resembles that of the dragon. It measures 10 feet in length and belongs not to the family of fishes but to the family of dragons. According to *Li Shih-chen* the character 鼉 is an old graphic representation of the head, body, feet and tail of the animal. The oldest form of this character we find figured like this 鼉 in *Morrison's Dictionary*. It is composed of the two characters 單 *t'an* alone and 鼃 *min* a frog. According to the *Po Wu Chih* the T'o 鼉 is a land dragon and the T'o 蛇 a fish.

The author *Cheng Chi* (藏器) quoted by the *Pen Tsao* says that the T'o is of a *sleepy nature, often closing its eyes*. It is gifted with *great strength* and can *burrow in the banks of rivers*. *Sung* (頤) writing under the Ming dynasty says that they are *extremely numerous in the lakes and rivers*. According to this author it resembles the Gecko and the Pangolin (*Manis pentadactyla*?) but measures from ten to twenty feet in length, its back and tail are covered with an armour (甲). It cries at night and the mariners are much afraid of it. *Li Shih-chen* says that its burrow is very deep. The sailors catch it with a rope made of bamboo, at the end of which is an iron hook baited with flesh. The animal, having swallowed it, is pulled out of its hole little by little. It can move to either side, but cannot jump. It lays a considerable number of eggs, sometimes as many as a hundred, but it often devours them. The people of the south are very fond of its flesh and serve it (as a delicacy) in every marriage feast. *Lu Tien* (陸佃) pretends that the flesh of the body is as good as that of cattle, but that that of the tail is unwholesome.

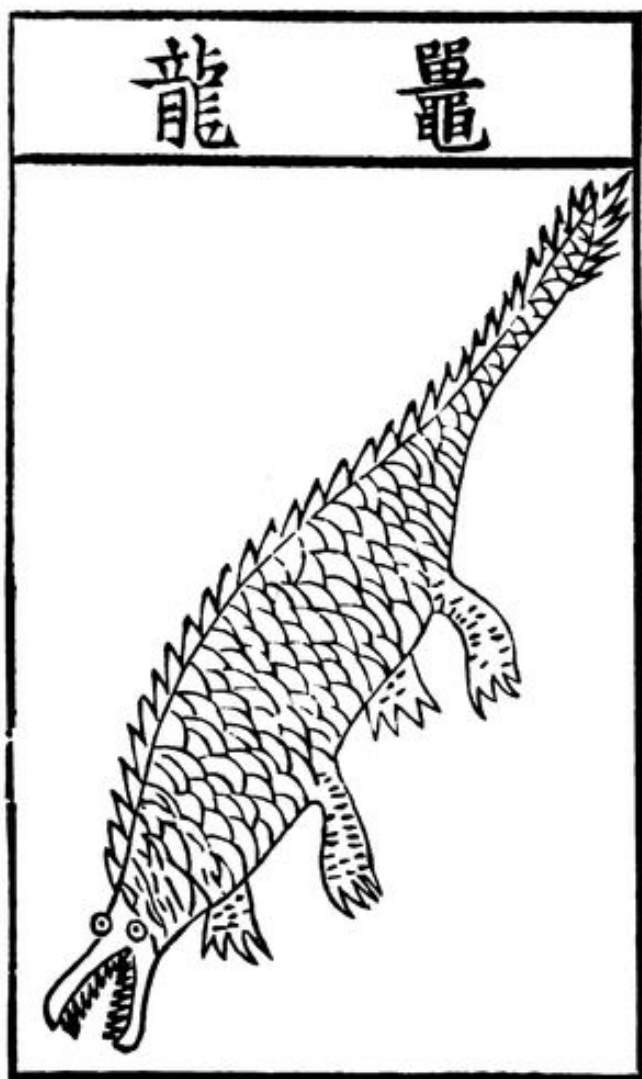
The *Kuang* records of *Kuo Yi Kung* (郭義恭) say that the fish T'o is three feet in length, and about one in height. Besides four feet it has a tail resembling that of the *Yen-ting* (蜃蜃) (*Lacerta muralis* or *Chamaeleon*) but much longer. It is the custom of the people of the south to eat the flesh of the T'o when they celebrate a marriage ceremony.

A little further it is related that at the time the Emperor *Wei-wu* (魏武) was returning from Hupeh into Honan a T'o was found underground by a man who was digging in the fields.

Here we find the measurements a great deal more accurate (though perhaps the exaggeration is the other way) as the Alligator actually living in China is from five to six feet long. The height given is sufficiently accurate and the comparison

with the lizard leaves no doubt concerning the nature of the *T'o*.

With the exception of the sentence concerning the flesh of the tail, all the description given by the Pen tsao and the Kuang's records agrees wonderfully with all that we know of the nature and habits of the Alligators of the Mississippi and Guyana, as described by Audubon, Whatterton and Bosc. Even the way of catching the animal is similar, only the Indians use an iron chain fastened to a tree as a substitute for the bamboo rope. Indeed we cannot doubt the identity of the *T'o* with the Alligator when we consider the somewhat quaint but sufficiently characteristic picture which illustrates the text of the Pen tsao. As may be seen by this reproduction of it.



We have here the head of a crocodilian pretty well brought out. In the Japanese edition of the *Shih Ki* a figure of a Gangetic gaval is given for the *T'o* but it is very curious to notice that the artist represents it as being in a glass jar! (7)

After examination of the testimony given by the Chinese dictionaries, commentaries and scientific works we come to the conclusion that the *T'o* must be an Alligator.

Let us now see what the foreign dictionaries say on the subject.

One of the oldest, Gonçalves, translates *T'o*: Crocodilo. De Guignes, who is now said to have copied B. de Glemona gives 鱷 *T'o* a crocodile and 蛟 *Chiao* a crocodile.

Morrison, whose dictionary is anterior to Legge's classics, gives the following description, evidently translated from native works: 鱷 *T'o* a large sea (?) animal, upwards of ten feet long, a species of fish, its skin was formerly used to make large drums (8). 龍 *T'o Lung*; an animal recembling an Alligator.

Medhurst's dictionary printed at Parapattan, Batavia, in 1848, translates the *Kang Hi Tszé Tien* and gives: A species of Guana or Iguana, about ten feet long. In this he evidently trusts his imagination as we have already proved that it cannot be that animal.

Finally, the best of all Chinese-Foreign dictionaries, Dr. W. William's work gives 鱷 *T'o* "A large triton, gaval, or water-lizard, found to the South of China." Then he translates the Imperial Dictionary (the *Kang Hi Tszé Tien*) and far from finding the melody of the sacred drums harmonious he translates the famous quotation of the *Shih King* by the less poetical but far more sensible phrase: "The bass roar of the drums" in which by the way *T'o* is not translated at all.

So much for the character *T'o* and its meaning, but this old ideographic sign is not the only one by which the crocodile or Alligator is designated in Chinese books.

If we search the *Tai-ping Yü-lan* (9) for this character 鱷, (10) we find a long chapter headed:

鱷魚 *Ngo yil*.—The fish *Ngo*.

(7) Probably as he had seen it in some museum.

(8) Said to breathe a vapour from its mouth, which forms a cloud and cause rain.

(9) 太平御覽卷九百三十八.

(10) Formed from 魚 a fish and 𪚩 frightening abbreviated 𪚩.

Quoting the "Chronicles of Foreign Countries under the Wu Dynasty (222-277 A.D.)," (11) it says:—The fish *Ngo* measures from twenty to thirty feet in length, it has four feet, and resembles the warden of the palace (守宮 a poetical name for the Gecko), and can swallow a man. Speaking of those found in the kingdom of *Lin Yi* (林邑 Southern Cochin-china), it says in shape they look like the *T'o*. They have four feet and their jaws, which are six or seven feet long possess on each side, teeth as sharp as daggers. They devour every deer, stag, or even man they can get hold of. According to the encyclopedia of *Yü Shi* (虞喜志林) Alligators are found in the south, their jaws are eight feet long. They are very terrible in autumn. When they see men on a ship's side they raise their heads above the water, seize and devour the mariners, who, in consequence always provide themselves with spears for defence.

The *P'o Wu Chih* (博物志), description of all productions, says that they are found in the Canton district and resemble the tortoise. If the head is cut, and the teeth knocked out, they will grow again, as many as three times. We find the same description and measurements, as quoted above, in the records of the curiosities of *Kuang-chou* (province of Kuang-tung), but the story of the teeth growing again is more sensibly told, "If the teeth are knocked out, they can grow again in the space of ten days."

The book called "*Lin Piao Lü Yi*" (嶺表錄異) is the only one that gives the colour of the body, an earthy yellow. It also compares it to the gecko, but says it is more rapid in its movements. All pretend that men and animals fear it equally. It seizes deer and tigers when crossing the water and tears them to pieces.

All these characters are common to the 鼉, and as we will yet demonstrate later on, the animal described under the four characters—鼉, 鰐, 鰐, 蛇 is the Alligator. 鼉 being the oldest form of the character 鰐, which by the way is not found in the classics; and 鰐 or 蛇 are the common forms of character now used. Gonçalves translates: 鰐 and 鰐 *Crocodylo*, and 蛇 by *Cacaõ*. De Guignes gives *Crocodylus* as signification of the first and second character, and *quidam piscis* for the third. Morrison has: 鰐 = 鰐 or 鰐魚, a large fish of the lizard species which lurks by the shore and devours men and animals; the Alligator.

In Medhurst's dictionary we find:—

鱷 *Go*.—The Alligator or Crocodile. They are found in the South seas of China(12). The natives say that after the head has been cut off and dried, if the teeth are knocked out, they will appear again three times in succession. The Alligator is about twenty feet long with four legs, and a head three feet in length, with a very pointed nose. It has tiger's teeth, and can bite in two large stags, that attempt to cross the water. *Han Wen-kung* (韓文公) published an essay to drive the Alligators from the coast of Canton, and the natives say those beasts have not been seen there since.

鱷 *Go*.—An Alligator described as having the form of a fish, with a dragon's neck, tiger's claws, crab's eyes, turtle scales, a tail several feet long, and very rugged along the spine. It abounds on the banks of rivers, where it frequently takes off men and animals. Medhurst then quotes *Han Wen-kung*.—All this is evidently translated from native works.

蛇 *Tho*.—Another account says that it is found near the banks of lakes, where it burrows in the mud; its form is like a lizard upwards of ten feet long, and its back and tail are covered with scales.

Evidently the Alligator again (same article in Morrison's dictionary).

Morrison's dictionary explains this last character **蛟** *Keaou* to mean:—A kind of Crocodile, found in the Yang Tze Kiang, said to weigh two thousand catties, etc., as above. Gonçalves calls it also: *esp. de Crocodilo*.

In Dr. William's dictionary we find:—

鱷.—From **魚** *yü* fish and **噩** *ngo* alarming, as the phonetic. The crocodile and the Gangetic gaviol; the former is said to have existed at one time in the River Han, near Swatow, whence they were exorcised in the Tang dynasty; metaphorically rapacious cruel, for example: **鱷紳劣吏朋比爲奸**.

"The rapacious gentry and unscrupulous underlings make a worthy union of rascals."

鱷 *Ngo yü*: an Alligator, cayman, or crocodile; it seems to be sometimes wrongly applied to fresh water dolphins.

Also written **鱷** *Ngo* from *yü* fish and *ngo*, **駟** to startle, to strike the drum at intervals of singing. This reminds us of use of the skin of the animal.

(12) This is probably a misconstruction of the Chinese **南海** which stands also for **南海縣** Nan-hai-hsien, the district of Canton, as it is well-known that Alligators do not live in sea-water.

According to Dr. William's 蛇 *T'o* would be a species of bull-head which burrows in the mud, and he gives :—

蛟 *Chiao*.—The dragon of thickets and morasses, which *has scales, but no horn*; the description size and figure correspond very nearly to the fossil *Iguanodon*, and possibly a large kind of *Salamandra* or *Amblyrinchus* was at first intended. To this, we can say, that an *Iguanodon* with scales and without horn looks very much like a crocodile poorly drawn; besides the *Iguanodon* belongs to the inferior cretaceous formation which as far as we know has not yet been found in China.

We have indeed seen large collections of fossil teeth in the medicine shops of Shanghai and we have a pretty good number in the R. A. S. museum, still the very characteristic tooth of the *Iguanodon* has never been met with.

The crocodile being larger than the Alligator we understand the differences of weight and measurements given by Chinese authors, putting aside some misstatements or wrong descriptions. The crocodile being more ferocious than the sleepy and harmless Alligator we understand also why they used to capture the latter and kill the former.

It is also evident from all these native descriptions that the Chinese had heard of, and some of their travellers to India probably had seen the Gaugetic gavial and crocodile, hence their conflicting statements. Even in Europe unscientific people often confound the crocodile with the Alligator more vulgarly known as cayman, the name given to it by the Indians and negroes in America.

As a *resumé* and conclusion of this philological discussion which we now bring to a close, having Chinese dictionaries and encyclopedias in one hand; old records, natural history and Chinese and Foreign dictionaries in the other I propose to translate 蛟 *T'o* by Alligator as well as 蛟 or its abbreviated form 蛟.

蛟龍 will mean the crocodile or the gavial class of animals. The classical quotation of the Doctrine of the Mean :

龜, 鼈, 蛟龍, 魚鼈生焉 *Yuan, t'o, chiao lung, yü pieh sheng yen* I should translate :

“The great tortoise, the Alligator, the crocodile, the fish and the turtle are produced in the water.”

The phrase of the *Shi-King* :

鼉鼓逢逢 *T'o ku peng peng*, should be understood as : “the

According to Dr. William's 蛇 *T'o* would be a species of bull-head which burrows in the mud, and he gives :—

蛟 *Chiao*.—The dragon of thickets and morasses, which *has scales, but no horn*; the description size and figure correspond very nearly to the fossil *Iguanodon*, and possibly a large kind of *Salamandra* or *Amblyrinchus* was at first intended. To this, we can say, that an *Iguanodon* with scales and without horn looks very much like a crocodile poorly drawn; besides the *Iguanodon* belongs to the inferior cretaceous formation which as far as we know has not yet been found in China.

We have indeed seen large collections of fossil teeth in the medicine shops of Shanghai and we have a pretty good number in the R. A. S. museum, still the very characteristic tooth of the *Iguanodon* has never been met with.

The crocodile being larger than the Alligator we understand the differences of weight and measurements given by Chinese authors, putting aside some misstatements or wrong descriptions. The crocodile being more ferocious than the sleepy and harmless Alligator we understand also why they used to capture the latter and kill the former.

It is also evident from all these native descriptions that the Chinese had heard of, and some of their travellers to India probably had seen the Gaugetic gavial and crocodile, hence their conflicting statements. Even in Europe unscientific people often confound the crocodile with the Alligator more vulgarly known as cayman, the name given to it by the Indians and negroes in America.

As a *resumé* and conclusion of this philological discussion which we now bring to a close, having Chinese dictionaries and encyclopedias in one hand; old records, natural history and Chinese and Foreign dictionaries in the other I propose to translate 蛟 *T'o* by Alligator as well as 蛟 or its abbreviated form 蛟.

蛟龍 will mean the crocodile or the gavial class of animals. The classical quotation of the Doctrine of the Mean :

龜, 鼈, 蛟龍, 魚鼈生焉 *Yuan, t'o, chiao lung, yü pieh sheng yen* I should translate :

“The great tortoise, the Alligator, the crocodile, the fish and the turtle are produced in the water.”

The phrase of the *Shi-King* :

鼉鼓逢逢 *T'o ku peng peng*, should be understood as : “the

alligator-skin drums ^{are}_{were} resounding," and these words of the *Li-Ki*:

季秋之月伐蛟取鼉

would mean: "About the time of the ninth moon they kill the crocodile and capture the Alligator."

II.—HISTORY AND LEGENDS.

In the works of *Han Wen-kung* 韓文公 (13) also called *Han yü* 韓愈, a celebrated statesman and poet who lived under the dynasty of the Tang (A. D. 768-924) we find this. When *Han yü* was banished and sent to fill the post of governor in the semi-barbarous region of *Chao chou* (潮州) in the modern province of *Kuang-tung* (廣東), he enquired of the people as to the state of the country and the miseries of the inhabitants. They answered him that at a place in the east of the city there was a small lake or marsh not far from *Chao yang hsien* (潮陽縣) (14) it was called the "*Chiu waters*" (秋水). It was full of *Ngo fishes* 鰐魚 hatched from eggs and some ten to twenty feet long, which devoured the cattle and other domestic animals, thus gradually exterminating them to the consequent impoverishment of the people. A few days after *Han-yü* went to this place and calling his officer *Chin chi* ordered him to have a pig and a sheep thrown to the *Ngo fishes* which he then addressed as follows:

Under former rulers you have been allowed to remain here, but under the reign of our virtuous emperor you cannot be tolerated and you must leave his empire. How could you be permitted to live here in peace when you are molesting the people fattening on their domestic animals and increasing daily in number? I have come to rule this country in the name of the sovereign and as I am myself much afraid of you we must part company. At the south of this place is an immense sea in which fishes as large as whales as well as those as small as shrimps and sprats can live in peace. You can easily go there in a day but I give you from three to seven days to

(13) 韓文公詩增註.

(14) Opposite Swatow.

go. If after that period you are still found here I shall be compelled to bring with me some good archers with strong bows and poisoned arrows and declare against you a merciless war.

In the afternoon of that very day a violent wind arose accompanied by thunder and lightning. The storm raged for a few days driving the waters sixty *li* eastwards leaving the lake perfectly dry. Since this the *Ngo* fishes have disappeared and the people of *Chao chou* live in peace.

On the native maps of the province of Canton we find still to the west of *Ho Yuen hsien* (河源縣) 110 miles west of *Chao chou* a small lake called 鯢湖 *Ngo hu* i.e. Alligators' lake.

This story we have also found slightly abridged in the Annals of the province of *Kuangtung* (廣東通志).

According to Mr. W. F. Mayers⁽¹⁵⁾ this is simply a legend symbolizing the efforts made by *Han Yü* in civilizing the rude inhabitants of the country. But it was during the reigns of the Tang, far from the mythological times, and this story agrees with what we know of Alligators, and as they are still found in the province of Canton, as this paper will show before concluding we think it quite possible that they were really in existence there, and then, and even before. Indeed, the *Ngo* are mentioned in the "Annals of Foreign Countries during the Wu" (222-277 A. D.) where we find them sufficiently well described to leave no doubt of their crocodilian nature. The book of the Liang dynasty (502-556 A. D.) says that in the kingdom of *Lin Yi* (林邑) now southern Cochin-China, crocodiles (*Ngo*) are reared in the moats of the capital as well as in the enclosure where, outside the gates of the city, the wild beasts are kept. Criminals are thrown to them. If during three days they are left unharmed by the animals, they are considered innocent and restored to liberty. These crocodiles measure twenty or more feet in length and resemble the *T'o* (Alligator). There is no mistake possible here, as crocodiles are still found abundantly in Siam. They belong to a variety only known there, thence their name *Crocodilus Siamensis*. The Chinese book adds that they are very ferocious and that they are also found in *Tsang Wu* (蒼梧) (southern Kuangsi?) as well as in foreign countries.

The "Annals of Foreign Countries" (222-277 A.D.) also narrates that the King of *Fu Nan* (扶南) by name *Fan ch'un*

(15) The Chinese Readers' Manual article *Han yü*.

(范 尋) had crocodiles (*Ngo*) brought to him and kept them in a pond. Rebels and criminals were thrown to them and released as innocent if left unharmed by these saurians. The kingdom of *Fu Nan* is probably Tonquin where crocodiles are still found.

In the Annals of Annam (交州 *Chiao chou*) we find that crocodiles like to come out from the waters on the sand where they lay eggs about the size of those of a goose and good to eat. They seize tigers, deer and stags when they cross the water, tear them to pieces and devour them. They even attack man now and then. If their teeth are knocked out they will grow again in the space of ten days.

We now come to China proper. In old times, says the book called *Ling Piao Lü Yi* (嶺表錄異), a military mandarin (called 李 in the *Kuang-tung* Annals) was coming to *Chao chou* (湖州). As his boat was passing the Alligators rapid (鱷魚灘) it struck on a rock and was wrecked. All the accumulated treasures of this officer, his books, vases, pictures and maps were lost in the deep. He called his mariners and ordered them to dive in order to recover them if possible. But these men saw so many Alligators under water that they did not dare to rescue the lost treasures, believing that they had come to the private residence of the monsters. So it is not only Han Yü who saw Alligators near *Chao chou*.

The Canton province is not the only one mentioned as producing the *T'o* or *Ngo*. In the chapter headed Imperial audiences (王會) of the *Shi Chia Chou Shu* (汲冢周書) that is: Discoveries made in tombs, we find that the people of *Hang chou fu* in Chekiang send the *T'o* as a tribute to the Emperor, to make the court drums with the skin, as the commentator explains.

With this we will close close our quotations from Chinese history and give a few of the legends concerning the crocodiles or Alligators.

THE Chinese have an idea that the Alligator is wonderfully tenacious of life. The Canton annals say that the head can be cut and dried, before the animal dies, the muzzle can be broken into pieces and all the teeth pulled out and still it lives.

The history of the Wu dynasty tells us that in the first year of the reign of *Sun Liang* (孫亮) white barking Alligators or crocodiles were found in *Kang An* (公安). It is a common

belief there that when the *T'ao* barks and the back of the tortoise becomes flat, a dreadful calamity is surely impending from which people can only save themselves by fleeing to *Nan Chun* (南郡), now the city of *Nan Cheng* in Kiangsi. And indeed in the second year of *Sun Liang* a rebellion arose in *Kung An* and a mandarin called *Ch'u Ko-ch'üeh* (諸葛恪) was defeated by the rebels; his younger brother *Ch'u Ko-jung* (諸葛融) mandarin in *Kung An* was taken prisoner by them. His seal of office was made of gold cast in the shape of a tortoise. In his grief he scraped the back of the tortoise and swallowed the gold so obtained, which gold caused his death.

The book of *Chuang tse* (莊子) says that as Confucius was visiting the bridge of *Lü Liang* (in Shantung) the water rose twenty-four *chang* and rushed with great impetuosity over thirty *li* of country. The *Yuan* 鼃 and the *T'ao* 鼉 did not dare to risk themselves in the waters but the sage saw a man swimming across some hundred *pu* (about a mile). When he came out Confucius asked him how he had managed. The man answered: my nature does not fear, my destiny is certain I will follow the strength of the waters. It was because I had no fear that I succeeded in crossing the waters, I really had no other means.

In the *Ch'un Chiu* of *Lü Shih* (呂私春秋) we read that the emperor *Ch'üang Hsü* (顓頊) ordered *Fei Lung* (飛龍) to make a musical instrument of eight sounds (a kind of mouth organ) for the ceremonies of the cult of *Shang Ti*. When this instrument was used for the first time a *T'ao* which was near the place kept measure with the melody by striking his tail against his body.

The records of *So Shen* (搜神記) narrate that in Honan a man named *Chang Fu* (張福), being one night in his boat, saw a woman coming in a small canoe, when she came near him she said: "When night comes in I dare not go out as I fear the tiger." *Chang Fu* at first laughs at her then he invites her to come and spend the night with him on his boat. About midnight as the moon was raising in the sky, *Chang Fu* (waking) saw a white *T'ao* sleeping on his arm instead of the woman. Greatly afraid he rose up and the animal fled, the man saw then that what he had taken for a small boat was simply an old wooden log.

In the book on foreign countries written by the Buddhist priest *Ch'eh Seng* (玄僧) we find that in the kingdom of *私訶條* (*Ssu Ho Tiaw*) on the mountain called *Ch'uan Tao*

Leao (全道遼) is the temple of *Pi Ho Lo* (毗訶羅); there a stone figure of a *T'o* is adored. This image is said to possess a supernatural power and when provisions are scarce at the monastery the priests address to it their prayers and their stores are soon replenished.

The records of *Hsü Shih* (許氏志怪) narrate the following story: A Buddhist priest, by name *Yao*, being a sorcerer and an exorcist was once called in (the city of) *Kuang Lin* to exorcise a woman named *Wang* who was possessed. Upon entering her house *Yao* knew that she was possessed by the spirit of a *T'o*, so he scolded this spirit insulting it and asking it why it had entered the body of that woman. *Wang* answered "a man wants to kill my husband." The devil who was near her answered: "I am exceedingly sad for I know that to-day I must die." It wept and moaned. To this *Yao* said "I know it is a spirit and cannot fight with it." The neighbours heard these words and then saw a *T'o* coming out, it was killed by *Yao*.

In the book called *Yu Min Lou* (幽明錄) we find the following legend:

At the time of the emperor *Yung Chou* of the Sung dynasty a mandarin named *Chang Chun* (張春) being in office (*Che-fu*) at *Wu Chang* (武昌) in Hupoh was marrying his daughter. Just as she was getting into her carriage she went mad and on the road struck every man she met declaring she would not marry. A countryman, who was a sorcerer, saw the young lady and understood her to be possessed by the spirit of the tortoise (魅邪). He said that he could cure her by taking her to the bank of a river and there beating a drum. *Chang Chun* having heard of this believed that the man was an impostor (was lying) so he ordered him to bring the tortoise (*Kuei*). A green snake came first and was transfixed with a nail by the sorcerer. Towards midday a great tortoise was seen issuing from the waters, the sorcerer taking a vermilion pencil traced on its back a mystic character and ordered the animal to return to the waters. At evening time a large white *T'o* was seen in the middle of the river rising and plunging as the tortoise pursued it. The *T'o* died, the damsel wept bitterly on what she called the death of her husband and little by little she returned to her senses. As people were questioning which of the three animals had caused the sickness of the lady the sorcerer said: "The green snake was the messenger who informed me, the turtle is a lover and the *T'o* was the husband of the

woman." He then brought the three animals to *Chang Chun* who saw that he had not been false (made a lie.)

In the *Pen Tsao* we find that it requires just the same number of men to pull a *T'o* out of its hole as would be needed to dig it out; otherwise it is impossible to capture it. When it cries the country people know that rain is coming. The same book gives a rather curious method of killing and flaying the Alligator. The mode is as follows: pour boiling water down its throat; after a certain time (rather long I fear) it will die then you can peel off the skin.

Of course such a curious animal akin to the dragon must be used in the materia medica of the Chinese. The scales are found in most of the druggist shops under the name of *Lin Yü chia* (鱗魚甲). It is mostly procured in the district of Canton where according to the *Pen Tsao* it can always be found. These scales are said to be sour, slightly warm and a little poisonous, though this last is denied by some authors. They are supposed to cure heart and intestinal diseases, fever and female disorders, diseases arising from fear, nose bleeding, tooth ache and they are also used as a vermifuge and as a remedy for goitre and skin diseases.

The recipe is as follows: roast the flesh, pouring wine over it, burn the skin and bones to ashes and mix them with warm wine. The scales are good to make a soup which is said to cure madness. The fat and liver are also used as medicines in different diseases.

The Chinese have a wonderful idea of the length of time an Alligator can live. Indeed they use it as a term of comparison for old age and if we say as old as Melchisedeck they write: (a friend of mine informed me) "older than the *T'o*" *pi t'o lao* 比鱷老. They also believe that this animal is gifted with greater strength and vitality than any of the known animals, the elephant included and as a Chinaman jocosely remarked to me: "if you foreigners give nine lives to the cat we must give at least twelve to the *T'o*."

III.—FOREIGN LITERATURE.

HAVING now well-nigh exhausted the Chinese literature on the subject of the *T'o* and *Ngo* let us investigate what foreign books on China can say on the subject of Crocodiles or Alligators in this country.

Thanks to the kindness of the Jesuit Fathers who placed their valuable library at Siccawey at my entire disposal, and even provided me with written copies of the Great Imperial Encyclopedia quoted above, I was able to consult all the works written on China by their eminent predecessors at the Court of *Kang-Hi*.

The valuable collection of books on China found in the library of the North-China Branch of the Royal Asiatic Society was also carefully consulted.

It is curious enough to notice that out of such a considerable number of works written on this country four or five only, and those in the first part of the 17th century speak of the Crocodile or Alligator. And yet, after a careful comparison of the texts, they are found to copy each other so that the original sources of information are reduced to two, namely:—

Marco Polo the Venetian who writes in the 13th century, and evidently speaks from hearsay, and Father M. Martini who no doubt got his information from Chinese works.

I was much surprised to find nothing on this subject in Duhalde, Grosier, and others who seemed to have described everything worthy of note in the Empire. It was also in vain that we consulted, the more modern works on this country. Even those pretending to give the natural history of China are silent on the subject of crocodilians.

In Wells Williams' Middle Kingdom we find:—The larger lizards have not been noticed in China, though the Crocodile is found both in India and Siam on nearly the same latitude as Kuangtung. It may, however, have inhabited once the rivers of the Middle Kingdom, for the character *Ngoh* is evidently an original word, and Marco Polo describes a huge serpent which he had not seen himself, but which seems to have been intended for the Crocodile.

Here is the text of the Venetian traveller. Marco Polo (1280), Vol. II, p. 62 and seq., speaking of Province of Carajan, the actual province of Yunnan, says: "In this province are found snakes and great serpents of such vast size as to strike fear into those who see them, and so hideous that the very account of them must excite the wonder of those who hear it. I will tell you how long and big they are.

"You may be assured that some of them are ten paces in length, some are more and more less. And in bulk they are equal to a great cask, for the bigger ones are about ten palms in girth. They have two forelegs near the head, but for foot nothing but a claw like the claw of a hawk or that of a lion.

The head is very big, and the eyes are bigger than a great loaf of bread. The mouth is large enough to swallow a whole man, and is garnished with great (pointed) teeth. And in short they are so fierce-looking and so hideously ugly, that every man and beast must stand in fear and trembling of them. There are also smaller ones such as of eight paces long, and of five, and of one pace only. The way in which they are caught is this: You must know that by day they live underground because of the great heat, and in the night they go out to feed and devour every animal they can catch. They go also to drink at the rivers and lakes and springs. And their weight is so great that when they travel in search of food or drink, as they do by night, the tail makes a great furrow in the soil as if a full ton of liquor had been dragged along. Now the huntsmen who go after them take them by a certain gyn which they set in the track over which the serpent has past, knowing that the beast will come back the same way. They plant a stake deep in the ground and fix on the head of this a sharp blade of steel made like a razor or a lance-point, and then they cover the whole with sand so that the serpent cannot see it. Indeed the huntsmen plant several such stakes and blades on the track. On coming to the spot the beast strikes against the iron blade with such force that it enters his breast and rives him up to the navel, so that he dies on the spot (and the crows seeing the brute dead begin to caw, and then the huntsmen know that the serpent is dead and come in search of him.")

"This then is the way these beasts are taken. Those who take them proceed to extract the gall from the inside, and this sells at a great price; for you must know it furnishes the material for a most precious medicine. Thus if a person is bitten by a mad dog, they give him but a small pennyweight of this medicine to drink, he is cured in a moment. Again if a woman is hard in labour they give her just such another dose and she is delivered at once. Yet again if one has any disease like the itch, or it may be worse, and applies a small quantity of this gall he shall speedily be cured. So you see why it sells at such a high price. They also sell the flesh of this serpent, for it is excellent eating, and the people are very fond of it. And when these serpents are very hungry, sometimes they will seek out the lairs of lions or bears or other large wild beasts and devour their cubs, without the sire and dam being able to prevent it. Indeed if they catch the big ones themselves they devour them too; they can make no resistance."

As Col. Yule remarks: "It cannot be doubted that Marco

Polo's serpents here are crocodiles (or Alligators) in spite of his strange mistakes about their having only two feet and one claw on each, and his imperfect knowledge of their aquatic habits. He may have seen only a mutilated specimen. But there is no mistaking the hideous ferocity of the countenance, and the "eyes bigger than a fourpenny loaf" as Ramusio has it. Though the actual *eye* of the crocodile does not bear this comparison, the prominent *orbits* do, especially in the case of the *ghariyal* (gavial) of the Ganges, and from one of the most repulsive features of the reptiles' physiognomy...And there is some foundation for what our author says of the animals' habits, for the crocodile does some times frequent holes at a distance from water, of which a striking instance is within my own recollection (in which the deep furrowed track also was a notable circumstance.)"

"The Cochin Chinese are very fond of crocodiles' flesh and there is or was a regular export of this dainty for their use from Camboja, I have known it eaten by certain classes in India. The term *serpent* is applied by many old writers to crocodiles and the like, *e.g.* by Odoric, and perhaps allusively by Shakspeare (*Where's my serpent of old Nile.*")

"Matthioli says the *gall of the crocodile surpasses all medicines* for the removal of pustules and the like from the eyes. Vincent of Beauvais mentions the same, besides many other medical uses of the reptiles' carcase, including a very unsavoury cosmetic."

For the French text of Marco Polo we consulted, "*Le livre de Marco Polo par M. G. Pauthier*, chapter cxviii, page 893." There we find in a note that Klaproth (in his "*Nouveau Journal Asiatique* Février 1828, page 118,") is of opinion that the animal in question is a boa, a kind of snake he says common in Yunnan. He ought to say a python, instead of a boa, as we have now at the Shanghai museum skins from this immense snake sent from Yunnan. But we think it more probable that the Venetian traveller mixes the python and Alligator in his somewhat obscure statements. H. Murray quoting Marco Polo in his *Historical and Descriptive Account of China* adds a few lines to explain that the animals in question are evidently *crocodiles*.

If we also compare the description of Marco Polo with those given by Bosc and Audubon of the Alligators of America, we will find many points of similarity. According to these authors, the Alligators, which are found as far north as the thirty-

second degree of latitude, bury themselves in deep burrows, in the banks of the rivers where they pass the *whole of the cold season*, and even *the entire day in summer*. They fall into a lethargic state before the setting in of the frost and their sleep is so profound that they may be almost cut to pieces without manifesting any sign of life. They seldom travel except *during the night*. They can fast long, live on frogs, fish, aquatic birds, on dogs, hogs, cattle, and any animal they can catch. Slow on land they can move with great velocity in the water. Though usually met with on the edges of the rivers they are sometimes also found in ponds in woods. The Indians eat the tail only, and their eggs are prized by the natives, though they partake of the musky smell of the animal, which when strong is insupportable, but it is not perceptible when they are in the water. So disinclined are they to attack the human race that Mr. Audubon, and his companions have waded waist deep amongst hundreds of them. They are caught with a strong hook baited with a bird or a small quadruped, and connected to a tree by a chain. They avoid the salt-water and proximity to the sea. When angry or fighting they swell themselves and utter a dull bellowing sound not unlike a blacksmith bellows. Stones or concretions are often found in their stomachs. They generally lay from fifty to sixty eggs which they deposit in the sand. In *Alligator palpebrosus*, the eyebrows form large knobs of the size of a man's fist (the great loaf of bread of Marco Polo).

After Marco Polo the oldest work in which we find a mention of the crocodiles in China is the *Atlas Sinensis* of M. Martini Amstelodam, 1656. In the description of the city of *Guchen* of the province of *Quangsi* we find: "*Ad urbis ortum est lacus parvus Go, in quo olim Rex Pegao decem aluit crocodilos, quibus, ut devorarentur objicere solebat reos et sceleratos; ab iis innocentes nunquam læsos fuisse narrant, adeo que, quos crocodili non occiderent, liberi eo ipso, tanquam vacantes omni culpa abire jubebantur.*"

That is to say: "At the entrance of the city there is a small lake called *Go* (crocodile lake) in which the King *Pegao* used to keep ten crocodiles. It was the custom to give them the accused people and the criminals to devour.

It is said that the innocent were never hurt by them, so that those who were not killed by the crocodiles were free from this very fact and ordered to go as if they were entirely innocent."

These saurians did not appear to be so good criminal judges in the province of Kuang-tung as the same author describ-

ing the city of Chingkiang (in the district of Chaochau) says:

"Ad ortum urbis Ço amnis est, quem incolunt crocodili "etiam hio hominibus infesti." i.e. At the entrance of the city is (found) the river Ço inhabited by crocodiles, which are a great plague to the people.

In the description of the Province of Huquang, P. M. Martini speaking of the city of Siang Yang, says:

"Siang flumen ad urbis Barrolybicum est, in quo animal nascitur equo non absimile nisi quod squamosum sit, & unguis ut tigris habeat, ferox est, quod et homines et animalia cœtera aggrediatur id præcipue autumnî tempore tentat, quo frequentius ex aquis egressum terram pervagatur. (Novus Atlas Sinensis a Martini Martinio versus 1654. 7a. Provincia p. 76)."

This we find copied by Serlinus in a very curious old book printed at Francfort on the Mein (1165) and called "Artificia hominum miranda naturæ in Sina et Europa. Willelmus Serlinus & Georgius Figwich. Caput XVI p. 1188. But as it was the custom at that time the authority is not quoted and the latin is cramped or badly copied. Leaving altogether the Barrolybicum he writes only Siang flumen alit animal, etc., and *ungues* is badly enough transformed in *anguis* which has no meaning.

The following sentence of M. Martini: "At Chaocheu (Provincia Kuangtung) in amne Go incolunt crocodili etiam hio hominibus infesti" is also copied by Serlinus, but he puts *degunt* instead of *incolunt* thinking it probably a more elegant latin. This statement of Martini is confirmed on his map where we find the river Go flowing near Chao cheu.

Father Athanase Kircher, in his "China Illustrata, Amstelodam 1667," prefers to copy the description of these animals from Marco Polo.

Then comes the book "L'Ambassade de la compagnie Orientale des Provinces Unies vers l'Empereur de la Chine, etc. . . . Leyde 1665." This is the description he gives, in quaint old French, of the Crocodile.

"On trouve aussi force *Crocodiles* près la ville de *Chao cheu* (province de Quantung) dans les eaux du fleuve de *Co* (Go?) les quels molestent et tüent beaucoup de monde.(16) Cet animal a cinq choses fort considérables; il devient le plus grand du plus petit principe et commencement, *maximus existit ex minimo*, parce qu'il est produit d'un œuf; il remuë la maschoire d'en-

16) This is evidently taken from Martini.

haut ayant la basse immobile ; il croit tout le temps de sa vie ; il n'a point de langue selon plusieurs, ou l'a courte, ou inutile selon d'autres ; et il fuit devant les personnes qui le poursuivent, ne courant qu'après celles qui témoignent de la peur en s'éloignant de luy. . . . On dit qu'il peut vivre quatre mois sans manger. . . . Les brebis et les hommes font ses plus piands morceaux. . . . On le prend avec des hameçons attachés au bout d'une corde fort déliée faite de cannes, en mettant quelque mechante brebis ou chèvre pour amorce que ces monstres avalent comme une pillule, et ainsi ils se trouvent attrapés.

"Les Chinois et les autres peuples Orientaux font bonne chère de leur chair qui est blanche, d'un gout de chapon et d'une odeur très agréable. Ils tiennent que l'eau, dans laquelle cette chair aura bouillie, a la force de guérir les morsures des araignées, et que leur sang éclaircit la veüe, et remédie aux blessures des couleuvres. Leur peau estant brulée et mêlée avec de la lie d'huile engourdit les membres de telle sorte qu'ils ne sentent point la pique."

This description is also accompanied with a curious engraving intended to represent a crocodile, but it is evidently drawn a great deal more from imagination than from nature. The body which is covered with oval scales, very distant from each other, does not rest on the ground and the tail has only one ridge of scales instead of two.

From these times 1880 and 1667 we find no books mentioning the existence of the crocodiles in China except Williams in his *Middle Kingdom* as above quoted and Morrison who says positively in his dictionary that crocodiles are found in Yang-tse-kiang. We have searched carefully the old files of the Shanghai newspapers and it was not until the year 1869 that we found the first reliable modern notice on the existence of crocodiles in China.

Under the title *Crocodiles in China*, the *Shanghai Evening Courier* of the 17th of March 1869 gives the following :—

A little time ago, before the rise in opium and the feverish but profitable speculation in rags to arrive, engrossed the active foreign mind of Shanghai, we were interested in a report that a real true dragon had been imported and was to be seen by the curious in the Shanghai tea gardens. Naturally reports magnified the appearance and attributes of this extraordinary creature ; nothing of the kind had been seen before ; it had come out of a cave in the wild Kiangse mountains ; could

devour a child without distressing its thorax; and was eminently calculated to perform that supreme act of Chinese patriotism: exterminate the barbarian. A goodly crowd of foreigners went to see the monster. Armed with ten cent pieces or whatever small coins the ingenuity of bank compradores induces us to accept as quarter dollars, and unmindful of sundry bad cases of confluent small-pox and other forms of infectious disease with which the entrance to the Chung wang miao (17) is ornamented, we found ourselves amidst the wonders of that most curious ground known as the tea gardens. Passing through the festive crowd who were spending their loose cash with mountebanks, peep shows, story tellers, and sweetmeat vendors, we came upon a large space surrounded by a strong net in the middle of which was a canvas screen about two feet in length, and behind this was concealed the dragon. A notice at the entrance informed the public that he weighed so many catties and was a real horrible mountain dragon. Above the canvas screen could be seen the manly form of a coolie armed with a bamboo, who every five minutes appeared to be engaged in a kind of Pootung outrage (fight) with the monster within, and every five minutes by the gesticulations and cries of this gentleman it would appear that the dragon had got the better of his antagonist, who disappeared defeated behind the canvas for a time before recommencing the performance. Truly there must be a "pucka" (proper) demon inside! so facing the attendant, in we went, with a fore knowledge that we were going to be "done" and "done" we were. In an ordinary washing tub about three feet long was to be seen a poor miserable half dead common Crocodile, or Alligator as learned discriminators of species declare it, who resembled his congener of the Nile about as much as a monkey does a man. He had a curious despairing look in his wicked little eye and seemed to be thinking of that feed of fish which he sadly wanted, but would never get. The attendant, he of the bamboo lately engaged in the terrific struggle, took the wretched thing from his tub, turned him upside down, opened his mouth in the gentle way a parish doctor does a pauper's, shewed his teeth, and with a broad grin informed us that he was very terrific. Then the poor beast was returned to his wash tub and instantly went into a stupor! It had most likely come up in a ship from Siam, the crew of which forgot to feed it, and was not comparable as an object of interest to our late friend the salamander. That brute at all events redeemed a long life of the most uncom-

(17) Temple of Chung Wang.

promising indolence, by turning sharp round on his master and biting his hand severely causing him at once to respect his captive and be more careful in future. The party assembled, among whom were the learned both in law, language, medicine and science felt that they had come a long way to see nothing, but to console themselves, agreed that this wretched little crocodile having thirty-two teeth must be a new species, and that consequently both time and coin were well spent.

This is the first mention of a *probable new kind* of Alligator or crocodile in China and though the article was written in jest some of the scientific men who were with the writer (Mr. Goodwin, an able scholar and great ægyptologue) declared from their cursory investigation that this was a new species as we will see later on by Mr. Swinhoe's note in the Proceedings of the Zoological Society.

This paper was written and going to the press when hearing that Mr. E. A. Reynolds had seen Alligators in the Yangtze long before that I enquired from him on the subject, and he very kindly favoured me with the following note:—

"In April 1858, I lent my house-boat to T. T. Meadows, H.B.M.'s Consul, and accompanied him in her to Nanking, where we were towed by H.M.'s steamer *Hermes*, having on board Sir Sam. Geo. Bonham, Governor of Hongkong. On approaching Silver Island, we noticed what appeared to be human bodies floating near the shore in the eddy tide; but on nearing there were found to be wooden idols, which the rebels had thrown into the river from the joss-houses on the Island. Not seeing anyone moving about Meadows and myself proceeded in my boat and landed. We found all the pavilion, priests' dwellings, etc., burnt down; but all the temples at the landing were perfect. I found one priest, to whom I asked, if there were no small josses about, he took me to a ditch into which a number of brass, bronze, and other metal idols had been thrown. I carried away quite a number. He took me to a pond or a small lake, taking a small bowl of rice and a switch with him, with the latter he beat the water crying 'ado, ado,' presently an Alligator or Crocodile came towards here we were standing, and while still in the water opened his mouth into which the priest threw the contents of the bowl: the Alligator backing himself into the water again. I was quite unprepared for such a sight, and was a little alarmed at first. I should say the animal was of a good size, but as his open mouth only

came out of the water, I could not see how long it really was."

"Returning to the temple, I noticed a very fine etching, of an Alligator, also a long inscription cut in the slate tablet, I dug this out intending to bring it away, but on getting it to the ground it was found it would require several men to carry it off, so I had to abandon it. I, however, think it would have been replaced by the priests, and may be now in the wall, from whence I removed it. I should think one could get a full description of this Alligator from the inscription.

"The officers of the *Hermes*, who landed shortly after were much struck with the correctness of the etching, being a departure from Chinese rude pictures of all animals. Doubtless this correctness may be attributable to the fact of the priests having daily opportunities of watching their pet when basking in the sun.

"A friend of mine, Captain Elsworthy, who was in the Taoutai's fleet blockading the river, told me he had frequently been shewn this same Alligator by the priest some months after; and they told him it went away in the winter (more likely only buried itself deep in the mud at the bottom of the pond), and returned in the spring and remained on the Island during the hot months.

"I since made enquiries about this Alligator, and was told that one of the captains of a Portuguese lorcha, employed also blockading the river, had fired at it with his rifle while the animal was in the pond; but whether he killed it or not, I did not learned; probably not, or else, we would have heard more of it.

"Three years ago (1876), while ascending the Yangtze in my steamer, being some miles below Nanking, my people were alarmed at a strange to them looking fish, which was close to the shore not more than ten feet from the steamer. I immediately ran to the side, and then saw an Alligator about eight feet long floundering in the wash caused by the paddle-wheels. I stoyed the steamer with the view of capturing it, but it had disappeared. I am led to believe this same Alligator was since seen at Chinkiang, no doubt having drifted down by the current."

Highly interested by this communication I took the earliest opportunity of repairing to Chinkiang, and on the 2nd of January 1879 I found in the *Hai Shen Miao*, Temple of the Spirit of the Sea, at the eastern extremity of Silver Island, the tablet in question. It is a heavy marble slab, six feet in height

by two in breadth, standing against a wall and bearing in two vertical lines the following inscription:—

道
光
十
六
年
歲
次
閏
申
六
月
穀
旦

江
南
河
道
總
督
長
白
麟
公
放
置
處

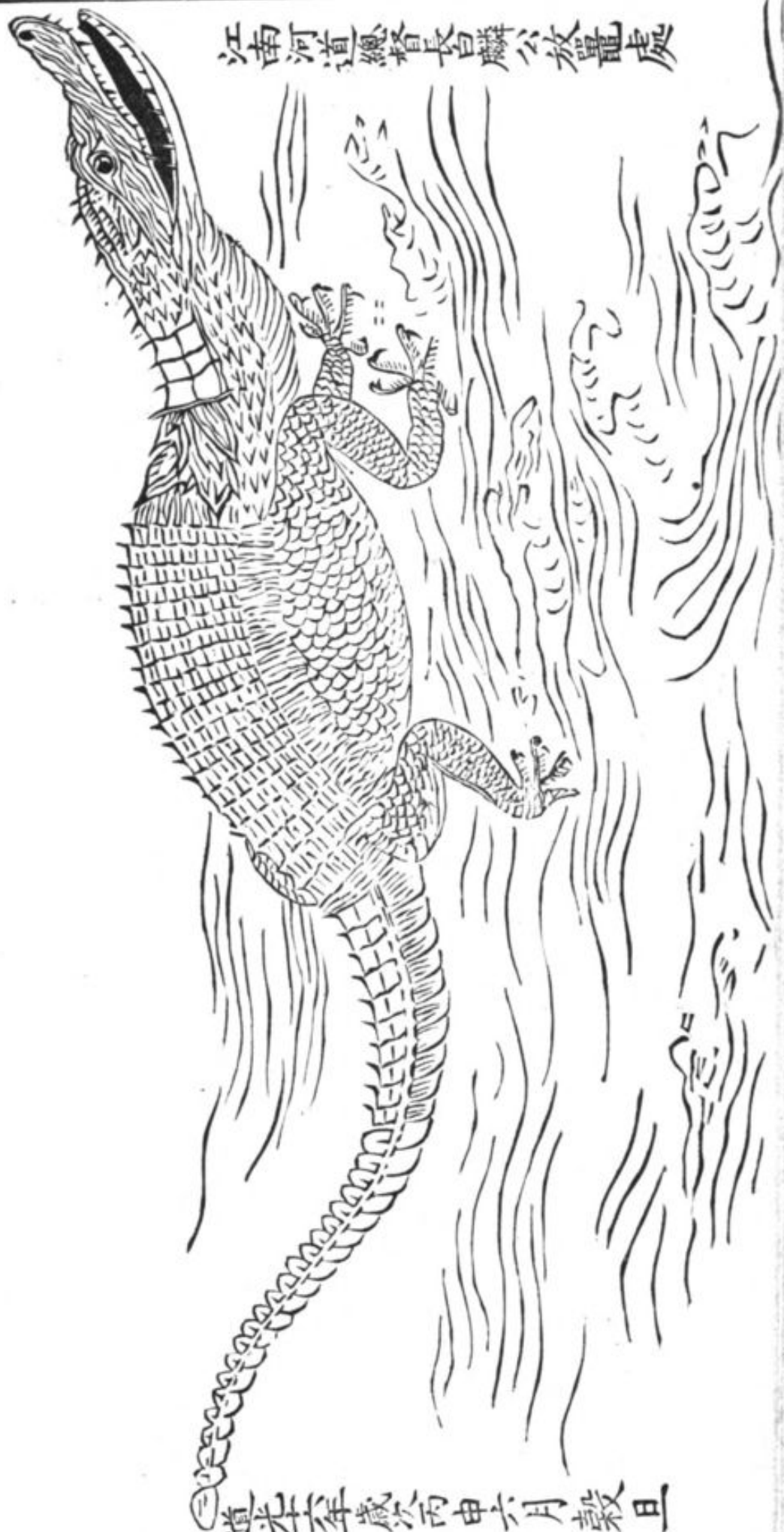
That is to say: "*Lin of Chang Pai*, (20) Governor-General of the Yellow River of Kiangnan released the Alligator at this place on a lucky day of the 6th moon of the 16th year of *Tao-Kuang* (July 1896). Below the inscription is a very good engraving of the *T'o* Alligator, of which the accompanying wood-

(20) There were formerly two high functionaries superintending the course of the Yellow River, one for the southern course in the old province of Kiangnan (now Nganhui and Kiangsu) and one for the northern course in the province of Shantung; thence the two names of *Kiang Nan Ho Tao Tsung Tu* 江南河道總督 and *Tung Ho Tao Tsung Tu* 東河道總督. (*Ho* 河 is often employed in Chinese language as meaning the river *par excellence* the 黃河 Yellow River).

Chang Pai 長白 stands for *Chang Pai Shan*, the name of a celebrated mountain in the north-east of Manchuria, not far from the northern frontier of Corea. Here it must be translated by the adjective Manchurian, as it appears that the whole of Manchuria is often designated by the name of the mountain, a practice often resorted to in Chinese literature.

The governor general Lin of Manchuria must have been the last but one of the functionaries in charge of the meridional course of the Yellow River, as this charge has been since abolished, most probably on account of the change of direction which took place in the course of this river in 1851. (For this information I am indebted to the kindness of my friend Mr. J. de Bielke, interpreter of the French Consulate.)

江南河道總督長官麟公放置處



道光六年歲次丙申六月穀旦

cut is a reduced facsimile. It was obtained by a direct impression or rubbing(21) made on the stone. A little further on I saw the pond in which a living Alligator is still kept; this specimen has been there for two years. But as it was lying torpid in the mud at the bottom I was unable to catch a glimpse of it.

From the priests I heard that these saurians are often found in the Yangtze by the native fishermen in whose nets they become entangled. As they are no use to them they are killed by blows on the head and their carcasses are thrown back into the stream. Sometimes however they are presented to or purchased by the priests of the *Hai Shen Miao*, where for years past one at least has been kept in the pond. According to my informants at Chinkiang these Alligators come from the Tung Ting and Po Yang lakes being driven in the swift stream of the Yangtze at flood times.

From the above inscription we understand that the Alligator released from captivity by *Lin* was probably the first seen there. It is a common practice amongst Buddhists to buy living animals and set them at liberty. This is held as a very meritorious act and according to one of the Buddhistic rules its value is enhanced by the comparative rarity of the animal.

On the Yangtze, this ceremony, called *Fang-sheng* releasing the living, is often resorted to in order to propitiate the god of the waters. Turtles are often bought for this purpose and liberated in the great river with a small piece of metal, fastened to the shell, bearing the date with the name of the pious performer.

In the case of the *T'ao*, the Governor-General of the Yellow River wanted evidently to commemorate the event of releasing such a rare animal which he most likely had seen then for the first time; accordingly he chose a lucky day for this performance and caused the commemorative tablet to be erected.

It now stands under the guardianship of some Hunan braves as a part of the temple has been transformed into a fortress, foreign guns having taken the place of the wooden images which floated down the river in 1858 to the great amusement of the rebels.

(21) To obtain those rubbings a thin paper slightly wet is applied on the stone and pressed into the cuts, a cake of black wax is then rubbed upon it and the characters on drawings appear in white on a black ground.

IV.—NATURAL HISTORY.

If we now consult the modern scientific works written on the Natural History of China, still very few, we find that no scientific traveller, nor naturalist has found the crocodile or Alligator in this country. In the Expedition du Meikong which crossed Yunnan, I expected to find something on this subject, but was sorely disappointed. The Abbé David confines himself to geology and birds describing also some new kinds of Mammalia, but of crocodiles he does not even mention the name. The Novara Expedition round the globe which mentions some of the Shanghai new birds did not go far enough into the interior. Baron von Richtoffen confines himself to geology. The Jesuit naturalist, Father Heudes, has made a name for himself in the conchology of China, but it is curious enough that in dredging for shells in the rivers of Chinkiang and Ningko fu districts he never came upon an Alligator, though, he tells me, he has often heard of the existence of what he calls crocodiles in these districts, where, he says, the natives use them for medicine. Once he lost a good opportunity through the saving propensities of his servants, who refused to buy a skin of this animal because the merchant wanted a few hundred cash more than they thought proper to give.

Thinking that some navy doctor, a temporary resident in China, might have per chance discovered these animals and reported upon them, I searched the Proceedings of or the Zoological Society of London and the Nouvelles Annales du Museum de Paris. I found some new species of crocodiles described in the former, but none were of China. At last, I came upon a list of Reptilians and Batrachians collected in various parts of China by the late Mr. Swinhoe and with great interest read the following :—

“ No. 3.—*Crocodilus* sp. ?

“ In February, 1869, some Chinese were exhibiting, in the native city of Shanghai, what they called a dragon, which they declared had been dug out of a hole in the province of Shense (Mr. Goodwin puts Kiangse). It was a young crocodile about four feet long, which they kept in tepid water. They made so much money by showing it that they refused to sell it. *I cannot, of course, guess at its species ; but I, nevertheless, think the fact worth recording, as evidence that a species of this group does occur in China.*”

Having heard that some two or three years ago a crocodile had been seen in Chinkiang, I asked our President, Mr. T. W.

Kingsmill, to write to the person who had seen it for information and this is the reply of Mr. T. W. Duff:—

"In 1875 there was an Alligator caught in the Yangtze, off the British Concession at Chinkiang, but well out in midstream. It was not particularly lively, although summer time, but this may have arisen from the rough handling it got while being caught. No one could account for its presence in the river, although it was surmised that it might have escaped from some temple; but as there are few of these places near Chinkiang at all likely to have such an animal in them, I do not think it at all reasonable.

"It lived some days in a pond until a deputation of Chinese purchased it for fifteen dollars and presented it to the priests on Silver Island. Whether it lived there or what became of it after this I am unable to say."

Having failed to procure it for the Shanghai Museum an Australian Crocodile brought from Australia to Chinkiang in 1868 by the celebrated entomologist, Dr. Martin (who died in America this year), was sent instead to the Museum, where it was gazed at, for a few years, as a Chinese crocodile until the perpetrator good naturedly confessed his joke.

Nothing more was heard of the crocodiles until April this year, when a member of the Chinese Customs service, Mr. Lloyd E. Palm, Deputy Commissioner at Wuhu, bought from the natives, a specimen which had been apparently dug from the ground in the neighbourhood. When it reached us on the 15th of April, it was still in its torpid state, and could be handled easily without danger. Having no books of reference in the Shanghai Museum, I took the animal with me to the Jesuits Museum at Siccawey, and there with the assistance of the curator, Father C. Rathouis, M.D., of Paris, studied and dissected the animal comparing it carefully with the plates of Cuvier, Duméril and other works on reptiles, especially those of India. The skin was then prepared and mounted by our native taxidermist of the Shanghai Museum where it can now be seen. From this study we came to the conclusion that it was probably a new species of Alligator, and I took care to state the fact in the *North-China Daily News* of the ninth of May, (18) when

(18) The museum has also received two new and important specimens:—A beautiful Albatros (*Diomedea derogata*?), shot by Capt. A. Croad near the Chusan Group; and a living Alligator (*Alligator Lucius*?) sent by Mr. J. L. E. Palm from Wuhu, where it was captured in the hills. Père Heudes having also seen Alligators near Ning-ko-fu, there is no more doubt about the existence of this saurian in the Yangtze waters. It differs considerably from the two species described in Cuvier and Duméril,

acknowledging the contributions of the preceding month. I added a few words asking for another specimen to be forwarded to Paris, in order to have this species named.

This appeal was duly responded to on the 8rd of October last, when we received a second specimen from Chinkiang. It appears that it had been seen coming down the stream in a half torpid or exhausted state, and some Chinese fished it up just opposite the Custom House.

The capture made without difficulty was witnessed by the two Customs officers, Messrs. C. W. de Ste. Croix and J. C. Günther, who conjointly bought it on the spot and presented it to the Shanghai Museum, where it arrived on the 4th of October, and where it is still alive in a state of lethargy having only eaten twice since its arrival. (19)

I now had well-substantiated cases before me. In the first some of the mud in which the Alligator had been buried could be still found in the mouth and anal aperture, so it must have been found not far from Wuhu, and the capture of the second specimen in the Yangtze waters proves that these two Alligators were natives of China. About September I saw two live specimens, which Dr. O. F. von Möllendorf, the interpreter of the German Consulate at Tientsin, had bought in the Chinese city of Shanghai for the sum of ten dollars a piece. The weather being then warm, they were very lively and rather dangerous to handle, uttering, when approached their characteristic bellowing sound. The natives who sold them said they had come from the Poyang lake where they were to be found in numbers.

Upon inquiry I soon learned that some had been shown from time to time in the native city, and Dr. Little told me he saw two in Chefoo this summer, where they were exhibited as a great curiosity. They measured about five feet in length. Finally, I myself lately procured in the Chinese city of Shanghai, a skin with the complete skull attached.

One was also procured in the same place by Mr. Lóczi, the geologist of the Austro-Hungarian scientific mission. I was then able to study the generic characters from four good speci-

and will likely prove a new variety. If any friend of science can succeed in sending us another live specimen, it will be forwarded to Paris for examination.

A. A. FAUVEL, *Hony. Curator.*

(19) It died on the 24th of December, apparently from aneurism of the heart, as the pericardium was found full of blood. It was an adult female, with sixteen unmaturing eggs in the ovaries.

mens and from this study I came to the conclusion that we were in the presence of a real Alligator of a new species or at least not described in Cuvier, Duméril, Bibron or other authors I could consult. Unhappily as I was unable to find here the last work of Professor Vogt of Geneva on the crocodilians I cannot be quite sure that this species has not been found elsewhere.

However the article on Alligators in the very last edition of the Encyclopedia Britannica clearly states that all the species of Alligators known are found in America and with one exception only (The *A. Lucius* found up to the 82° lat. in the Mississippi) are confined to its tropical parts Brazil, Guyannas, etc.

Cuvier, says the same Encyclopedia in a former edition thinks it most probable that Alligators have their representatives in our hemisphere although it does not seem to be yet ascertained whether any true Caïmans are found in the old world. This is perhaps a little far fetched as the words of Cuvier are "Il serait possible que l'on découvrit par la suite dans l'ancien continent quelque espèce appartenant à la subdivision des Caïmans."

It is probably with still less accuracy that the same edition of the Encyclopedia says, speaking of *Crocodylus biporcatus* the same as *C. porosus*: "This species is the common crocodile of India and its archipelago, frequenting the Ganges and other great rivers which empty themselves into the ocean, as also those of Corea (?) and China (?), Ceylon, Java, Timor, etc.

Upon what authority this statement is based the Encyclopedia Britannica does not say. Though real crocodiles may be one day found in Southern China I have great doubt about the possibility of their being discovered in cold Corea. At all events I never saw this last country mentioned for its crocodiles elsewhere.

Thinking that our Alligator might have its representative in Annam and Cochin-China I went to see some of our French missionaries who had lived many years in these countries and from their descriptions made sure that the crocodilians found there are the *Crocodylus Siamensis* *C. Porosus* and the gavial of India. They saw our specimens in the Museum and declared them entirely new to them. I insist upon this point, because of the crocodiles in Saigon being called caïmans, a name which belongs only to the Alligator.

The flesh of the Alligator does not now seem to be eaten in China as that of the crocodiles is in Annam, but its skin is found in medicine shops where it is often used in place of a

sign board. Two were procured in the native city of Shanghai and the natives who sold them told us they came from Canton. All the natives here called these skins sea dragons' skins *Hai Lung p'i*, and seemed considerably astonished when I told them that the Alligator was never found in the sea. In other districts, Chinkiang and Wuhu, the name for it is *Ngo Yá* or *T'u Lung*, *Ngo* fish or earth dragon.

With this I shall close my disquisition on the history of the Alligator and shall now proceed to the description of the animal.

V.—DESCRIPTION OF THE ALLIGATOR.

As a great many people easily confound the Alligator with the Crocodile we will give first the generic characteristics of the two from Cuvier's book. "Les Ossements Fossiles." 1.—CROCODILE. Muzzle oblong; the upper jaw has a notch on each side to allow the fourth tooth of the lower jaw to pass, the hind feet are fully webbed and fringed or denticulated on the outer margin. The teeth are at least 15 on each side in the lower jaw and 19 in the upper one. The first ones of the inferior jaw perforate the upper one at a certain age and the nuchal plates as well as the dorsal differ greatly in number, shape and position from those of the Alligator. The post-orbital holes are very large and always present.

2.—CAÏMAN or ALLIGATOR (the names are synonyms. Caïman being the one given by the negroes in America to the *A. Lucius*.) The muzzle is broad and short. The superior jaw receives the fourth tooth of the lower jaw in a particular hole or foramen which conceals it entirely; the hind feet are only semi-palmated and do not possess the fringe or denticulations.

The length of the head is to its breadth as two to one. The teeth are very unequal in length and there are at least 19 and sometimes as many as 22 on each side of the lower jaw; at least 19 and often 20 on each side of the upper jaw. The post-orbital holes, in the species which possess them, are very small, in one species they are entirely absent. There are about 6 species of Alligators known. Cuvier describes three with one variety viz: *Alligator lucius*, *A. Sclerops*, *A. Palpebrosus* 1st variety and 2nd variety. Since Cuvier's book was written two more have been added to the list: *A. Cynocephalus* and *A. Nigropunctatus*.

I will now compare the Chinese Alligator carefully with the five described by Cuvier and with the two others as described by Daniel and Bibron.

At first glance it looks very much like the *A. Lucius*, the pike-muzzled Alligator. Its head and muzzle are flat, the sides nearly parallel and uniting in front in a parabolical curve. The internal edges of the orbits are slightly elevated. The nasal aperture is, even in the young, divided in two by a bony bridge. A small hole in the bones of the palate corresponds to the nasal aperture but it is covered by skin in the living animal.

All these characteristics also belong to the pike-headed Alligator but it differs in this way that the snout of the *Lucius* is comparatively longer. Its length is as 1 and $\frac{1}{4}$ to its breadth taken in front of the orbits. The total length of the cranium (taken from the base of the skull to the point of the snout) is as 2 and $\frac{1}{4}$ to its breadth taken at the same place. In our Chinese Alligator, the length of the snout is nearly equal to its breadth and the length of the cranium is a little less than twice the extent of the snout, so that the head forms an isosceles triangle shorter than the one figured by the head of the *Lucius*.

A greater difference exists in the appearance of the bones which are deeply honey-combed or vermiculated in ours and smooth in the other, whose snout is also more flat. Other differences exist in the shape and direction of the post-orbital holes. Their external aperture is ovalo-elliptique with the great axis sensibly parallel to the axis of the skull; in the *Lucius* they are smaller, the perforation being a small one at the bottom of an elliptical *fossa* whose great diameter forms an angle with the axis of the head; the aperture of the angle being in front towards the snout.

The vermiculated appearance of the bones is also possessed by the *crania* of the *A. Sclerops* and *A. Palpebrosus*, but the shape of the head is far different and the post-orbital holes very small in the first are altogether absent in the second.

Nor does it possess the characteristic crest between the orbits which gives its name to the *Sclerops*, i.e. spectacled.

But it is very curious to notice that however different the shape of the head from the *Palpebrosus* it possesses like it the bony eyelids from which the specific name is derived.

The teeth formula of the Alligators is from 19 to 22 on each side of each jaw (the one for the *Sclerops* is $\frac{19.19}{21.21} = 80$, as well as for the *Palpebrosus*). In our specimens I find $\frac{18.18}{19.19} = 74$,

so it has fewer teeth than any species but the *Lucius*, whose formula is $\frac{18.18}{17.17} = 70$.

Thus by the shape of the head, the weavy edges of the snout, the bony bridge of the *nares* (possessed by no other species than the *Lucius*), and by the post-orbital holes it is nearly allied to the Pike-headed Alligator. By the honey-combed appearance of the bones of the skull and the bony eyelids it approaches the *A. Palpebrosus*.

By the shape, form and number of the teeth it differs from all as well as by the size and general dimensions of the different parts of the body.

But those are not the only specific characters of the Alligators and we must now look to the disposition, form and number of the nuchal and dorsal plates, and also compare the dimensions of the various species.

The nuchal plates of the *Lucius* are 8 in number, oval-shaped and distant from each other, disposed in 4 rows of 2 each. In the *Sclerops* there are 14 square plates, disposed in five rows and close to each other, being 2 in the 1st, 4th and 5th rows and 4 in the two others. In the *Palpebrosus* we count 10 plates in rows of 2 close to each other, they are separated from the skull by a line of 4 plates of good size and distant from each other. The disposition of the nuchal plates in the *A. Palpebrosus* 1st variety is very nearly the same as the one found in our specimens when we see six conspicuous nuchal plates closely packed in three rows with a short space of separation from the plates of the back not found in the other species. Two small round isolated plates are found in front of the nuchal shield and between them and the skull is a semi-circular row of six conical plates. These characteristics I have found constant in the six specimens I have been able to study and constitute by themselves a new species.

The number of the rows of dorsal plates is 17 from the shoulders to the base of the tail, they correspond exactly to the number of vertebræ. They are disposed as follows:—

$$\begin{array}{r}
 8 \text{ rows of } 4 \text{ plates} \\
 7 \quad " \quad " \quad 6 \quad " \\
 7 \quad " \quad " \quad 4 \quad " \\
 \hline
 17
 \end{array}$$

In the other species I find the number of rows varying from 18 to 19. The number of the plates in each row is also at variance with the number of those in our specimens. The dif-

ference is still more perceptible in the number of the single or double crested bands of the tail.

The length of our adult Alligator is about 5 feet and 8 inches whilst the *Lucius* measures 6 or 7 feet, some go even to 14. (The head is included about 8 times in the length of the body of the Chinese Alligator).

The *Sclerops* measures from 11 to 14 feet (8 heads $\frac{1}{2}$.) The other species measure from 6 to 9 feet. So our Chinese Alligator seems to be the smallest of all known.

Its colour above is a greenish black, speckled with yellow vermiculated lines only apparent when wet. The underparts are of a greyish colour, on the tail bands of faint yellow and green are visible.

This colouration is also peculiar to the Chinese Alligator. The colour in the other species being: a deep greenish brown above and a white tinged with green in the *Lucius*; or a blueish green above and an irregularly marbled green and yellow below in the *sclerops*. In both the *A. Cynocephalus* and *A. Nigro-punctatus* the back is greenish with black spots. The hind feet of our specimens are very slightly palmated as may be seen by the plate. In this it resembles *A. Palpebrosus*, the least palmated of all.

In conclusion I find that the Alligator of China differs greatly from all the described species; at least from all those described in Cuvier, Duméril, Bribon, etc. Its position appears to be between the *A. Lucius* and the *A. Palpebrosus*, so until it has been more seriously studied at home, we propose for it the distinctive name of *Alligator Sinensis* and append herewith the final description of it as a base for further and more complete study.

ALLIGATOR SINENSIS.

Distinctive qualities and habits drawn from six specimens, of which one is a male and one female.

The Chinese Alligator appears to be a small species measuring from 1.45 to 1.74 metre; though longer specimens may still be found.

General Dimensions.—In the largest specimen studied the measurements are as follows:—

Length of the head (from the snout to the articulation of the jaws) ..	0m. 240
Breadth of the head at the same place	0m. 135
Breadth of the head in front of the eyes	0m. 115
Body from base of cranium to the beginning of the tail	0m. 638
Length of the tail	0m. 863

Total length....1m. 741

The length of the head is contained about 8 times in the length of the body, and it is double its breadth in front of the orbits.

The measurement round the middle of the body gives 50 centimètres.

The edges of the snout, which is short and slightly concave are very weavy, a great deal more so than in the *Lucius*. It seems a little broader in the male than in the female.

Teeth.—The formula of the teeth is $\frac{18.18}{19.19} = 74$ with sometime a small difference of one or two teeth in either of the jaws. It seems also to change with age as in a young specimen we found the formula to be $\frac{17.17}{18.19} = 71$.

These teeth vary much in size. They are, with the exception of the back ones (molars!) sharp pointed with a slight curvature directed inwards. Being symmetrically disposed we will give their respective number and disposition only for half of each jaw, beginning from the snout:—

1st.—Upper Jaw.		2nd.—Lower Jaw.	
Incisive!	2 small teeth.		1 long tooth fitting in a deep foramen in the palate.
	2 longer ones.		2 small teeth, fitting each in a small foramen hardly apparent in the bones of the skull.
Sharp and pointed canines!	3 medium size.		1 long canine, deep foramen.
			7 very small teeth.
	2 large teeth, the 2nd ones being the largest of the upper jaw.		8 large teeth (the middle one longest.)
			5 large rounded teeth (molars.)
Short and rounded molars!	4 small teeth.		
	5 medium size.		
18		19	

All of them overlap those of the lower jaw.

There seem to be at least three generations of teeth, as in the eldest specimen I found smaller teeth always present within the others.

Cranium.—As may be seen from the annexed plate the skull presents the general appearance of an isosceles triangle whose base measured at the articulation of the jaws is contained 1.7 in the length; otherwise the head is very nearly twice its breadth.

Dimensions of the cranium: length from base to snout. The base taken on the line of articulation of the jaws	0m. 234
Breadth at base ..	0m. 147
Breadth in the middle, just in front of the orbits	0m. 105
Length of snout from this place	0m. 117
Height of the head at the thicker place (behind the eyes) including lower jaw	0m. 105
Total length of the head including the lower jaw	0m. 264

The sides of the snout are nearly parallel to the axis of the cranium, they are joined in front by a parabolical curve beginning at the upper canine tooth at which place it is much enlarged. The snout is concave being enlarged at the nares.

Nares.—The nares are separated from each other not by a bony septum as in the *Lucius*, but simply by a bony bridge. The ridge is slightly elevated and the shape of the opening in the bones of the snout is quite semicircular.

Bones of the Skull.—The bones of the cranium are deeply honey-combed or vermiculated, in some places perforated as round the margin of the palate in which there is a small opening immediately under the nares, but it is covered by skin in the living animal.(22) There are two large bow-shaped openings in the back of the palate just under the eyes, they are also covered by the skin of the palate; they measure five centimetres in length and one and a quarter in their greatest width.

Eyes.—The orbits are very near each other, the distance between them being only one centimetre, the inner edges are slightly elevated and there is a marked depression in front of nine millimetres deep, where the ridges slope down on the snout. In the thickness of the upper eyelid are lodged one or two thick bony plates irregular in shape.

Ears.—The tympanum of the ear is simply covered by a thick flap of skin which closes more or less upon it; there is no external vestibulum.

Post Orbital Holes.—They are very apparent ovalo-elliptical in shape and can be felt even through the skin. They are situated immediately behind the orbits and in the same line with them. This line which passes through them according to their grand axis is parallel to the axis of the skull and also passes through the middle of the nasal aperture, so that the post-orbital holes, the bony eyelids and the nares are situated on two lines parallel to each other and to the axis of the cranium.

(22) Not always present.

The line forming the basis of the skull is slightly convex towards the body with a very small notch in the middle.

Under the lower jaw near the throat there is on each side a tubular gland containing a musky substance, when angry these are projected outwards by a kind of telescopic motion like two horns or tubes about two centimètres in length.

The Chinese Alligator appears very slow in his movements being nearly always in a half torpid state, in the summer time when molested he is inclined to bite but is never first in the attack. For the general colouration of the body see above page 83 and page 82 for the disposition of the nuchal and dorsal plates.





Alligator sinensis.

