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CHINESE MATERIA MEDICA
FISH DRUGS

BY

BERNARD E. READ

PUBLISHED BY THE
PEKING NATURAL HISTORY BULLETIN

SALES AGENT
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IX. SCALY AND SCALELESS FISH.

BY BERNARD E. READ

Henry Lester Institute of Medical Research Shanghai

The legendary Emperor Fu Hsi 2953-2838 B.C. is said to have been given his particular name because he made different kinds of nets and taught his people how to secure the products of the sea and snare animals. Doubtless fishing and hunting among nomads preceded the settled farming customs said to have been introduced by Shen Nung, and knowledge of fish and their habits antedates the Garden of Eden, hence fish have a place in Chinese symbolism associated with man's elementary character, a knowledge of which assists one in understanding some of their alleged therapeutic virtues, which otherwise in some cases have no explanatory basis.

Owing to its reproductive powers, in China the fish is a symbol of regeneration. As fish are reputed to swim in pairs, so a pair of fish is emblematic of connubial bliss. As in water fish move easily in any direction they signify freedom from all restraints, so in the Buddha-state the fully emancipated knows no restraints or obstructions. Their scaly armour makes them a symbol of martial attributes, bringing strength and courage; and swimming against the current provides an emblem of perseverance. The fish is a symbol of abundance or wealth and prosperity, because they are so plentiful in the seas and rivers, and the words yū 魚, fish, and yū 餘, superfluity, have the same pronunciation. It has other attributes, all of which give it an honoured place, so that one may see tanks of fish in old temple courtyards, and stone fish hanging from temple eaves. Rubbing part of the stone fish is said to cure a similar part of the human body suffering from disease.

The nutritive value of fish is of widespread interest. Beside the important proteins in the flesh, there are many other valuable constituents such as the fat, glycogen, extractives, salts, vitamins, and particular principles mentioned in the footnotes to the text.

Modern Pharmacopoeias contain very few preparations from fish. Cod liver oil is the one outstanding therapeutic substance of great value. A few other products from the days of ancient medicine such as isinglass and cuttlefish bone are used in pharmaceutical preparations. However fish are being turned to, as a valuable source of insulin in the pancreas, and the fat soluble vitamins in the liver; and it is not unlikely that they will prove of much wider service to medicine, for marine products are of interest toxicologically. Studies upon the allergy-producing properties of certain ones may open up a larger knowledge of the lymphatic system. The toxic principle of the tetrodon has already been shown to be of value for sciatica, and the old Chinese records suggest that the poisonous principle of the salamander may be good for insanity.

The old records are worthy of study. Cod liver oil was not introduced into the London Pharmacopoeia till A.D. 1851, yet fish oil and eel fat were in the earliest known

medical record in the world, the Papyrus Ebers. Fish oils and livers, excellent sources of vitamins A and D, date back in old Chinese medicine to the Liang dynasty. Beside the many kinds of fish-meat there were prescribed by the old physicians the fat, liver, eggs, fins, scales, maws, otoliths, heads, eyes, aqueous humor, guts, bile, brain, blood, teeth, skin, gills, tail, snout, mucus, jaws and other fish preparations. A general evaluation of this material is suggested on the basis of their nutritional, therapeutic and toxicological properties.

The present use of fish products by old style physicians is very limited and overshadowed by the extensive use of vegetable drugs and to a less extent by mineral drugs, but the nutritive value of fish is universally recognised so that their place in the national economy must not be underrated. They are valuable sources of food, oil, isinglass and shagreen of which there should be greater development. The establishment of government hatcheries and the distribution of fish fry, the enlargement and protection of the present fisheries, the extension of the present fish trade with all the necessary refrigeration facilities in transport by the railways, and a lowering of the salt tax in fishing districts so that a large trade in cheap salted or cured fish may develop, are some of the ways in which the national resources in this field may be utilized.

Many writers have been consulted in the preparation of this publication, including the manuscript of Dr. R. G. Mills from the Severance College, Seoul. The chief references are appended herewith. I am greatly indebted to the able services of Mr. Yu Ching-mei in making this free translation of the Chinese text. The artist, Mr. Su Yu-ch'i, has drawn the excellent figures from the fresh fish purchased in the Shanghai Fish markets. Messrs. Hu, Yu, Chang and Chao have assisted me in the typing, indexing and checking of the manuscript.

Shanghai 1938.

Bernard E. Read.

PEN TS'AO KANG MU

Chapter 44 c. FISH with scales

No.	English Name	Chinese	Romanisation
128	Carp	鯉 魚	Li Yü
129	Silver Carp	鯪 魚	Hsü Yü
130	Big-head	鱮 魚	Yung Yü
131	Eastern Barbel	鯮 魚	Tsun Yü
132	Chinese Ide	鮫 魚	Huan Yü
133	Black Carp	青 魚	Ch'ing Yü
134	Goby	竹 魚	Chu Yü
135	Mullet	鱮 魚	Tzu Yü
136	Culter	白 魚	Pai Yü
137	Tsung	鰻 魚	Tsung Yü
138	False Salmon	賊 魚	Kan Yü
139	Sciaenid Fish	石首魚	Shih Shou Yü
140	Black-headed Maigre	墨頭魚	Mo T'ou Yü
141	Herring	勒 魚	Le Yü
142	Anchovy	鯖 魚	Chi Yü
143	Shad	鱈 魚	Shih Yü
144	Char (Trout)	嘉 魚	Chia Yü
145	Pomfret	鯧 魚	Ch'ang Yü
146	Golden Carp	鱒 魚	Chi Yü
147	False Carp	鯉 魚	Chieh Yü
148	Chinese Bream	魴 魚	Fang Yü
149	Prickly Sculpin	鱧 魚	Lu Yü
150	Mandarin Fish	鰻 魚	Kuei Yü
151	Rock Fish	鰻 魚	T'eng Yü
152	Goby	鯽 魚	Sha Yü
153	Sculpin	杜父魚	Tu Fu Yü
154	Bass	石斑魚	Shih Pan Yü
155	Barilius	石鯧魚	Shih Pi Yü
156	False Culter	黃鱔魚	Huang Ku Yü
157	Hemiculter	鱮 魚	T'iao Yü
158	Ice Fish	鱧殘魚	K'uai T'san Yü
159	Half-beak (Gar)	鱣 魚	Chen Yü
160	White Bait	鱖 魚	Yü Yü
161	Gold Fish	金 魚	Chin Yü

PEN T'SAO KANG MU

Chapter 44 d. FISH without scales

No.	English Name	Chinese	Romanisation
162	Serpent-head	鱧魚	Li Yū
163	Eel	鱈魚	Man Li Yū
164	Marine eel	鱈魚	Hai Man Li
165	Mud eel	鱈魚	Shan Yū
166	Loach	鱈魚	Ch'iu Yū
167	Sturgeon	鱈魚	Chan Yū
168	Beaked Sturgeon	鱈魚	Hsun Yū
169	Sea cow	牛魚	Niu Yū
170	Catfish	鯰魚	Wei Yū
171	Sheat-fish	鯰魚	Yi Yū
172	Newt	鱉魚	T'i Yū
173	Giant salamander	鱉魚	Ni Yū
174	Yellow-headed catfish	黃頭魚	Huang Sang Yū
175	Puffer (Globe fish)	河豚魚	Ho T'un Yū
176	Dolphin	海豚魚	Hai T'un Yū
177	Sole	目魚	Pi Mu Yū
178	Cornet fish	錐魚	Shao Yū
179	Shark	鯊魚	Chiao Yū
180	Cuttle-fish	烏賊魚	Wu Tsei Yū
181	Calamary	烏賊魚	Jou Yū
182	Octopus	章魚	Chang Yū
183	Sting-ray	鰐魚	Hai Yao Yū
184	Flying-fish	文魚	Wen Yao Yū
185	Porcupine fish	魚	Yū Hu
186	Yellow-tail	虎魚	Yū Shih
187	Jelly-fish	海蜇	Hai Ch'a
188	Shrimp	蝦	Hsia
189	Cray fish	蝦	Hai Hsia
190	Sea horse	馬魚	Hai Ma
191	Dried fish	鮑魚	Pao Yū
192	Fish maw (Isinglass)	鮑魚	Chu Yi
193	Fish hash	鮑魚	Yū Kuei
194	Fish condiment	魚	Yū Cha
195	Fish oil	魚	Yū Chih
196	Fish-head bone	魚	Yū Chen
197	Fish scale	魚	Yū Lin
198	Fish egg	魚	Yū Tzu
199	Poisonous fish	諸魚有毒	Chu Yū Yu Tu

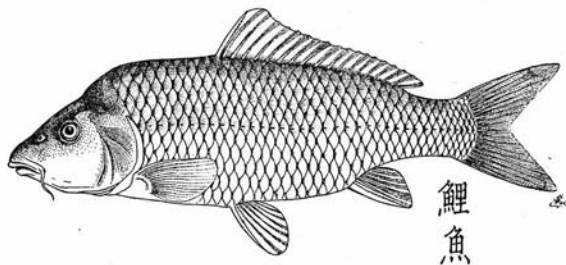
SCALY ANIMALS CLASS III

FISH 31 KINDS

128. 鯉魚 *LI YU* CARP⁽¹⁾ ⁽²⁾ ⁽³⁾

Pen-ching 1st. group: ZN. 2309: Hsu p. 49. No. 72: Sowerby NNB 80; NM. 4. 74: SY p. 237: W 509: G 6883: Y.T. Chu p. 33; Index No. 498: Saiki 178: CMM 494 Couling p. 283: BFT. Kiangsu p. 255, Chekiang p. 365. Japanese, *Koi*: CNH p. 582:

Interpretation of Names: *Li Shih-chen* states that the scales on the carp have a cross marked on them in regular fashion 理 *lǐ*, hence the name. Although it may die of exhaustion (not freshly killed) the scales do not turn white. *Su Sang* quotes *Tsui Pao*⁽⁴⁾ in stating that Yenchou (Shantung) people called red carp 支駒 *hsuai chü* the black ponies, white carp were called 黃驥 *huang chi* the yellow steeds, and yellow carp were called 黃騮 *huang chui* the yellow spotted chargers.



No. 128. *Cyprinus carpio*, L.,
Shanghai, Dec. 31, 1937. 70 cents each.

- (1) This is generally regarded as referring specifically to the *Cyprinus carpio*, L. The Zoological Dictionary applies it generically to the *Cyprinus* and to the family *Cyprinidae*. Linnaeus Syst. Nat. 1758 Ed. 10 p. 320. Berg. Ichth. Amur., Mem. Acad. Imp. Sci. St. Petersburg 8th. series 1909, 24. 68 D IV. 16-19; A III. 5:1, 1, 376/5,6 39 (Berg). Sowerby.
- (2) It is identified and described with a good illustration by Y.T. Chu in "Fishes of the West Lake". He gives various synonyms in Index Piscium Sinensium, also numerous references from Hainan to Newchwang.
- (3) S. Y. Lin has made a number of contributions upon carp and carp-like fishes in the south. Lingnan Sc. J. 1933. 12. 75, 197, 337, 489; 1934. 13. 5, 231, 615; 1935. 14. 249, 493. See also 1932. 11. 429; 1933. 12. 348; 1934. 13. 275; 1937. 16. 229.
- (4) Author of *Ku Chin Chu* in the Chin dynasty.

Explanatory Notes. The *Pieh Lu* states they are found in the pools at Kiukiang and gathered in all seasons. *Su Seng* states that they are found everywhere with a row of side scales from head to tail, irrespective of size there are always 36 scales. Each scale has a black spot. Of all fish this is the nicest hence as a food its flavour is rated high. *T'ao Hwang-ching* states that the carp is the archetype of all fish.

It is a fine looking fish, capable of metamorphosis(?) and it is able to fly over rivers and lakes. Therefore the immortal Ch'in Kao(6) rode on them. The carp from mountain pools is not edible.

128. a. 𩺰 *JOU* FLESH OF THE CARP(?)⁽¹¹⁾

Qualities. Sweet, bland, nonpoisonous.

The *Jih Hua* states it is cooling and slightly poisonous.

K'ou Tsung-shih states it is an extremely cool substance (Yin) but those with 36 scales are so mature the warm principle (Yang) returns. The *Su Wen* says that fish are heating. *Mo Chueh* says that heat disturbs the humors. Hot things when eaten often cause fever. *Jih Hua's* statement that the carp is cooling is wrong. People with humoral complaints have their condition greatly aggravated. *Li Shih-chen* states that according to the scholar *Tan Hsi Chai* (Yuan dyn.) all fish show constant movement in water, therefore they disturb the humors, it is not only the carp which causes fever. *Meng Hsien* states that carp which have black blood and two poisonous muscles along the spine and carp from mountain pools with poisonous heads cannot be eaten. When frying carp the fumes must not be allowed to go into the eyes; they damage the sight and the effects are seen within three days. The carp must not be eaten after an infectious illness, dysentery, or chronic constipation. It must not be eaten after cinnabar or *Asparagus lucidus*, neither with dog meat nor Chinese mallow.

- (5) The *Pi Ya* states that it is the carp in particular which after it has passed the Lungmen on the Yellow river is able to change into a dragon.
- (6) Quoted in the *Lich Hsien chuan* 列仙傳, of the Chou dynasty. The name *Ch'in Kao* is given by Hsü as a synonym for the carp. He was famous for his exploits at Chochou (Hopei). He was an expert player on the Chinese harpsichord, hence the name.
- (7) Analysis shows the following percentage composition:—

	Protein	Fat	Cbhyd	Ash	Ca.	P.	Fe.	K.
Shanghai (Read et al)	18.12	1.59	0.17	1.05	0.028	0.176	0.001	0.397
Japan (Saiki)	23.90	10.40	—	1.50	0.060	0.330	0.003	—

- (11) T. Matsubara & K. Chuda have estimated the vitamin C in the different tissues and organs of *Cyprinus carpio*, *Carassius auratus*, *Pseudobagrus aurantiacus*, *Parasilurus asotus*, *Hemibarbus barbus*, *Anguilla* & *Ophiocephalus*. The vitamin content was highest in the roe and lowest in the muscle. The liver, kidneys, gills, stomach and intestines were all fairly rich in ascorbic acid. Eaten raw in Japanese style they are an important source of this vitamin in the diet. Mitt. med. Akad. Kyoto 1937. 21. 849-874.

Uses. *Pieh Lu*, it is boiled and eaten for the treatment of coughs with difficult breathing, jaundice, thirst, oedema⁽⁸⁾, swollen feet and to expel wind⁽¹²⁾: *Jih lua*, for oedema of pregnancy and to quieten the foetus: *Li Shih chen*, it is boiled and eaten as a diuretic and to reduce the blood fluids⁽⁹⁾: *Ch'eu T'sang-ch'i*, made into a salad it is given as a warming tonic to expel cold, for dyspepsia, windy colic and stoppage in the transverse colon: *Hsin Ching Pieu* (Ming, Ch'ang Hsiao-hsien), for asthma and shortness of breath: *Li Shih-chen*, the ash is a diaphoretic, for asthma, coughs, a galactagogue, and for oedema⁽⁶⁾. It is given mixed with rice congee for acute dysentery in both adults and children. Macerated in boy's urine and cooked till tender it is given for nausea and disorders of the bowels.

Explanations. *Li Shih-chen* states that the carp contains latent heat⁽¹²⁾ with a strong diuretic action, hence it can reduce oedema, cure jaundice, beri-beri, asthmatic coughs, and diseases associated with water retention and fever. Made into a salad it becomes warming, hence it is good for stoppage of the bowels and colds. When ashed it is burnt up by the fire (taking up heat) hence it can cure colds, act as a respiratory depressant, a galactagogue, and as an antidote to toxic swellings and toxins in the stomach and bowels. According to *Liu Ho-chien* (Liu Wan-su of Ho Chien Fu, Chin dynasty) the properties of the carp and the duck are opposite and complementary, the carp controls water (distribution in the body) and the duck expels water. (i.e. their actions are different but they are both used as diuretics).

128 b. 魚肝油 *CHA* CARP CONDIMENT.

Qualities. Salty, bland, nonpoisonous.

Tao Hong-ching states that it must not be taken with the leaves of legumes, such will cause diabetes.

Uses. *Ch'eu T'sang-ch'i*, anthelmintic.

128 c. 魚鱗 *T'AN*. CARP BILE.

Ayurvedic medicine: Pharmacopocia

Homeopathica: Dioscorides: Galen: Gessner:

Qualities. Bitter, cooling, nonpoisonous.

Hsu Chih-f'sai states that Szechuan varnish is its vehicle.

Uses. *Pen-ching*, for conjunctivitis, dimness of vision, and to clarify the vision. Prolonged treatment increases the stamina and the will. *Chen-ch'uan*, dropped into the eye it cures

(8) For analysis of carp oil see Zdarck, Zeit. f. Phys. Chem. 1903 p. 460, Lewkowitsch, Oil, Fats and Waxes, 1922. 2. 435.

The carp has been found to contain vitamin A, about 10 units per gm., this is probably more highly concentrated in the fat and the liver. P. G. Mar, Chinese J. Phys. 1936. 10. 273. The muscle of carp also contains vitamin B, 50 to 100 inter. units per 100 grams. A. G. Van Veen, Geneesk. Tijdschr. Ned-Ind 1935. 75. 2030. This would be of value for the oedema of beri-beri.

(12) In Ayurvedic medicine the meat of fish as a class *Matsya* is said to be soothing, but heating after digestion, increasing the *Kapha* (phlegm) and *pitta* (bile) and decreasing the *vayu* (wind) K. M. Nadkarni, Indian Materia Medica, Bombay 1927 p. 1074.

redness, swelling, pannus and pain. Applied to children's eyes (i.e. the eyelid) it cures inflammation and swelling. *Chou Hou Fang* (Ko Hung's), applied to the eyes for night blindness they become dry and painful and then the eyesight clears⁽⁸⁾(15) *Ch'eu T'sang-ch'i*, dropped in the ear for deafness.

Supplementary prescriptions. When applied it has an immediate effect in curing swollen throat in children. For impotence in the male. *Ch'ieu Chin-fang*.

128 d. 脂 CHIH. CARP OIL⁽⁸⁾.

Ta Ming. For the treatment of convulsions in children.

128 e. 腦髓 NAO SUI. CARP BRAIN.

Su Kung. For convulsions.

Ta Ming. Boiled with congee it is given for deafness.

Li Shih-chen. Mixed with an equal amount of carp's bile it is dropped into the corners of the eye for dimness of vision.

Ch'ieu Chin-fang—for suppurating ears.

128 f. 血 HSUEH. CARP BLOOD.

Su Kung. When applied it gives immediate relief to children suffering from inflamed boils and erysipelas swellings.

128 g. 腸 CH'ANG. CARP GUTS.

Su Kung. For eruptions on the muscles of children.

Li Shih-chen. Pounded to a paste with vinegar it is applied on a cotton plug to suppurating ears. For fistula and piles the patient sits down on a mat made by wrapping the fried guts in cotton. (i.e. to draw out the worms causing the disease.)

128 h. 子 TZU. CARP EGGS⁽⁹⁾(17)

T'ao Hung-ching. They are harmful if eaten with pig's liver.

(8) See footnote page 7.

(15) India, the bile of certain species of fish is said to be specific for nightblindness and to cause abortion. Watt p. 369.

(9) More than 83 millions of carp's eggs were collected in the U.S.A. in 1935 and over a million fish were distributed for planting in commercial areas of the Mississippi river. G. C. Leach and M. C. James. U. S. Bureau of Fisheries Report No. 22, 1936.

(17) Goble gives the following percentage composition of the eggs of the carp: protein (paravitellin) 14.06, fat 2.57, cholesterol 0.27, lecithin 3.04, cerebrin 0.21, membranous substance 14.53, coloring matters 0.03, salts 0.82, extractive matters 0.39. Allen, Commercial organic analysis, London 1932, p. 589.

128 i. 目 MU. CARP EYES⁽¹⁰⁾

Ch'en T'sang-ch'i. The ash is applied to broken inflamed suppurating swollen wounds.

128 j. 齒 CH' IH. CARP TEETH⁽¹²⁾

Pieh-lu. For urinary calculi and gravel. One pint rubbed to a powder with an equal quantity of vinegar three years old, is taken thrice daily till finished.

128 k. 骨 KU. CARP BONES.

Pieh-lu. For leucorrhoea.

Su Kwng. For vaginal ulcers. For clearing out fish bones obstructing the throat.

128 l. 皮 P'I CARP SKIN⁽¹⁴⁾

Su Kwng. For urticaria.

Kue-chin Lu-yen. The ash is given with water to remove bones obstructing the throat.

128 m. 鱗 LIN CARP SCALES⁽¹⁴⁾⁽¹⁸⁾

Su Sung. The ash is given with urine for retention of the placenta with painful abdomen.

Li Shih-chen. The ash is given for hematemesis, metrorrhagia, menorrhagia, fistula, piles and fish bones stuck in the throat. Also for epistaxis.

(10) The eyes of fish, haddock, cod &c., have been found to contain free *lactoflavin*, the eye is the only tissue known which contains flavin mostly or entirely in the free form. It occurs only in milk and urine. Adler and Euler suggest therefore that its function in the eye may be that it takes part in the visual processes by means of its photochemical properties, as fluorescence and light sensitivity: *Nature* 1938, 141, p. 790 with other references. The relationship of the flavines to Vitamin G is now well established, and this may give a basis for the use of this material as a skin remedy.

(13) Fish teeth were listed in the London Pharmacopoeia A.D. 1677.

(14) The skin and scales of fish are relatively rich in zinc. The grass-carp shows 87 and 110 p.p.m. of the dried material, respectively. Fish skin shows 1.95% of ash, the scales 30.8% (d.m.) W. G. Eggleton, *Chinese J. Phys.*, 1938.

(16) The blood of fishes appear to differ essentially from that of mammals, as it cannot be laked by any of the ordinary methods without clotting. This probably points to the existence within the corpuscles of proteins which have no equivalent in warm blooded organisms. Allen's Commercial Organic Analysis 1933. 10. 9.

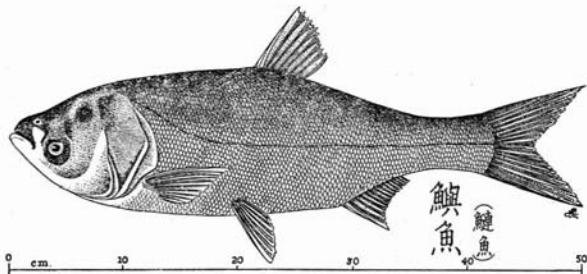
(18) In Santal medicine the scales of the carp are soaked in mustard oil with Bryonia fruit and the bones of a bird are used for anointing people suffering from *gongomi bai* (an unbroken silence). P. O. Bodding, *Memo. Asiat. Soc. Bengal*, 1925. 10. No. 126.

129 鱖魚 *HSÜ YÜ* SILVER CARP (CHINESE WHITE FISH)⁽¹⁾(²)(³)(⁴).

Pen-t'sao Kang-mu: ZN. 2497: S. Y. p. 241: Sowerby NM. 4. 99 illus.; NNB 81: W. 344: G4765: Y. T. Chu p. 36; Index No. 502: Saiki p. 182: CMM. 539: Hsu p. 45: LSJ. 1934. 13. 233; 1937. 16. 229: CNH p. 584:

Synonyms. 鯪魚 *lien yü* P. T: 白鯪 *pai lien* ZN: Korean *Ryuu Eah*: Japanese *Tanago*:

Interpretation of names. *Li Shih-chen* states, the finest wine is called *hsü*, and the finest fish is called *hsü* for *Lu tien* says that *hsü* fish like to go about in shoals as mutual companions 與 *yü*, hence they are called 鱖 *hsü*, and because they follow one another they are called *lien*. The old records state that fish as a class follow one another about.



No. 129. *Hypophthalmichthys molitrix*, C. & V.
Shanghai, Dec. 31, 1937. 67 cents.

Explanatory notes. The Chinese white fish is found everywhere.⁽⁵⁾ Shaped like the *young* (No. 130) but the head is smaller. It is flat and the scales are fine. It has a fat belly.

(1) Given by the Zoological Nomenclature as *Hypophthalmichthys molitrix*, C & V. Saiki lists this under *Ach ilognathus moriokae*, J. & T. a closely allied genus. Wu lists it as *Achelognathus limbatum*, T. & S.

(2) This English name *Chinese White Fish* was given by Sowerby, since no near relation of it occurs in European waters. As mentioned by Williams it is a large coarse species of carp. It has a very peculiar shape and appearance. The following synonyms and references are given by Sowerby: *Leuciscus molitrix*, Valenciennes, Hist. Nat. Poiss. 1844. 17. 36; Berg. Ichth. Amur., Mem. Acad. Imp. Sci. St. Peters., 8th series 1909. 24. No. 9. 154-157: *Syn. Cephalus manschuricus*, Basilewsky; *Hypophthalmichthys dabryi*, Bleeker; *H. dybowskii* Herzenstein. D. III. 7; A. II-III 12-14; VI. 7; 1. 1. 110 32/10. 18 116 (Berg.) In South China there is the *H. nobilis* Gray. The genus is described by P. Bleeker, Versl. meded. akad. afd, nad 1878. 2 ser. 12, 209.

(3) Giles' dictionary translates this as the tench.

(4) It is described and illustrated by Y. T. Chu and in his Index he gives numerous references and synonyms.

(5) It is extensively reared in Chekiang and Kiangsu. *Linhü* in the *Wuhüsing* district is the most important fry raising center, where the fry sells for \$10 a picul in Chekiang where it probably ranks first in fish culture. BFT 1933 p. 251: 1935 p. 365.

It is exceedingly white. Hence the *Hsi Cheng Fu*⁽²⁾ states the beautiful John Dory fish has sparkling scales and the common Chinese white fish raises its fins. Taken out of the water it soon dies, as it is probably a weak fish.

129 a. 肉 *JOU*. FLESH OF THE SILVER CARP⁽⁵⁾.

Qualities. Sweet, warming and nonpoisonous.

Uses. *Li Shih-chen*. Warming to the stomach, vitalizing⁽⁷⁾. Eaten to excess it causes fever, thirst and skin eruptions.

130 鱒魚 *YUNG YÜ* "BIG HEAD" (BLEAK)⁽¹⁾⁽²⁾⁽³⁾.

Pen-t'sao Shih-yi: ZN 2501: SY. p. 242: W 940: G 13467: Hsu No. 68: Chu No. 20; Index No. 504: LSJ. 1934. 13. 229: Couling p 183:

Synonyms 鱒魚 *ch'iu yü* PT. Shan hai ching: 黑鯪魚 *hei lieu yü* Tzu yun: Korean name, *yong euh*: 胖頭 *p'ang t'ou* ZN: 花鯪 *hua lieu* Hsu:

Interpretation of names. *Li Shih-chen* states it is an inferior kind of fish, probably nothing more than a common place fish used as a food, hence the names are derived from 庸 *yung* and 鱒 *hsiu*. *Cheng Hsuan* (Han dyn.) wrote it 溶魚.

Explanatory notes. *Ch'eu T'sang-ch'i* states that *T'ao Hong-ching's* commentary on dried fish says that in his time people used the *yung* fish about a foot long to make the plain dried fish which was quite free of odour. This fish has a bone near each eye called 乙 *i*.

(5) Written by *Pan Yueh* in the Chin dynasty.

(6) Analysis shows the following percentage composition:—

	Protein	Fat	Chyd.	Ash	Ca.	P.	Fe.	K.
Shanghai (Read et al)	17.3	1.65	1.39	1.18	0.951	0.218	0.001	0.435
Japan (Saiki)	18.3	1.64	—	2.52	0.474	0.580	0.003	—

(7) In Ayurvedic medicine the meat of fish is said to be vitalizing, strengthening and palatable, and specially soothing to alcoholics. Good for sensuous people having strong digestion Nadkarni, q. v.

(1) Identified by Y. T. Chu as *Aristichthys nobilis* (Richardson), "Fishes of the West Lake", No. 20. It is listed in his Index with the synonyms:—*Leuciscus nobilis*, Rich. 1844 Canton:

Hypophthalmichthys mandchuricus, Kner Shanghai 1867;

Hypophthalmichthys nobilis, Gunther Amoy 1868;

Bleeker, Shanghai 1879; Peters, Ningpo 1880;

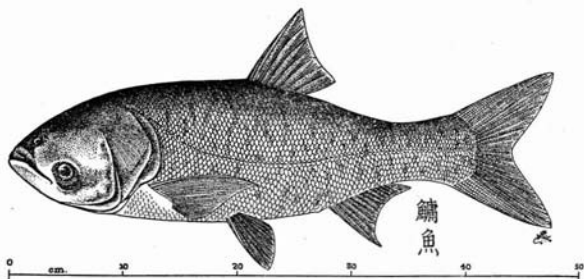
Sauv., Swatow 1881; Kreyenb, Hankow 1908 etc.

(2) Williams says this is a dace or tench (*Leuciscus*), common at Canton, there are two different sorts. The fresh water fish of the Pen T'sao is probably a species of *Percidae*. Giles says it is a kind of tench common at Canton.

B. W. Skvortzow caught the *Hypophthalmichthys molitrix* in the Amur basin, to which he gives the Chinese name 胖頭魚 *p'ang t'ou yü*, N. C. Roy, As. Soc. Proc. 1919. 50. 75.

(3) There is no scientific name in the Zoological nomenclature, where it is classed as one of the Physostomi. The 尚魚 calls the 黑鯪魚 *Aristichthys nobilis* (Richardson) one of the Cyprinidae.

The *Li Chi* states when eating fish remove the 乙 bone, but *Liu Yu-wi-shao* says that the marine form of the *yoing* stinks like a corpse. It is eaten by the fishermen but it must refer



No. 130. *Aristichthys nobilis*. (Richardson).
Shanghai, Feb. 4, 1938. 70 cents.

to another species. *Li Shih-chen*, states that it is found everywhere in the rivers and lakes. Shaped like the *lien* fish (No. 129) but black in colour. The head is exceedingly large, some are as much as 40 to 50 catties (4). The flavour is the same as the *lien* but the best part of the *lien* is the belly and the best part of the *yoing* is the head. To consider that the *lien* and the *yoing* are one and the same thing is a mistake. The size of the head, and the white or black colour make them entirely different. The *Shan Hai-ching* states that the *ch'in* fish (i.e. *yoing*) is like the carp in having a big head, and used to stop warts.

130 a. 鱖 JOU FLESH OF THE BLEAK⁽⁵⁾

Qualities. Sweet, warming, nonpoisonous.

Ch'eu T'sang-ch'i states it is only taken as a food and has no other uses.

Uses. *Wang-ying* (Ming), warming to the stomach and a general tonic. *Li Shih-chen*, when eaten it will cure warts. Eaten to excess it is overheating causing skin eruptions and scabies to flare up.

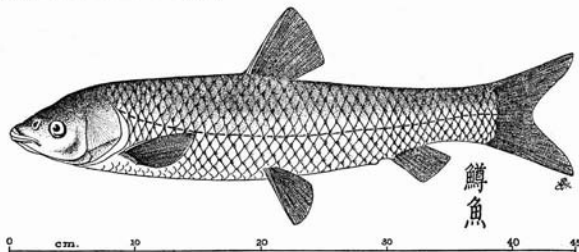
- (4) Hsü states the body is 2.9 to 3.1 times the length of the head, 3.2 to 3.4 times the width of the body. It is dark on the back and yellowish white on the belly. It has black spots. The dorsal fin has two spines and seven soft rays. The anal fin has two spines and 14 soft rays. The scales number 98 to 104 along the side. Sold a great deal on the Shanghai market 12 to 20 dollars a tan.
- (5) Our analysis shows the following percentage composition:—protein 14.51, fat 0.58, carbohydrate 0, ash 1.21, Ca 0.04, P 0.201, Fe 0.002, K 0.376.

131. 鱒魚 *TSUN YÜ* EASTERN BARBEL⁽¹⁾(2)(3)(4).

Pen-t'sao Kang-mu: ZN. 2541: Hsu No. 78: Sowerby NM 4. 92; NNB 80: W. 842: SY. p. 221: G 11975: Y. T. Chu Index No. 268: LSJ. 1932. II. 428:

Synonyms. 鯡魚 *pi yü* PT: 赤眼魚 *ch'ih yen yü* PT: 紅眼鱒 *hong yen hsien* Hsü: 燒火草魚 *shao huo t'sao yü*, Hsü: Korean *choon uh*:

Interpretation of names. *Li Shih-chen* states, the *Shuo wen* has it that the *tsun pi* is a red eyed fish. *Ssu Yen* (5) says that the Eastern barbel likes to be independent in its movements, lofty and determined 尊而必 in manner hence the characters applied to its name.



No. 131. *Squaliobarbus curriculus*, (Richardson)
Shanghai, May 1, 1938, 90 cents.

Explanatory notes. *Li Shih-chen* states that it is found everywhere, shaped like a 鱒 *hoi* Chinese ide, but smaller with a red vein running through the pupil of the eye. The body is round and long. The scales are finer than those of the ide. It has red markings over a

- (1) Y. T. Chu describes and identifies this as *Squaliobarbus curriculus*, (Richardson). China J. 1930. 13. 144. In his Index he gives the synonyms, *Leuciscus c.*; *Leuciscus teretiusculus*, Basil: *Rasbora teretiusculus*, Bleeker; with many references from Canton to Mongolia.
- (2) Williams says this is probably a kind of roach, perhaps the same as the 紅眼鱒 of Canton, *Leuciscus homospilotus*. In Japan it refers to the salmon, which is the common identification given by Japanese authors and workers trained in Japan, ZN. SY, SC, &c.
- (3) Sowerby gives the following synonyms and notes:—
Leuciscus curriculus, Richardson, Rep. Br. Ass. Ad. Sc. 1846. 15. 299.
Squaliobarbus c. (Rich.) Berg, Ichth. Amur. Mem. Acad. Imp. Sci. St. Peters 8th series. 1909. 24. 127.
D. III. 7; A. III 8; 1. 1. 43 $\frac{6.5-7}{2.5-3}$ 47 (Berg.)
Recorded from various rivers in China, it has also been recorded by Berg from the Sungari. Sowerby also secured a specimen near the Amur.
- (4) Giles says it is a species of bleak, *Leuciscus squaliobarbus curriculus*. This name is used in Japan for the salmon. C P calls it a salmon-trout.
- (5) Author of *Erh-ya Cheng-yi* in the later Han dynasty.

dark background as good to eat as whelks and muscles. Very difficult to catch with a net⁽⁶⁾.

131 a. 肉 *JOU* FLESH OF THE BARBEL⁽⁷⁾.

Qualities. Sweet, warming and nonpoisonous.

Uses. *Li Shih-chen*, warming to the stomach and stimulating the secretions. Eaten to excess it disturbs the heat distribution in the body causing scabies and eczema to flare up.

132. 魚鯪 *HUAN YÜ* CHINESE IDE (GRASS CARP)⁽¹⁾⁽²⁾⁽³⁾⁽⁴⁾

Pen-t'sao Shih-yi: SY. 242: Sowerby NM. 4, 89; NNB 80: Couling p. 183: Hsü, No. 69: W 367: G 5065, 5072: Y. T. Chu p. 9, illus; Index No. 253: LSJ. 1934. 13. 275; 1935. 14. 129, 271, 410 illus; 1937. 16. 226: CMM 494:

Synonyms. 鰕魚 *huan yü* PT: 草魚 *t'sao yü* PT:

鰕 *hwi* Kuo P'u, Hsu: Korean name, *wan euh*:

草青 *t'sao-ch'ing* Hsü

Interpretation of names. *Li Shih-chen* states the *huan* is also pronounced *hwi*, *Kuo P'u* wrote it 鰕. It is called *huan* because of its leisurely character. Its common name 草魚 *t'sao yü* grass fish is used because it eats grass. The people of the river provinces (Chekiang, Kiangsi and Kiangsu) and Amoy cultivate the ide and feed it on grass⁽⁴⁾⁽⁹⁾.

(6) It is of interest to note that all except one of over 350 fossil fishes found at locality 14 of Choukoutien by the site of the famous *Sinanthropus pekinensis*, belong to the genus *Barbus*. H. C. Chang, Bull. Geolog. Survey China, 1936. 16. 471.

(7) The *Barbus sophero*, Ham. & Buch. is used in Indian medicine as a demulcent and antiplegmatic for diseases of the mouth and throat. Chopra, Indigenous drugs of India, 1933 Calcutta p. 515.

(1) Described by Y. T. Chu in the China Journal 1930, 13. 142 under *Ctenopharyngodon idellus*, Cuvier and Valenciennes; also in "Fishes of the West Lake" and in Hsü "Shanghai Food Fishes".

(2) Sowerby says it is often sold in the markets of Tientsin and Peking as *Sao-yü* (the shuttle fish, on account of its shape), which is the Chinese name for the grey mullet. It has been recorded from the Amur, Ussuri and Sungari Rivers, as well as from Lake Hanka. Its range in China extends to and includes the Yangtze Kiang. He gives the following synonymy and reference:—

Lenciscus idella, Valenciennes, Hist. Nat. Poiss. 1814. 18. 362. *Ctenopharyngodon idella* (Val), Berg. Ichth. Amur. Mem. Acad. Imp. Sci. St. Peters. 8th series, 1909. 24. No. 9. 120.

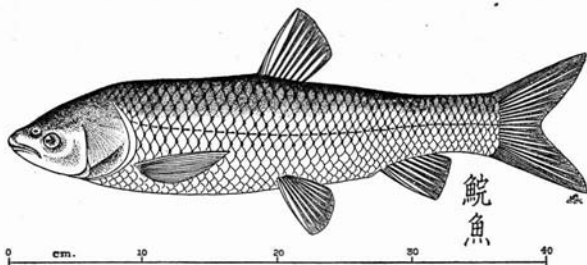
D. III 7; A. III 8; I. I. 43 $\frac{6.5-7}{5}$ 45 (Berg).

(3) Saiki gives this Chinese name as a synonym for the *eso*, *Saurida argyrophanes*, Richardson. Wu gives it as *Salus perryi*.

(4) The life history of this fish is given fully by S. Y. Lin in the Lingnan Science J. 1935. 14. 129 and 271; who says that when they are only about 1 month old and about 1 inch in length they will eat duckweed, they will also take rice bean, bean meal and cow dung. The mature fish eats grass, leaves of trees, water-plants, small fish, earthworms, beef, insects and even decayed cloth and shoes. Other articles discuss its feeding habits, by T. P. Chen, Ling. Sci. J. 1934. 13. 275; and W. E. Hoffmann, Ling. Sci. J. 1934. No. 5.

(9) The fry is raised at *Linhau* in Chekiang, \$13 a picul, and cultivation is made in the ponds at *Hsiaoshan*, *Wusih*, *Wusien*, *Changshu* and *Tanyang*, in Kiangsu all cultivate this fish. BFT. 1933 p. 255; 1935 p. 365.

Explanatory notes. *Ch'en T'sang-ch'i* states the ide is found in the rivers and lakes, and it is like the carp. *Li Shih-chen* states *Kuo P'u* says the ide is like the barbel but bigger.



No. 152. *Ctenopharyngodon idellus*, C. & V.
Shanghai, Feb. 8, 1938. 90 cents.

It is long, with a round body. The meat thick and soft. It is a dark fish. There are white and dark species of ide (⁵). The white has the best flavour, and is salted down commercially.

132 a. 肉 *JOU* FLESH OF THE IDE

Qualities. Sweet, warming, nonpoisonous.

Li Shih chen states that *Li T'ing-fei*(⁶) says that it is able to make wounds flare up.

Uses. Warming to the stomach, and stimulating the internal organs, *Li Shih-chen*.

132 b. 膽 *TAN* BILE OF THE IDE.

Collected in the last month of the year and dried in the shade.

Qualities. Bitter, cooling, nonpoisonous.

Uses. *Ch'en T'sang-ch'i* taken with water for swollen throat, for infectious debilitating diseases(⁷). For fish bones or bamboo splinters stuck in the throat take two bladders of bile mix with urine, suck into the mouth and spit out again(⁸).

(5) Sowerby lists also the Manchurian ide *Idus waleckii*, Dybowski from the Amur, a lighter coloured fish.

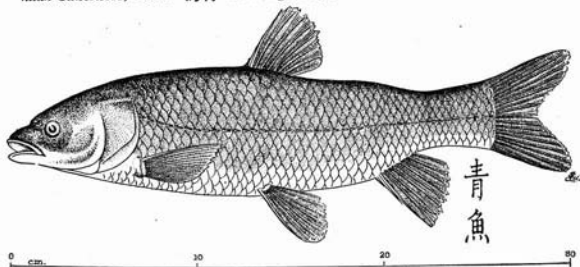
(6) The author of *Yen shou* in the Yuan dynasty.

(7) 鰓⁷ *fei shih* a disease said to be conveyed by three types of organisms shaped like (a) a horse's tail, (b) tortoises, (c) pieces of dough, and able to fly. The various symptoms in some respects resemble tuberculosis.

(8) Green and Hilditch (J. Soc. Chem. Ind. 1936. 55. 4T.) have analysed the liver oil from the tropical carp *Ctenopharyngodon idellus* and found 6% linoleic and 11% linolenic acid. The oil from the Guinea and other grasses upon which this fish feeds have been found to contain notable quantities of these fatty acids, which are a known essential constituent of the diet, lack of them causing a dermatitis.

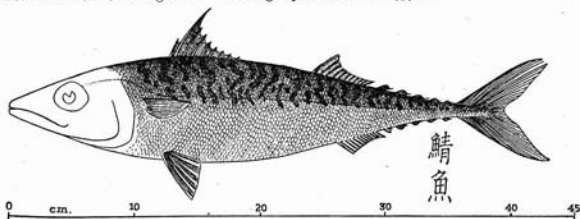
133. 青魚 CHING YÜ BLACK CARP⁽¹⁾(2)(3)(4).

Sung Kai-pao: ZN. 2366: W. 160: G. 2192: Hsu No. 70: Y. T. Chu p. 8;
 Index No. 252: CMM 192: LSJ 1934. 13. 275; 1937. 16. 226: Couling p. 183:
Synonyms. 鯖 Ch'ing PT: 黑鯖 hei ch'ing Chu: Ch'ung uh, Korean: 黑鯧 hei
 huan Cantonese, Hsu: 烏青 wu ch'ing, Hsu:



No. 133. *Mylopharyngodon aethiops*, (Basilewsky).
 Shanghai, Jan. 14, 1938. 25 cents.

Explanation of Names. Li Shih-chen states that 青 is also written 鯖, so called on account of its colour, dark green. The large species is called 鱧 leu.



No. 133a. *Scomber japonicus*, Houttuyn.
 Shanghai, May 30, 1938. 30 cents.

- (1) Identified by Y. T. Chu as *Mylopharyngodon aethiops*, (Basilewsky). China Journal 1931. 13. 147. It is one of the cyprinids described and illustrated by him from the West Lake.
- (2) The marine species is a kind of mackerel or mullet, G and W. The Korean notes call it a herring. Williams says it is akin to the surmullet (*Upeneus*).
- (3) It should be clearly differentiated from the mackerel *Scomber* which is smaller and known as 青花魚 ch'ing hua yü, a marine fish described by Hsü and others. It is listed and analysed by Saiki. Wu incorrectly calls this *Scomber japonicus*, Houttuyn., see also SY. and SC. Although it is sold in Shanghai under the name 鯖 ch'ing.
- (4) Sold on the Shanghai market 25 to 40 dollars a picul. In 1933 over 15,000 piculs were sold. Hsü p. 48 also identifies it as *Mylopharyngodon aethiops*.

Commentary. *Su Sung* states that this fish is found in the river and lakes, very plentiful in the south and sometimes occurring in the north (⁵) (⁶). Caught in any season. It is similar to the ide but its back has a pure azure colour. In the south it is used extensively to make fish condiment. The ancient saying 五侯鯖 *wu hou ch'ing* refers to this fish (⁶). The bony head is steamed until clean and dried in the sun, it is like amber. Hupeh and Hunan people boil it to make wine cups and combs which are very fine. The old records say that it can be used in place of amber but this is not so.

133 a. 鮓 JOU FLESH⁽⁷⁾.

Qualities. Sweet, bland and nonpoisonous.

The *Jih-hua* states that it is slightly poisonous. It is contraindicated for people who take *atractylis*.

Uses. *K'ai-pao*, for beri-beri and rheumatism.

Chang-ting, boiled with leek sprouts it is given for beri-beri, weakness of feet, melancholia, and as a tonic.

133. b. 鮓 CHA CONDIMENT

Qualities. Contraindicated for people who take mineral drugs, *K'ao Pao*. *T'ao Hwung-ching* states that it cannot be given with fresh coriander, mallow, bean-leaves, wheat or soybean sauce.

133. c. 頭中枕 T'OU CHUNG CHEN OCCIPUT.

Uses. *Sung K'ai-pao*, rubbed down with water it is given for sudden colic and stomach pain. *Jih hua*, for painful cardiac insufficiency, a regulator of the water distribution. *Li Shih-chen*, made into drinking cups it is used as an antidote to the *Ku* poison.

133. d. 眼睛汁 YEN CHING CHIH AQUEOUS HUMOR.

Uses. *Sung K'ai-pao*, dropped into the eye to enable one to see at night.

133. e. 膽 TAN BILE

Collected in January and dried in the shade.

Qualities. Bitter, cooling, non-poisonous.

- (5) Chu's Index lists this fish from Soochow, Ningpo, Shanghai, Peking &c. although Mollendorff in 1877 reported it from Chihli and regarded it as "peculiar to North China". Chu gives the following synonyms:—*Lenciscus a.*, Basil.; *Mytolencus a.*, Gunther 1873; *Mytolenciscus atripinnis* Garman 1912 Shansi; *Mylopharyngodon a.*, Peters 1880 Ningpo; etc.
- (9) This fish is extensively cultivated in Kiangsu. The fry are brought from Kiukiang and other places to the ponds of *Wusi Wuksien* and *Tanyang*. In Chekiang the fry from *Linhu* fetches \$800 per 10000 fish, cultivated at *Wuhsing*, *Saohsing*, *Chiahsing*, *Hsiaoshan* and *Ningsien*. BFT. 1933 p. 255: 1935, p. 365.
- (6) In the Han dynasty there was a man named *Lon Hu* who was very friendly with the noblemen of his day, all of whom gave him this fish as a present, with which he made this condiment.
- (7) Our analysis shows the following percentage composition:—protein 16.8, fat 2.1, carbohydrate 0.12, ash 1.25, Ca 0.029, P 0.266, Fe 0.001, K 0.460.

Uses. *Stog K'ai-pao*, dropped into the eye for dimness of vision, applied to inflamed boils. *Li Shih-chen*, it can remove redness of painful swollen eyes, expectorant for swollen throats (& tonsils), for toxic boils and to remove fish bones in the throat.

Notes. *Li Shih-chen* states that the virtue of this drug depends on its association with the eastern point of the compass and the colour 青 green (青). It passes into the liver and bile and the outlet for its effect is the eye. For this reason, the bile of the green fish is used to treat growths over the eye. It is used to treat swollen throat and stoppage with fish bones because its acid and bitter qualities dissipate them.

134. 竹魚 CHU YÜ GOBY⁽¹⁾

Pen-t'sao Kang-mu: Saiki p. 179:

Korean name *Chook Euh*: Japanese *Haze*:

Commentary. *Li Shih-chen* states it is found in Kwangsi in the Hsiang and Li rivers. Shaped like the 青 (No. 133), but larger with fewer bones and spines. It is the colour of bamboo, a lovely kingfisher blue with some of the scales spotted vermilion. It tastes like the rock fish, the flesh is highly regarded in the Kwang provinces.

134 a. 肉 JOU FLESH OF THE BAMBOO FISH

Qualities. Sweet, bland, nonpoisonous.

Uses. *Li Shih-chen*, a visceral tonic, respiratory stimulant, and anhydrotic.

(8) This is part of the 十干 ten cyclic characters or celestial stems related to the five elements as taken from the *Nei Ching* and the *Li Chi* :—

CHARACTERS	COMPASS	ELEMENTS	PLANETS	COLOURS	YANG	YIN	ORGAN	ACTING THROUGH
甲 乙	East	Wood	Jupiter	Green (ultra-marine)	FIR	BAMBOO	LIVER	EYES
丙 丁	South	Fire	Mars	Red	BURNING WOOD	LAMP FLAME	HEART	EARS
戊 己	Central	Earth	Saturn	Yellow	HILL	PLAIN	SPLEEN	MOUTH
庚 辛	West	Metal	Venus	White	WEAPONS	KETTLE	LUNG	NOSE
壬 癸	North	Water	Mercury	Black	WAVES	BROOKS	KIDNEY	URINARY ORIFICE

It is more fully expanded by Coaling in his *Encyclopedia Sinica* p. 184.

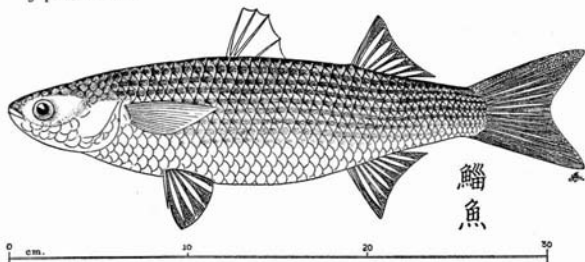
This should be studied in comparison with the iatro-astrology of the west from the ancient Egyptians, Hellenistic writers and the astrologers up to the century of Galileo and Newton, when such was replaced by more rational ideas. See Bouché-Leclercq's "astrologie Grecque", and Von Wilhelm Gundel's. "Dekane und Dekansterbilder", Hamburg, 1936.

(1) This is identified by Saiki as the GOBY, *Acanthogobius flavimanus*, T. & S.

135. 鱚魚 TZU YÜ GREY MULLET⁽¹⁾(²)(³)(⁴)(⁵)

Sung K'ai-pao: ZN 2364: W. 867: G 12377: Sowerby NM. 4. 157: NNB. p. 120: Hsü No. 59: SY. 259: Y. T. Chu, Index 836 to 849: Saiki p. 176: CMM 503: LSJ. 1937. 16. 233: Fowler, H. K. N. 1935. 6. 140: Herklots and Lin No. 36: Tschirch 1932. 2. 813: Watt 1890. 3. 386: CNH p. 640:

Synonyms. 子魚 *tzu yü* PT: 肉棍子 *jou kun tzu*, Hsü: *Soo kuh*, Korean name: Japanese *Bora*:



No. 135. *Mugil cephalus*, L.
Shanghai, Jan. 18, 1938. 32 cents.

Explanation of Name. The *tzu* is coloured dark black. Cantonese people write the name 子魚.

Comments *Ma Chih* states that the grey mullet is found in the shallow water of rivers.⁽¹²⁾ Like the carp the body is round, the head flat and the bones are soft. It likes to eat mud. *Li Shih-chu* states it is found in the Eastern Sea, shaped like the *ch'ing* (No. 133), it is more than a foot long, the belly is full of eggs. It has a fine tasting yellow fat. Otters

- (1) This is identified in the ZN. as the Grey mullet, common both here and in Europe, it is the *Mugil cephalus*, Linnaeus.
- (2) Sowerby secured many specimens of the grey mullet at Peitaiho, and gives his description and references. Linnaeus Syst. Nat. 10th. edit. 1758. p. 316. D. IV. 18; A. III 8; Scales 41/13.
- (3) Hsü state there are plenty on the Shanghai market in summer, about \$20 a picul.
- (4) Chu lists 14 species of mugil. The name *Mugil cephalus* he gives as a synonym for *M. oeur* Forskal. Also the synonyms *M. cephalotus* C. & V.; *M. japonicus* T. & S.; *M. macrolepidotus* Rich.; from the Red Sea, seas of India to China and Japan.
Fowler gives descriptions, synonyms and the habitats of these various species.
- (5) Herklots and Lin list under this name *Mugil longimannus* Gunther.
- (12) It occurs in the Yangtse between Liubo and Kiangyin where an annual catch is made from January to March. BFT. 1933 p. 250.

like to eat them. The people of Wu Yueh⁽⁶⁾ consider it excellent food and salt⁽⁷⁾ it whole or in slices.

135 a. 肉 *JOU* FLESH OF THE MULLET⁽⁸⁾⁽⁹⁾⁽¹⁰⁾

Qualities. Sweet, bland and nonpoisonous.

Uses. An appetiser benefitting the five viscera making people fat and strong. Compatible with all medicines.⁽¹¹⁾

136. 白魚 *PAI YÜ* CULTER⁽¹⁾⁽²⁾⁽³⁾⁽⁴⁾.

Sung K'ai-pao: W. 96: G. 8556: Sowerby NM. 4. 95; NNB. 81: Hsü No. 75: SY. p. 245: Y. T. Chu p. 25; Index 339 to 350: LSJ. 1937. 16. 227: CMM 95:

Synonyms 鱈魚 *ch'iao yü*, PT: 鮎 *pai*, PT. Chu: 陽鱈 *yang ch'iao*, Hsü: *Paik uh*, Korean name:

Interpretation of Name. *Li Shih-chen* states that the character for white is also rendered 鮎, because it is white in colour. It is called *ch'iao* because the head and the tail turn upwards.

(6) Chekiang and Kiangsu.

(7) This is rendered 齏 *hsiang* which usually only applies to the sea bass. In Peking it refers to the salted *Trichinurus* and bass; though as Williams states, in Kiangsu the 白齏 is one of the herring family, with very small fins.

(8) The following percentage analyses are reported.

	Protein	Fat	Ash	CaO	P ₂ O ₅	Fe ₂ O ₃	Na Cl.
Saiki (Japan)	20.00	7.76	1.06	0.06	0.510	0.006	0.360
Atwater (U.S.A.)	19.50	4.60	1.20	—	—	—	—

(9) The flesh of the Indian mullet *M. parsia* contains to inter. units of vitamin B per 100 grams. A. R. Ghosh and B. C. Gura, Indian J. Med. Res. 1933. 71. 761.

(10) The mullet in India is considered cooling, phlegm., difficult to digest. Chopra q.v. p. 518. Sanskrit, *Bhokani*.

(11) The mullet was recommended by Dioscorides to be applied fresh to the stings of scorpions, spiders &c.

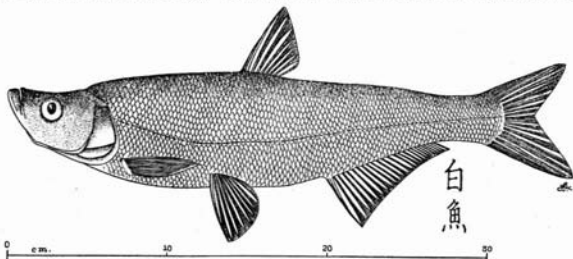
(1) This is not cited in the ZN. Chu describes and illustrates the *Culter brevicauda*, Gunther, in "Fishes of the West Lake" (Hangchow, 1932) under 短尾鮎魚 *luan wei pai yü*. He cites 11 species of Culter in his Index Piscium Sinensium. The description suggests *Culter recurviceps* Richardson, which Rendahl 1928 regards as synonymous. Hsü gives the same identification. It is sold in Shanghai at over \$30.00 a picul. In 1931, 210 piculs were sold.

(2) Williams refers it to the *Culter* and *Pseudoculter* found in fresh water, allied to the pike. Giles says it refers to all forms of the genus *Culter*, a fish peculiar to China, recognised by their narrow bodies and upturned mouths. Wu identifies this as *Lepisma saccharina* L.

(3) Sowerby cites four species from Manchuria. He found the common culter *C. alburnus*. Basilewsky in the rivers of Chilili.

(4) Von Mollendorff identifies it as *C. erythropterus*. Basil, the red finned culter. N. China Roy. As. Soc. J.

Explanations. *Liu Hsu* (5) states that it is a white river fish with upturned head. A large fish six to seven feet long. *Li Shih-chen* states that the culter has a narrow body,



No. 136. *Culter brevicauda*, Gunther.
Shanghai, Jan. 25, 1938. 20 cents.

with a flat belly, fine scales, and the head and tail are turned upwards. There are fine bones among the flesh. *Wu Wang's*, "the white fish is like a boat", refers to this fish.

136a. 鱖 JOU FLESH OF THE CULTER.

Qualities. Sweet, bland and nonpoisonous.

Meng hsien states that the fresh fish ought to be made into chowder with salted soy-beans. Eaten to excess it causes constipation though it does not make a person ill. Made from fish killed the day before it should not be eaten, it will cause a cold in the belly. Roasted and eaten it is slightly upsetting. Pickled in salt or wine and stored it can be eaten. *Wu Jui* (6) states that eaten to excess it produces phlegm. Eaten with jujubes it causes lumbago.

Uses. *Sung K'ai-pao*, an appetiser, removing gas and water, making people fat and strong. *Shih Liao*, an appetiser, regulating the action of the 5 visceral organs (7) and the twelve parts of the circulation (8), and quietens the respiration. *Jih hua*, a liver tonic, it

(5) Joint author with *Ma chih* of the *Sung K'ai-pao Pen T'sao*.

(9) *Wu Jui* author of the *Jih-yung Pen-l'sao*, Yuan dynasty.

(7) The 5 viscera refer to the heart, liver, spleen, lungs and kidney.

(8) 十二經絡 *shih erh ching lo*, the twelve parts of the circulation, 6 relate to the hands, and 6 to the feet (a) 手陽明 *shou yang ming*, that of the large intestine. (b) 手太陽 *shou tai yang* small intestine. (c) 手少陽 *shou shao yang* the three digestive areas. (d) 手太陰 *shou tai yin* lungs. (e) 手少陰 *shou shao yin* heart. (f) 手厥陰 *shou jue yin* pericardium. (g) 足陽明 *tsu yang ming* stomach. (h) 足太陽 *tsu tai yang* urinary bladder. (i) 足少陽 *tsu shao yang* bile. (j) 足太陰 *tsu tai yin* spleen. (k) 足少陰 *tsu shao yin* kidneys. (l) 足厥陰 *tsu jue yin* liver. From the *Huang Ti Nei Ching*.

clarifies the vision, a circulatory stimulant. The fish salad when eaten is good for the circulation and for healing cauterized wounds. It causes all kinds of boils and pimples to come to a head with pus.

NOTES. *Li Shih-chen* states that the culter is better eating than other fish; it is heating and can make boils come to a head. It is probably an overstatement to say that it is a liver tonic, clarifying the eyesight and regulating the circulation but *K'ai Pao's* claims are quite correct.

137. 鰻魚 *TSUNG YÜ* **TSUNG FISH**⁽¹⁾⁽²⁾⁽³⁾.

Shih-liao Pen-t'sao: W. 843: G. 12007: SC:

Korean name *Cho euh*:

Interpretation of Name. *Li Shih-chen* states that it is the nature of the *Tsung* to eat other fish. It uses its eyes to spy (*tsung*) on other fish hence the name *tsung*. The *Yi Wu Chih*⁽³⁾ considered that this was the 石首魚 *shih shou yü*, but this is incorrect. The *Shih-liao Pen-t'sao* had the character 鰻, but there was no such character in ancient literature.

Explanations. *Li Shih-chen* states that the *tsung* is a long thick round bodied fish found in the rivers and lakes, like the false salmon (*Kan yü* No. 138) but the belly is slightly curved, the head is flat and the snout is on the under part of the chin. The scales are fine, the belly is white, and the back is coloured slightly yellow. It can swallow up other fish. The large ones weigh twenty to thirty catties.

137 a. 肉 *JOU* **FLESH OF THE TSUNG.**

Qualities. Sweet, bland, nonpoisonous.

Uses. *Meng hsien*, a tonic to the five viscera, benefitting the muscles and bones. It helps the relationship between the stomach and spleen. It is beneficial to eat a lot of it, especially when it is salted. Sun-dried it is fragrant and tasty and does not make one ill.

138. 鱈魚 *KAN YÜ* **FALSE SALMON**⁽¹⁾⁽²⁾⁽³⁾⁽⁴⁾.

Pen-t'sao Kang-mu: W. 428: G. 5846: Hsu p. 56: Sowerby NM. 4. 98; NNB Chapter 13: Y. T. Chu Index No. 270: LSJ. 1937. 16. 226:

(1) Williams says this is a fish allied to the sturgeon.

(2) Mills in the Korean collection calls this a *gillhead*, which does not correspond very well with the text.

(3) Written by *Sien-ying* of the T'ang dynasty.

(4) Identified and described by Y. T. Chu in the *China Journal* 1930. 13. 145. as the *Elopichthys bambusa*, Richardson. Also P. Bleeker, *Proc. Zool. Soc. London*, 1875, p. 534.

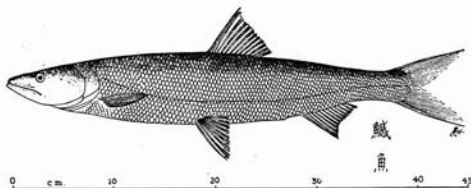
(2) Hsü gives the same identification, with the colloquial names 橫專 *heng chuan*, 橫條 *heng l'iao*. 魚虎 *yü hu*: It is found on the Shanghai fish market at about \$20 a picul.

(3) Williams describes it as a sort of pike or pickerel, three feet long found on the Yangtse. No other fish can live peaceably in the same stream with it, whence it is called the batchelor fish, *kuan yü*. Giles says it is a kind of shad.

(4) Sowerby says this is called *Gan yü* in the Yangtse region and *Huang chuan* in the north. Its range extends from Northern Mongolia to the rivers of Canton Province. It is the largest member of the carp family in Chinese waters. Specimens of well over 100 catties being not uncommonly taken by

Synonyms. 鮠魚 *Kan yü* PT: 鯪魚 *Kuan yü* PT: W. 466; G. 6371: *huang chia yü* PT: (4)

Interpretation of Names. *Li Shih-chen* states that the name comes from the word *kan* meaning bold. The name 鮠 comes from 陷 pronounced like 陷 *hsien*, which means to eat without being satiated. It is very strong and difficult to catch. It gobbles up allied species of fish with great vigour and is never satisfied. Its character is to travel alone hence the name *kuan yü*. The *Shih-ching* says "*Ch'i yü fang kuan*" which refers to this fish.



No. 138. *Elopichthys bambusa*, Richardson.
Shanghai, June 3, 1938. 20 cents.

Explanatory Notes. *Li Shih-chen* states that the *kan* is found in the rivers and lakes. Its body is like the *tsoug* but the belly is flat, the head is like the Chinese ide except that the mouth is larger, the cheeks are like the mudfish and yellow in colour, the scales are a little finer than those of the eastern barbel. They may weigh as much as 30 or 40 catties (40 to 53 3 lbs), and most destructive in eating other fish. If one wishes to raise them in a pool one cannot introduce other fish. The *Tsing Shan Ching*⁽⁵⁾ states that there are many *kan* fish in the waters of the *Ku Erh*. The *I Yuan*⁽⁶⁾ states when any fish desires to shed its eggs the *kan* uses its head and knocks it on the belly, so it is commonly called the mother of all fish. However when fish in general lay eggs the male must strike the belly of the female (to liberate) and then cover the eggs with sperm, it is not only the *kan* fish which does this.

fisherman in their nets. It looks uncommonly like a salmon, but it has no adipose fin. Sowerby gives the following references:—

E. bambusa (Rich). Berg. Ichth. Amur. Mem. Acad. Imp. Sci. St. Peters. 8th series 1909. 24. No. 9, 151-153.

Leuciscus b., Richardson, Voyage Sulphur, Ichth. 1844, p. 141. pl. 63, fig. 2.

D. III 10; A. III 10; r. 1. 109 20/7 110 (Berg).

Y. T. Chu also gives the synonyms:—

Nasus dahuricus, Basil 1855 Peking;

Elopichthys dahuricus Bleeker 1864 North China;

Opsarius bambusa Kner 1867 Shanghai;

Scombrocypris styani Gunther 1868 China.

(5) This is a section of the *Shan Hai Ching*, referring chiefly to Shantung.

(6) Written by *Liu Ching-shu* in the Sung dynasty.

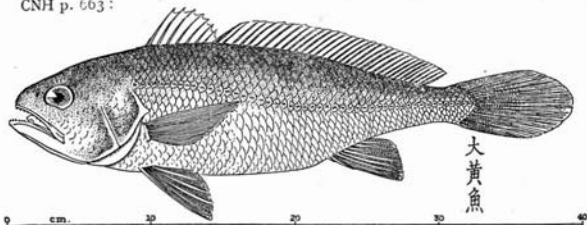
138 a. 肉 *JOU* FLESH OF THE FALSE SALMOM

Qualities. Sweet, bland and nonpoisonous.

Uses. *Li Shih-chen*, antiemetic, warming and strengthening to the stomach.

139. 石首魚 *SHIH SHOU YÜ* **SCIAENID FISH** ^{(1),2)(3)(4)}.
(CROAKERS) (MAIGRE)

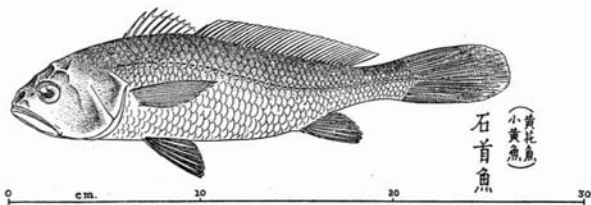
Sung K'ai-pao Pen-t'sao: ZN. 339: G. 9964: Sowerby NM. 4. 188: Hsu Nos. 1 & 2: Y. T. Chu Index, Family 153: CMM 88: Couling p. 183: Herklots and Lin Nos. 27, 28: S. Y. Lin, Lingnan S. J. 1938. 17. 33, 161: Watt 1890. 3. 394: CNH p. 663:



No. 139a. *Pseudosciaena undovittata*. J. & S.
Shanghai, March 8, 1938. 30 cents.

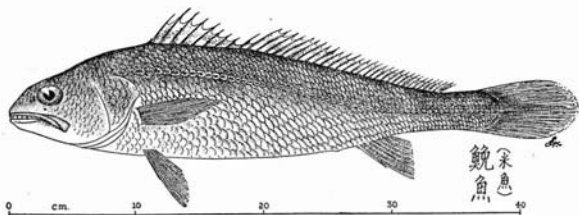
- (1) This is given by the Zoological Nomenclature as the family name for the *Sciaenidae*. There are two common species: (1) The *huang hua yü* 黃花魚 *Sciaena schlegelii*, Bleeker. Schlegel's maigre is commonly known in N. China as Chefoo herring. (2) The *wan yü* 鱸魚 *S. albiflora* Richardson, the white spotted maigre. Schlegel's maigre is known by many names such as 黃魚 *huang yü* the yellow fish, 黃瓜魚 *huang gua yü* the yellow melon fish. These caught in the eighth month are called 桂花魚 *kuai hua yü*, in the last month of the year they are called 雪亮 *hsueh liang*, in spring they are termed 報春 *paò ch'ün*. The white spotted maigre is used for making isinglass, as are the *Otolithus* in India.
- (2) Sowerby describes seven species of maigre from Manchuria. He says the white-spotted maigre is called *Tung-lo yü* and *Hu-lu-tzu yü*. It was originally described from Canton by Richardson as *Corvina albiflora*. Ichth. China 1846, p. 226; and subsequently redescribed by Basilewsky under the name *Sciaena tento*, Nouv. Mem. Soc. Nat. Mosc. 1855, 10. 220, from the Pechili Gulf where it is common. He says Schlegel's maigre is abundant off Shantung, Eastern and North-eastern Chihli, S. Manchuria and Western Corea. It has a somewhat deeper body than the white-spotted species. Bleeker describes it under *Pseudosciaena schlegelii*, Verh. Kon. Akad. Wet. Amster. 1879. 18. 9. D. X. 1, 25-27; A. II, 7-8; Scales 50.
- Y. T. Chu gives 33 species of Sciaenidae of which six are of the genus *Otolithus*. S. Y. Lin has published, "Notes on some important Sciaenid fishes of China". Bull. Chekiang Prov. Fish. Expt. Station, 1935. 1. 1.
- (3) This is a very common fish on the Shanghai market, where far more of it is sold than of any other fish. There are two species given by Hsü called the large and small yellow fish, the price may be as low as \$1.76 a picul, though when less common it may fetch \$50. Nearly half a million piculs of the two species were sold in 1934. The 大黃魚 *ta huang yü* is given by Hsü as *Pseudosciaena amblyceps* Bleeker, the 小黃魚 *hsiao huang yü* also known as 黃花魚 *huang hua yü* is *P. undovittata* J & S, Syn. *P. crocea*, (Richardson). Hsü gives *Corvina japonica* (Schlegel) for the *wan yü* p. 5, for which he gives the synonym 米魚 *mi yü* rice fish.
- (4) Herklots and Lin describe *Huang hua yü* as the yellow croaker *Pseudosciaena crocea* (Richardson), and the *wan yü* as the slatecod croaker *Nibea diacanthus* (Lacépède). Lin in the Lingnan Science Journal gives a good analysis of this family.

Synonyms. 石頭魚 *shih t'ou yü* PT: 鮫魚 *wan yü* PT: G. 7904 江魚 *chiang yü* PT: 黃花魚 *huang hua yü* PT: G. 5124 養魚 *hsiang yü* PT: W. 310. G. 4280: the dried fish 鱧 *hsiang* PT: Korean name, *suk uh*: Japanese *Ishimochi*:



No. 139b. *Pseudoscia amblyceps*, Bleeker.
Shanghai, March 8, 1938. 7 cents.

Interpretation of Names. *Li Shih-chu* states that the dried maigre is nourishing 養 *yang*; people long for it hence the name *hsiang* which come from that character. *Lo Yuan* (5) states that all fish when dried are called *hsiang* but none are as nice as the maigre hence this one alone is particularly so termed (6). The white dried fish is the best and is called *pai hsiang*. If in drying it is caught by the wind it turns red and loses its flavour.



No. 139c. *Covina japonica*, Schlegel.
Shanghai, March 17, 1938. 60 cents.

Explanatory Notes. *Ma Chih* states that when the maigre leaves the water it is able to

- (5) Author of the *Erh Ya Yi* in the Sung dynasty.
(6) Williams translates this term, "dried salt fish", and says that in Peking the term is applied usually to the salted *Trichiurus* and perch; but in the Pen T'sao only the *Shih Shih yü* or sea bass, is so called; in Kiangsu the *Pai hsiang* is one of the herring family, with very small fins.

cry out. It is phosphorescent at night. There is a stone in its head like a chess-man (?)⁽⁸⁾. There is a kind of wild duck with a stone in its head, which is thought to have metamorphosed from the fish. *Li Shih-chen* states it is found in the Eastern and Southern Seas.⁽¹⁵⁾ It is shaped like the culter, body compressed, bones soft, scales fine, as yellow as gold, there are two otoliths in its head with a pure lustre like jade. In the autumn it metamorphoses into a 冠鳧 *kuan fu* that is a wild crested duck⁽⁹⁾. The air-bladders inside it can be made into glue⁽¹⁶⁾. The *Lin Hai Yi Wu Chih* states that the small fish are called 踏水 *ch'iu shui*, those smaller still are called 春來 *ch'un lai*. The *Yu Lan Chin* by T'ien Chiu-ch'eng states that every year in the fourth moon they come in from the ocean in file several miles long, making a thundering noise. The fisherman take bamboo tubes and insert them to the bottom of the water to listen for their coming, and then let down their nets and catch them in a trap. Placed in fresh water they all become flaccid. The first rush of water has the best catch, in the second and third shoals the fish get smaller and the taste lessens.

139 a. 肉 JOU FLESH OF THE MAIGRE⁽¹⁰⁾(11)(12).

Qualities. Sweet, bland and nonpoisonous.

- (7) There are two kinds of chessmen, neither of which are shaped like the pieces in the Western games. Ordinary chess 象棋 *xiang ch'i* played with 32 men, is said to have been invented by Wu Wong B. C. 1120 and is very similar to Western chess but the pieces are round like draughts and usually made of wood. This reference has to do with another kind of chess called 圍棋 *wei ch'i* played with 360 black and white pieces, to represent a year of days and nights on a board of 361 squares, it is ascribed to Yao. The pieces are round stones about 3/5 ths. of an inch across like a lozenge.
- (8) There is the following note upon this subject in "Useful Plants and Drugs of Iran and Iraz." by *David Hooper* Botanical Series, Field Museum of Natural History, Vol. 9, No. 3, June 1937, p. 196. *Otoliths of fish* (Percomorphi, Sciaenidae). Sang-i-sai-i-mahi (from Sang, "a stone"; Sar, "a head"; Mahi, "fish"; an allusion to the belief among the natives that the stone is found in the head of a fish). "poa teeth" (Ind.).

W. H. M. M. 51699.

Otoliths are semi-crystalline bodies composed of carbonate of lime, found in the ear sacs of fish. These concretions are sold in Delhi and other cities in northern India. They resemble in color and form the human incisor teeth, being white and smooth, and having both surfaces convex. The concretions are powdered and given for urinary diseases, chiefly in the suppression and retention of urine (Khory).

- (9) These ideas are taken from the *Sshu Yi Chi* 述異記 written in the Liang dynasty by *Jan Fang*.
- (16) The air-dried bladders are prepared in Chekiang in three shapes, round, flat and long. There is a brisk business in this product. BFT. 1935, p. 368. The air-bladder of the otolithus is illustrated in the Cambridge Nat. Hist. 1932. VII. 304:
- (10) Analysis of the maigre shows only 0.76% of fat, 18.8 protein, 1.04 ash, 0.03 lime, 0.152 phosphorus. The fat is much less than in many other fish such as the bream, eel, hair-tail etc. of which the smoked carp in our list is the highest at 12.12%. The dried salted material has the following percentages:— carbohydrate 5.39, ash 26.63, Ca 0.266, P 0.395, Fe 0.003, K 0.758. "Shanghai Foods", Read, Lee and Ch'eng, C.M.A. Special Reports No. 8. 1937, p. 63.

- (11) Analysis of *Sciaena Schlegli* shows the percentage composition

	protein	fat	ash
Japan	13.2	5.33	0.58
Peking (Wu)	15.7	2.10	1.00
<i>S. undovillata</i> Shanghai.	18.8	0.76	1.04

- (12) The Sciaenidus fish *Boyal* in Ayurvedic medicine is said to increase the *Kapha* (phlegm), it is strengthening, induces sleep, increases the bile and deranges the blood. K. M. Nadkarni, Indian Materia Medica, Bombay, 1927 p. 1130.

Uses. *Sung K'ai-pao*, made into a soup with the water-mallow (*Brasenia* 蓴菜) it is appetising and beneficial to the respiration.

139 b. 鱻 HSIANG DRIED MAIGRE⁽¹⁰⁾(15).

Uses. *K'ai pao*, fried and eaten it dissolves undigested melon, it cures sudden acute dysentery and swollen abdomen.

Chang Ying, it dissolves undigested food, for nightmare and weakness in convalescents. Its action is superior to the fresh fish.

Comments. *Li Shih-chen* states that the *Shu Yuan Tsa Chi* of *Lu Wen-liang* (Ming) says that in dysentery the things most harmful are rich fatty food and those that are raw and cold (such as fruit), one can only eat dried maigre with benefit. This statement agrees with the Pen T'sao usage of maigre in the treatment of dysentery, because this fish drinks salt water and does not develop hot qualities, it also has no fat and is not greasy⁽¹⁰⁾. Hence it is not overheating and indigestible. It aids digestion and is beneficial to the stomach and intestines. The skin of the dried fish is applied to centipede bites.

139 c. 頭中石鮠 T'OU CHUNG SHIH CHEN⁽¹³⁾ OTOLITHS⁽⁸⁾(14)

London Pharmacopoeia A.D. 1618:
Tschirch 1932. 2. 832.

Uses. *K'ai pao*, rubbed down with water or ashed it is given for three days for the treatment of stone in the bladder⁽⁸⁾.

Li Shih-chen, powdered or ashed it is given with water for gonorrhoea, suppression of urine⁽⁸⁾; the decoction is given as an antidote to arsenic, poisonous mushrooms and the "ku" poison. Supplementary prescriptions are given for gravel and ears running pus.

(10) See footnote page 26

(15) Large catches of these fish are made in Kiangsu and Chekiang. The annual production of the dried fish from the island Machihshan off Kiangsu is valued at over one million dollars. The drying is done during May and June. Off Chekiang there is an annual catch of the big species valued \$5,000,000 and of the small species \$8,000,000, with 200 curing factories on the island conducted by the natives of Ninghsien.

There are three kind of cured fish: (1) The 瓜鱻 *Kua hsiang* prepared by rubbing salt into the fish after being gutted, which after 2 or 3 days is dried in the sun for a day or two. Owing to the short time given to its preparation it does not keep well.

(2) 潮鱻 *chao hsiang* not so thoroughly dried as the *Kua hsiang*, and generally sold on the local markets.

(3) 老鱻 *lao hsiang* has the same method of preparation, but more salt is used, and the drying lasts 10 days. Covered with rice straw, it is stored 6 months before it is ready for the market. BFT. 1933. p. 258: 1935 p. 367.

(13) The *K'ang Hsi Tzu Tien* says the word *chen* 鮠 means fish-eggs. Williams gives "the roe of fish". K'ang Hsi writes the character for otoliths 鱻 *chen*.

(8) See footnote page 26

(14) Otoliths were listed in most European Pharmacopoeias in the 17th and 18th centuries, as a remedy for colic, bladder-stone, pleurodynia and epistaxis.

140. 墨頭魚 *MO T'OU YÜ* BLACK-HEADED MAIGRE⁽¹⁾.

Subheading of the Maigre No. 139.

Synonym. 北斗魚 *pei tou yü* PT. The Dipper (*Ursa Major*) fish.

Li Shih-chen states that it comes from *Chia-chow* in Szechuan⁽²⁾. It is shaped like the Chinese ide, it occurs up to one foot long. The head is as black as ink. There are two stones in the head. The fishermen catch it in the second and third lunar months, they spear it at night, using a lighted flare to attract it.

141. 勒魚 *LE YÜ* LONG-FINNED HERRING (WHITE HERRING)⁽¹⁾⁽²⁾⁽³⁾⁽⁴⁾

Pen-t'sao Kang-mu: Hsü No. 4: Sowerby NM. 4. 148: ZN. 1184: SY. p. 215: Y.T. Chu Index No. 98: LSJ. 1937. 16. 223; 1932. 11. 424: H K N 1931. 2. 121 ills: S. Y. Lin, H K N. 1938. 8. 245: Herklots and Lin No. 2: CNH p. 563:

Synonyms. 鱈魚 *le yü* ZN. 2497, Hsü: Korean name, *Kiwon uh*:

鱈白 *l'so paak*, Canton, Lin:

Interpretation of Name. *Li Shih-chen* states that the belly has hard spines liable to pierce ones skin, hence the name.

Explanatory Notes. *Li Shih-chen* states that the long-finned herring is found in the Eastern and Southern Seas⁽⁵⁾. The fishermen spread their nets in the fourth lunar month.

(1) This name suggests the cuttle fish dealt with under No. 180, however the text clearly indicates that the name refers to the black colour of the head. The top of the head and snout of the Manchurian maigre are dark but this probably refers to some other species.

(2) Now called *Lo Shan Hsien* 樂山縣.

(3) Identified by Hsü as *Ilisha elongata* (Bennett) a member of the *Clupeidae*, with figure, very similar to the *shih yü* (No. 143) except that the mouth turns upwards, the head is smaller and eyes larger. It is not such a good flavour although in 1934 some 22,655 piculs were sold on the Shanghai markets for prices between \$4 and \$30. It is commonly written 鱈魚 *le yü*. It has 35 to 40 spines between the head and the anal fin which annoy people, hence the Chinese name, Hsü No. 4.

(4) Sowerby says it is sold in Tientsin and has been recorded from Corea. A large herring-like fish, in which the anal fin is greatly elongated. He gives the following synonyms and references:—

Alosa elongata Bennett, Life of Raffles, 1830, p. 691.

Pellona. e. Gunther, Cat. Fish. 1863. 7. 456.

D. 16; A. 51.

(5) The Zoological nomenclature gives no scientific name, but says it is a herring similar to the *shih yü* (No. 143), as noted by Hsü.

The 商魚 p. 215 cites three other species on the China coast all with this name.

(4) Y. T. Chu gives other synonyms and references:—

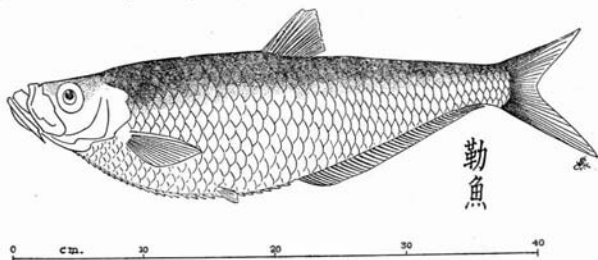
Hisha abnormis Gunther 1874 Chefoo;

Zunasia chinensis (Basil).; *Pellona grayana* Val.;

Pristigaster chinensis Basil;

(5) It is described and illustrated by H. W. Fowler, and he gives the distribution, Hongkong, Macao, Swatow, Amoy, Chefoo, Gulf of Pechili, Ningpo.—(India, East Indies, Formosa, Japan.) Hongkong Naturalist 1931. 2. 122.

and wait and listen for the sound of their arrival. There are three catches of fish. It is shaped like the herring *shih yü* (No. 143) with a small head and fine scales, on the under side



No. 141. *Ilisha elongata*, (Bennett).
Shanghai. May 9, 1938. 30 cents.

of the belly it has hard spines like those on the herring. The bones of the head are shaped like the beak of a crane. The dried fish is called 勒魚 *le Hsiang*. (15).

The Wu people (6) are fond of them (15). People use the bones of the dried fish to pierce the peduncle of unripe musk-melons, and they will then ripen overnight. The bones of the dried maigre are also able to assist the ripening of melons.

141 a. 肉 JOURNAL FLESH OF THE LONG-FINNED HERRING (7)(8)(9)(11).

Qualities. Sweet, bland and nonpoisonous.

Uses. *Li Shih-chen*, an appetiser, warming to the viscera. It is excellent when dried(12).

- (15) Around the *Chusan Islands* and *Lussyang* this fish abounds and from May to August over 1000 boats are engaged in the catch, valued at one million dollars. The dried product in Shanghai and Ningpo sells at \$10 per picul. BFT. 1933 p. 219.
- (6) Comprising Chekiang and extending north and west. The eastern of the Three States in the *San Kuo* 三國 A. D. 250.
- (7) This has the following percentage composition:—
protein 11.9, fat 3.02, carbohydrate 6.56, ash 1.54, Ca 0.06, P 0.169, Fe 0.0021, K 0.5; Read, Lee and Ch'eng.
- (8) The Indian herring in Ayurvedic medicine is said to be sweet due to the excess of fat, it deranges the *Tridosha* (wind, bile and phlegm). K. M. Nadkarni, *Indian Mat. Med.*, Bombay 1927, p. 1130.
- (9) The herring *Clupea ilisha*, H. & B. is used in Indian medicine as a demulcent, carminative &c. Chopra, q. v. p. 549. Hindu. *hilsa*.
- (11) Saiki made a comparison of fish proteins with meat. In his nutrition experiments with rats the proteins were fed at 7 and 10 percent levels. He found that herring, salmon, crayfish, tunny, mackerel &c. gave more or less inferior results. The nutritive value of various fish seemed to be closely related to their amino-acid content, especially to that of lysine. Dried fish had the same nutritive value as fresh, and even canned fish kept for a long period had not lost any of its nutritive value as far as proteins were concerned. League of Nations Health Bulletin, 1926. III. 25. p. 315.
- (12) The Japanese herring even when dried contains a medium amount of vitamin A. T. Saiki, League Nations Health Bulletin 1926 III. 25. p. 358.

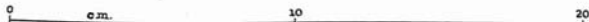
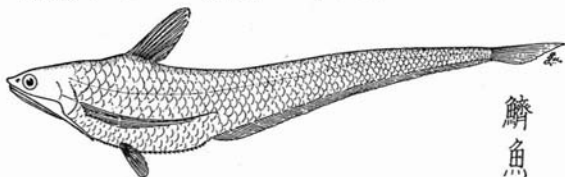
141 b. 鰹 *SAI* GILLS OF THE LONG-FINNED HERRING⁽¹⁰⁾.

Uses. *Li Shih-chen*⁽¹³⁾, for malaria. One inch is mixed with one dose of *Sau Pao Yün*⁽¹⁴⁾ and equal parts of wine and water are added. It is placed outside overnight in the dew, and taken.

142. 鱻魚 *CHI YÜ* ANCHOVY (*COILIA*)⁽¹⁾⁽²⁾⁽³⁾⁽⁴⁾⁽⁵⁾⁽⁶⁾.

Shi-liao Pen-t'sao: ZN. 2603: Hsü Nos. 54 and 55: Sowerby NM. 4. 150; NNB. p. 120: SY. p. 218: W 76: G 1080: Y. T. Chu Index No. 118: Fowler 1931. 2. 198: LSJ. 1937. 16. 223:

Synonyms. 鰹魚 *lieh yü* PT: 鱻刀 *mieh tao* PT: 魷魚 *tao yü* PT: 鱻魚 *chiu yü* PT. W. 165⁽⁷⁾: 望魚 *wang yü* PT: 刀魚 *tao yü* G. W.: 鰹魚 *chi yü* PT. Hsü: 鳳尾魚 *feng wei yü* Hsü: 烤子魚 *k'ao tsu yü* Hsu:



No. 142a. *Coilia nasus*, Gunther.
Shanghai, April 6, 1938. 2 cents.

Korean name *kal chi* SC: Japanese *Hoshiko*:

(10) The Severance Notes translates this cheek-bones.

(13) Taken from the *Che hsuan fang* written by *Chang Yung-ch'ien* in the Ming dynasty.

(14) 七寶飲 *ch'i pao yü* the seven precious drug mixture, is a prescription containing cinnamon, cinnamon, angelica, consolinum, ginseng, pachyma, and ram's horn, 2 drachms each with one drachm of ginger.

(1) Identified by Hsü as *Coilia nasus* Gunther, the long-tailed anchovy, and the *tao yü* he calls *Coilia ectenes* Jordan and Seale, the long-rayed anchovy or Manchurian coilia. In 1933, 7260 piculs of the long-tail were sold for \$6 to \$20 a picul.

(2) Given by ZN. as *Coilia nasus* T & S. The 商魚 cites 5 species.

(3) Sowerby describes the anchovies, both the above species having deep, long and tapering bodies, somewhat compressed which would account for the name *tao yü*. *C. nasus* has a shorter anal fin than *C. ectenes* which extends the whole length of the tail as far as the caudal fin. He gives the following reference:—

Coilia nasus, Schlegel, Fauna Japonica, Poiss, 1864, p. 243. Jord. & Starks, Proc. U.S. Nat. Mus. 1906. 31. 516.
D. 13; A. 8; P. 6+10; Scales 60-63.

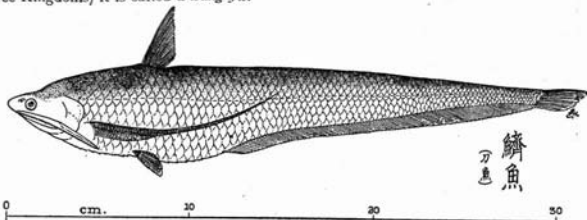
(4) The Severance Notes call it *Belone truncata*, gar-pike.

(5) Giles says this is a mullet, also certain kinds of mackerel. The anchovy *Coilia Playfairii* he terms 馬鱻 *ma ch'i*. The 刀鱻魚 *tao ch'i yü* he gives as a species of *Thryssa*. Williams gives the same translations.

(6) The anchovy in Japan called *Hishiko* is the *Engraulis japonica*, Schlegel: E. C. Grey, Food of Japan, League of Nations 1928. III. 2: Sowerby NM. 4. 149.

(7) The term *chiu yü* also written 鰹 Williams says is a herring, which fable says was transformed from a bird, and therefore has a gizzard in its body. Qualified it also refers to perch, pike and herring.

Interpretation of Names. *Li Shih-chen* states that the fish is shaped like a paring-knife used for trimming bamboo, hence its various names. In the *Shih-chen* written by *Wei wu* (Three Kingdoms) it is called a *wang yü*.



No 142b. *Coilia ectenes*, J. & S.
Shanghai, March 14, 1938. 20 cents.

Explanatory Notes. *Li Shih-chen* states that the anchovy is found in the rivers and lakes and usually appears in the third lunar month⁽⁸⁾. It is long and narrow in shape, and as thin as a wood-shaving. It is also shaped like a long thin knife with fine scales and white in colour. It has two barbels on its snout, below its gills it has long pectoral fins like wheat awns. Under the belly it has stiff pointed spines as sharp as a knife. The anal fin is short. It has many fine bones in its flesh. Fried, roasted, salted or dried, it is good eating. It is not nice when boiled. *Huai Nan-tzu* says that the anchovy drinks but does not eat, the sturgeon and the mud-sturgeon eat but do not drink. Also the *Yi Wu Chih* says the *chin yü* at the beginning of summer migrates from the sea up the rivers. The anchovy is over one foot long. Its abdomen is as thin as a knife. The fine bones in its flesh are like hairs. It is said to be metamorphosed from a bird, hence one finds in its abdomen two bird-like kidneys. This bird is white like a widgeon 鰲 (W. 390) which flies in flocks. In summer the birds disappear and the fish come out by metamorphosis. This is an undoubted fact. However the anchovy of to-day all lay eggs so it cannot be that they are all metamorphosed from birds.

142 a. 鱈 JOURNAL FLESH OF THE ANCHOVY. ⁽⁸⁾

Qualities. Sweet, warming and nonpoisonous.

Meng Hsien states that people with scabies should not eat very much. *Ming Yuen* states that it is overheating, phlegm-forming, and inflammatory to quiescent diseases.

142 b. 鱈 CHA SALTED ANCHOVY. ⁽⁹⁾

Uses. *Li Shih-chen*, applied to piles and fistula.

(8) Analysis show the following percentage composition:—

	Protein	Fat	Cbhyd.	Ash	Ca.	P.	Fe.	K.
<i>C. ectenes</i>	19.02	3.44	1.45	1.15	0.037	0.205	0.001	0.439
<i>C. nasus</i>	15.55	2.33	0.10	2.69	0.109	0.374	0.001	0.458

(9) The big anchovy catch centers in the waters from Kiangyin to the mouth of the Yangtse, between April and July. The dried product is sold in Shanghai. BFT. 1933 p. 250.

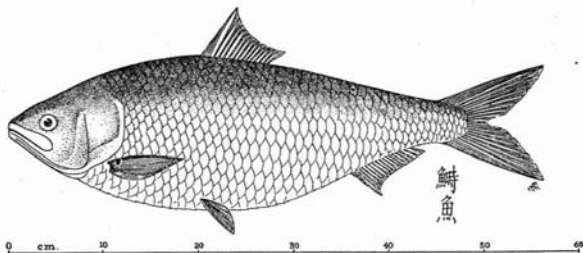
143. 鯡魚 SHIH YÜ SHAD (HILSA HERRING)⁽¹⁾(?)⁽²⁾

Shih-liao Pen-t'sao: ZN. 2456: Hsu p. 35: SY. 212: W. 702: G. 9926: Sowerby NNB. 119: Y. T. Chu Index No. 95: Fowler, H K N. 1931. 2. 115: S. Y. Lin, H N K. 1937. 8. 245: LSJ. 1937. 16. 223: Couling p. 183: Herklots and Lin No. 3:

Synonyms⁽⁴⁾. Korean name *Si uh*: 三犁; *san li* Cantonese name, W; 三鯪 *sam lai* Herklots:

Interpretation of Name. *Mung Yuan*⁽⁵⁾ states that it appears at the beginning of summer⁽⁶⁾ and not in other months, hence the name.

Place of Origin. *Li Shih-chen* states that according to *Sun Mien*⁽⁷⁾ the shad occurs in the Wu area (East end of the Yangtze),⁽¹⁴⁾ but in Li's time it was found in all the rivers being specially abundant in the East Yangtze, hence in Nanking it was used as tribute. It



No. 143. *Hilsa reevesii*, (Richardson). 1750 grams.
Shanghai, March 4, 1938. \$5.04.

- (1) Identified by Hsü as *Hilsa reevesii* (Richardson), the shad or Hilsa herring, one of the herring family, very similar to the *Le Yü* see No. 141 note 1. In 1933, 7577 piculs were sold on the Shanghai market, \$18 to \$140 a picul, more than four times the cost of the long-finned herring. This same identification is given in the 鯡魚, which also gives *H. sinensis* (Linne. Lin in the Hongkong Naturalist gives its life history.
- (2) The Zoological nomenclature calls it *Hilsa elongata*, which is the *Le Yü*. The Severance Notes give the name *Alosa reevesii*. This is given by Y. T. Chu as a synonym for *Hilsa reevesii*. He cites its occurrence in the China Seas, Richardson 1846; Klukiang, Gunther 1889; Ningpo, Peters 1880; Newchang, Morrison 1898.
- (3) This is identified by both Giles and Williams as *Alosa reevesii*, the shad, commonly known as the samli.
- (4) In the *Lei Pien* by *Su Ma Kuang* it says that this is the 鯡 魚. The *Erh Ya* considers 魚 synonymous with the 鯪 魚. The *Tzu Yuan* says that the 魚 is synonymous for 鯪.
- (5) Author of the *Shih-chien Pen t'sao* of the Ming dynasty.
- (6) This is about May 5. Williams says this is called the *time fish* because it enters the rivers in May and returns to the ocean in September.
- (7) Author of *T'ang Yun* in the T'ang dynasty.
- (14) The *Shih yü* is very abundant in that section of the Yangtze from Liuho to Chinking. The season is from April to June. BFT. 1933 p. 250.

appears always in the fourth lunar month (May) after the anchovy, and swims up the rivers from the sea. It is highly prized, but the Szechuan people regard it as infectious, and are afraid to eat it.

Explanatory Notes. *Li Shih-chen* states that the shad is graceful and flat in shape, somewhat like the bream but longer. Silvery white in colour. The flesh is full of fine feather-like bones. The eggs are fine and smooth⁽⁹⁾. So *Ho Ching-ming*⁽⁸⁾ called it the silver scaled fine-boned fish, and *P'eng Yuan-t'sai* although it was so nice hated its fine bones. The largest do not exceed three feet in length. Under the belly it has three cornered scales like armour, the fat is in these scaly plates. It is very proud of its scales and likes to swim on the surface. The fishermen use silk nets lowered into the water only a few inches to catch it. As soon as the silk threads catch on its scales it does not move. It dies as soon as it is taken out of the water, and it very readily decomposes. So *Yuan Ta* in the *Ch'in Ch'ing Shu* says that when the shad catches in the net, in order to preserve its scales it does not move. It is not good for frying or boiling. It is very good to eat when steamed with either bamboo sprouts, amaranth spinach, celery or reeds. It can also be cured (by laying in malted grain). Its scales are unlike other fish. Soaked in lime water and then dried and removed layer by layer the scales are used in beautiful head ornaments for women.

143 a. 鮓 JOU FLESH OF THE SHAD⁽¹⁰⁾

Qualities. Sweet, bland and nonpoisonous.

Meng Hsien says that it will inflame chronic sicknesses⁽¹³⁾.

Uses. *Meng Hsien*, a tonic for weak people⁽¹¹⁾⁽¹²⁾.

Ming Yuan, the fat, dripping from the steamed material collected in a pot and buried in the earth, is good as an application to burns.

143 b. The *Pen-t'sao Shih-yi* adds the Scales.

(9) The roe of the shad *Alosa sapidissima* in America is highly prized as a food. The shad is propagated extensively there. There was an output of over 17 million eggs from the government hatcheries in 1934. G. C. Leach and M. C. James, Bureau of Fisheries Report No. 22, 1936. Analyses of the roe and flesh are given by Atwater q. v.

(8) A poet of the Ming dynasty, of *Hsin Yang*, Honan.

(10) Our analysis shows the following percentage composition:—

protein	fat	cbhyd	ash	Ca	P.	Fe	K.
14.44	11.14	0.18	1.77	0.053	0.265	0.002	0.50

(13) See note to 141. No. 8.

(11) D. J. Macgowan reports upon the use of shad and iodine plants for tuberculosis in China. J. N. C. Roy. Asiat. Soc. 1872, 7, 235.

(12) There is no particular report on this species, but the Clupeidae show exceptionally rich values for vitamins A, B, C, and D in the muscle as well as the liver. See tables of vitamin values by M. Fixsin and M. Roscoe. Nutrition Abstracts & Reviews 1938, 7, 823-867.

144. 嘉魚 *CHIA YÜ* CHAR. (TROUT) ⁽¹⁾ ⁽²⁾ ⁽³⁾

Sung K'ai-pao: ZN. 1783: Sowerby NM. 4. 63; NNB p. 79: W. 81: G.1158: Y. T. Chu Index No. 142: SC: CNH p. 567:

Synonyms. 鮭魚 *wei yü* PT: 拙魚 *ch'o yü* PT: 丙穴魚 *ping hsueh yü* PT: Korean name, *Ka uh*:

Interpretation of Names. *Ch'en T'sang-ch'i* states that the *Shu Tu Fu* of *Cho Ssu* ⁽⁴⁾ says that the char is found at *Ping Hsueh* ⁽⁵⁾, *Li Shan's* commentary on this says that the fish come out of the caves on the day of the calender with a 丙 *ping* character (every ten days), or it has been said that they come from caves which face the south i.e. 丙 *ping*, for how can fish know the days of the calender. According to *Pao Pu Tzu* the swallow avoids those days of the calender termed 戊己 *wu chi* ⁽⁶⁾, the crane knows when midnight has come, so why cannot the char know the *ping* days of the calender. *Li Shih-chen* states that the name *chia* means good. The poem of *Tu Fu* ⁽⁷⁾ says that fish of old know the *ping hsueh* cave is good. Honan people call it the *wei* fish because it has a fine flavour. The Szechuanese call it the *ch'o* fish because it is stupid. *Ping Hsueh* has various explanations, according to the *Wen Shuan* there are 2 places north of *Mien Hsien* in Shensi where this fish is caught in the third and eighth lunar months. *Ping* is a place name. The *Shui Ching* ⁽⁸⁾ says the *ping* rises in the *Ping* cave, the mouth of the cave faces south and hence is called *Ping Hsueh*. The char regularly comes out of the cave on the third lunar month and returns in the tenth month. *Huang Ho* says that there are many places called *Ping Hsueh* in Szechuan beside that in Shensi. The counties of *Chia Chou*, *Ya Chou*, *Liang Shan*, *Ta Yi* and *Hsuei Cheng* all have *Ping Hsueh*. The char always appears at the end of spring, and returns to the cave in winter.

Explanations. *Ma Chih* states that the char is a small fish found in stalagmite caves, and as a regular thing it drinks the lime water from the stalagmites, and so is beneficial to men. *Li Shih-chen* states that according to the *Yi Chou Chi* by *Jen Yu* the char is found all over Szechuan. It is shaped like the carp but the scales are finer like the eastern barbel (No. 131). The flesh is fat and tasty. The large specimens weigh five or six cattles. It drinks the stalagmite water. It comes out of the *Ping Hsueh* caves in the second and third lunar months following the rising water. In the eighth and ninth lunar months it goes up

(1) This is identified in the Zoological Nomenclature as a generic term for the *Salvelinus*. It is applied specifically to *S. pluvius* or *S. kundscha* Pallas, which Sowerby 4. 63 refers to as abundant in the lakes and streams of Japan.

(2) This is given in the Korean notes as *Salvelinus malma* Walbaum which ZN terms 北嘉魚 *pei chia yü*, see Sowerby's description of the malma, migratory char, or Dolly Varden Trout, one of the salmon family.

(3) Giles and Williams both say this is the barbel *Barbus deauratus*.

(4) A writer of the Chin dynasty in Szechuan.

(5) This locality is obscure. *Yüeh Shih* of the Sung dynasty in the *Huan Yu Chi* refers to two mountains the greater and lesser *Ping* over 1000 feet high which had a cave called *Ping Hsueh* with a big lake inside which every third lunar month had fish in it, these fish were said to be char.

(6) Taken from the *Po Wu Chih*, which states the swallow does not make its nest on these days. The crane is supposed to call at midnight.

(7) A poet of the T'ang dynasty.

(8) Written by *Sang Ch'in* of the Han dynasty.

stream back into the caves. According to the *K'uei Chou Chih* it comes out about March 16 (*Ch'ui She* festival) and returns about Sept. 18 (the *Ch'iu She* festival). It has black spots on its head, a long body with fine scales, the flesh is as white as jade with a very salty taste because it drinks water from the salt springs. The *Yu Heng Chih* by *Fau Ch'eng-ta* (Sung) states that the char is shaped like the shad. It is full of fat and the taste is very fine. The people of *Wu Chou* (Kwangsi) use it to make fish condiment which can be transported to a distance. The *Ling Piao Lu* (Kwangtung record) by *Liu Hsiu* (T'ang) says that at *Jung Hsien* in *T'sang Wu* (Kwangsi) the char is regularly found in the rivers thers. It is like the barbel, it is fatter and tastier than all other fish. When broiled, the fire is covered over with large banana leaves to prevent the fat from dropping into the fire. It is also prepared in dried slices.

144 a. 肉 JOU FLESH OF THE TROUT.

Qualities. Sweet, bland, and nonpoisonous.

Meng Hsien states that it is slightly poisonous, and that the flavour is extremely fine.

Uses. *K'ai pao* it is fattening, strengthening, and promotes good looks.

Ch'en T'sang-ch'i, it is boiled and eaten, and given for weakness of the kidneys, diabetes, and general weakness and leanness.

Explanations. *Ma Chih* states that this fish lives on stalagmite water (lime water) and its medicinal value is the same as of stalagmites, taken for a long time a man becomes as strong as a stalagmite like a quartz chicken⁽⁹⁾. *Meng Hsien* states that this fish is always in the holes under mountain rocks and drinks the froth from the stalagmite water and hence is a tonic.

145. 鰮魚 CH'ANG YÜ (TS'ANG) POMFRET⁽¹⁾⁽²⁾⁽³⁾.

Pen-t'sao Shih-yi: ZN. 2375: Hsü No. 6: SY. p. 287: Sowerby NB. 4. 158; NNB. p. 121: W. 816: G. 11602: Y. T. Chu Index No. 882: Saiki p. 180: Fowler H K N. 1936. 7. 194: Herklots and Lin Nos. 8 to 11:

Synonyms. 鰮魚 *t'sang yü* PT. W. 816, G. 11598: 鰮魚 *ch'ang hou yü* PT:

昌鼠 *ch'ang shu* PT: 烏輪魚 *wu lun yü* Hsu: *p'o tzu* Hsu: Korean name, *Ch'ang uh* SC:

Japanese, *Managatsuo*:

(9) The identity of this bird is not clear.

(1) Identified in the Zoological Nomenclature, also by Hsü, as *Stromateoides argenteus* Euphrasen, the silvery pomfret, it is also the family name for the pomfrets *Stromateidae*. Syn. *Pompus argenteus* (Euphrasen). Fully described and illustrated by Fowler, and by Herklots and Lin.

(2) Sowerby says it is very common in Chinese waters, and may be recognised by its very deep and compressed body; short, blunt snout; small oblique mouth; minute scales, with the lateral line arched;... dusky grey above, silvery on the sides and lower parts. On the fish market in Tientsin it is known as *ch'ing lin yü*. He gives the following references:—

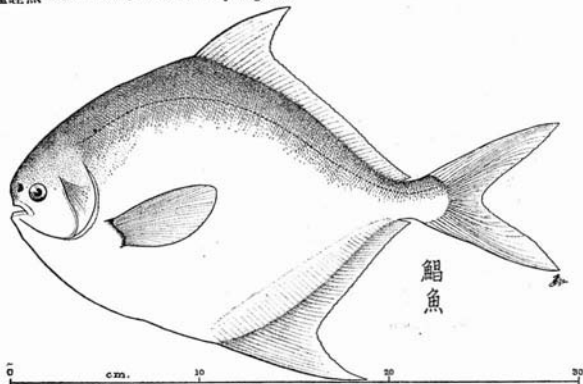
Stromateus argenteus, Euphrasen, Ventensk, Acad. Nya. Handle. Stock. 1788. 9. 49.

Stromateoides argenteus (Euph.), Jord. & Starks, Proc. U.S. Nat. Mus. 1905. 28. 203.

D. 46: A. 43:

(3) Hsü states that in 1934 some 14719 piculs were sold on the Shanghai fish markets at prices varying from \$4 to \$55 a picul. It has an excellent flavour.

Interpretation of Names. *Li Shih-chen* states that the name *ch'ang* means good, referring to the flavour. It is also said that the name is given because shoals of fish in the water follow it to eat its spume, for its character is like that of a prostitute. The Fukienese have erroneously written it *ts'ang* 鮓. The Cantonese cook it together with the bones and call it 狗陸睡魚 *kou k'o shui yü*, the drowsy dog fish.



No. 145. *Stromateoides argenteus*, Euphrasen.
Shanghai, Feb. 21, 1938. 20 cents.

Explanations. *Ch'en Tsang-ch'i* states that the pomfret is found in the South Sea. Shaped like the golden carp with a perfectly round body without any hard bones. For eating it is best broiled. *Li Shih-chen* states that it comes out in the fourth and fifth lunar months in Fukien, Chekiang, Kwangtung and the South Sea.⁽⁶⁾ The *Ling Piao Lu* (Canton Record) says that it is shaped like the bream with the head rising to the rear to meet the back. The body is round and the flesh is thick and as white as the mandarin fish. It has just the spine and no other bones. It is prepared by boiling with onions and ginger in unpolished rice, the bones then become soft and can be eaten.

145 a. 鰩 JOURNAL FLESH OF THE POMFRET ⁽⁴⁾ ⁽⁵⁾

Qualities. Sweet, bland and nonpoisonous.

Uses. *Ch'en Tsang-ch'i*, it makes people fat and strong, and benefits the respiration.

(6) It is one of the principle catches in the coastal fishery of Chekiang, in April and May. BFT 1935 p. 358.

(4) Saiki gives the following percentage composition:—

Protein	fat	ash	CaO.	P ₂ O ₅ .	Fe ₂ O ₃ .	NaCl.
18.2	5.45	1.98	0.120	0.860	0.005	1.060

(5) The white pomfret *S. sinensis* is common in the seas of India. It is extensively salted. Watt p. 398.

145 b. 腹中子 FU-CHUNG TZU ROE OF THE POMFRET.

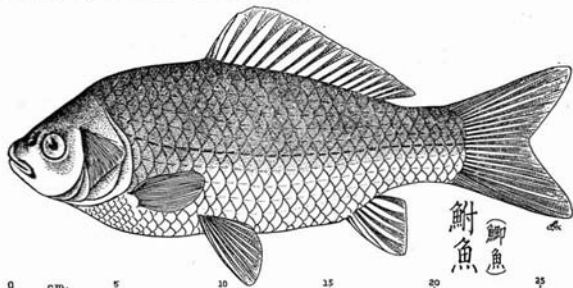
Qualities. *C'ken T'sang-ch'i*, says it is poisonous and will produce dysentery.

146. 鯽魚 CHI YÜ GOLDEN CARP⁽¹⁾(²)(³)(⁴)(⁵).

Pieh-lu, 1st. group: ZN. 2104: Hsu p. 45: Sowerby NM. 4. 75; NNB. p. 80: W. 67: G. 883: Y. T. Chu p. 34; Index No. 500: Saiki p. 176: CMM 516: LSJ. 1932. II. 429; 1937. 16. 229: SC: Pharmacopoeia Homeopathica:

Synonyms. 鯽魚 *fu yü* PT. W. 272. G. 3680 (⁶): Korean name, *poo uh* SC: Japanese *Funa*:

Interpretation of Names. *Li Shih-chen* states that according to the *P'i Ya* by *Lu Tien* (Sung) the golden carp moves around in file in close formation 相即 *hsiang chi* hence the name *chi*. It is called *fu* because they travel in pairs.



No. 146. *Cyprinus auratus*, L.
Shanghai, Feb. 8, 1938. 40 cents.

- (1) Identified by ZN, Hsü, Sowerby and Chu as *Cyprinus auratus*, Linnaeus.
- (2) It is well described and illustrated by Chu, who states that the gold-fish is specifically the same, but through long domestication and crossbreeding there have been exhibited great variations in body form and coloration. He gives many references in his Index.
- (3) Sowerby has seen numerous specimens of different colours taken from the fishermen's nets in the lakes to the southwest of Tientsin. He gives the following references:—
28. Golden carp. *Carassius auratus* (Linnaeus.)
Cyprinus auratus Linnaeus, Syst. Nat. 1758, 10th, edit. 1. p. 527.
Carassius carassius (L), Berg. Ichth. Amur., Mem. Acad. Imp. Sci. St. Peters, 1909, 8th. series 24, No. 9, p. 70.
D III-IV 15-19; A III 5; 1.1 29 $\frac{6.7}{6.65}$ 37. (Berg.)
- (4) Hsü states that in 1933 some 21195 piculs sold on the Shanghai fish market for \$4.70 to \$60 a picul.
- (5) Williams and Giles give the same identification, with the common English name, red-tailed bream. Giles refers to the bastard carp *C. pекinensis* of which he says the gold-fish is a variety, Chu gives this as a synonym.
- (6) Williams says the *fu yü* is a fresh water fish resembling the perch common in the Tungting lake. So called because it goes in pairs, faithful to each other; also a sort of goby.

Explanatory Remarks. *Han Pao-sheng* states that the golden carp is found in the ponds and pools of all provinces. It is shaped like a small carp, black and short in the body. The belly is large and the spine is arched. The large specimens are three to four catties in weight. *Li Shih-chou* states that the golden carp likes to lie in the mud, and it is particular about its food, hence it is a gastric stimulant. In winter the flesh is thick and the roe large, and the taste is excellent. The *Shui Ching Chu* by *Li Tao-yuan*(7) says that at the Great Forest Lake of *Ch'i-chou* in *Kwang-chi* county (Hupeh) the golden carp are large and measure two feet long, they are fat and good to eat, and prevent one from feeling the cold and heat. The *Shen Yi-ching* of *Tung Fang-shuo* (Han) says that the golden carp is very plentiful in the lakes in the South, several feet long, when eaten they help one to endure the heat of summer and protect against the wind and cold. The Spring and autumn annals of *Lu Shih*(8) says that the golden carp of the *Tung T'ing* lake are the best fish. From these references it can be seen that the golden carp from ancient times has always been regarded as a superior article of food.

146 a. 鱖 JOURNAL FLESH OF THE GOLDEN CARP(9).

Qualities. Sweet, warming, and nonpoisonous.

Chang-ting says that when eaten with garlic it is not so heating; eaten with rock sugar it causes the *Kan* disease. When eaten with mustard it causes edema(10); eaten with pig's liver, chicken meat, pheasant meat, venison, or monkey meat it causes carbuncles; it is harmful when eaten with the black leek, *Liriope spicata*, Lour.

Uses. *Ch'en T'sang-ch'i*, boiled with the five condiments(11) it is taken for emaciation and weakness.

Ta Ming, warming to the stomach and dispelling flatus. *Han Pao-sheng*, it stops dysentery, and cures fistula.

Meng Hsien, made into a broth with the water-mallow it aids digestion and the passage of food through the stomach. A tonic to the five viscera. Made into a broth with the water-bamboo it is given for fevers caused by mineral drugs.

(7) Commentator on the *Shui Ching* 143. (8) of the Northern Wei Dynasty, he was a good geographer.

(8) An important official of the Ch'in dynasty.

(9) It has the following percentage composition:—

	Protein	Fat	Cbhyd.	Ash	Ca	P.	Fe	K.
Shanghai	15.55	0.73	0.09	0.96	0.054	0.203	0.003	0.335
Japan	16.80	2.92	—	1.30	0.137	0.548	0.004	—
Peking (Wu)	15.9	1.30	0.1	1.00	—	—	—	—

(10) Edema resulting from the eating of mustard oil has been reported from India;—Lal and Roy, British Med. J. 1937. i. 1110. and Indian Medical Gazette 1925 Jan.

(11) Acid, saline, sweet, bitter, pungent i.e. vinegar, salt, sweet vegetables like sugar cane, bitter ling 蔞; and the five pungent substances, onion, garlic, leek, water pepper and mustard. Some translate this *Kadsura* seed.

Su K'ang, the fresh meat is pounded and applied to toxic unbroken boils, and to itching eruptions on the palms of the hands (12). Ground down with mung beans it is applied to erysipelas. Ashed and mixed with soybean sauce it is applied to all kinds of chronic sores. The ash fried in lard is given for ulcers of the intestines.

Li Shih-chen, boiled with mung beans the soup is given to reduce edema; the fat-dripping from broiling is applied to pruritus vulvae and various ulcers; it is anthelmintic, analgesic; alum is wrapped up in the gutted fish and the whole is ashed, powdered, and taken in water for windy colic and bloody dysentery; ashed to redheat with sulphur, and ashed with nutgalls it is given in wine for hemorrhagic stools. The carp filled with tea leaves and baked is given for diabetes. Baked with chives and powdered it is given in water for hicough. Ashed to redness with iron sulphate it is given for nausea.

Ashed with salt it is applied for toothache. Ashed with angelica it is used as a tooth powder, it is a dye for the whiskers and is styptic. Ashed with arsenic it is used for galloping canker. Baked with clean salt and powdered it is rubbed on osteoma. Roasted black with aconite it is applied with oil to ringworm and head sores.

Notes. *Chiu Chen-heng* states fish are classed under fire, the golden carp is the only one put in the earth class hence it regulates the action of the stomach and strengthens the bowels. If too much of it be eaten it is heating. Many prescriptions are given for the above complaints.

146 b. 鱸 *KUEI* MINCED GOLDEN CARP (CARP SALAD).

Uses. *Ch'en T'sang-ch'i*, for chronic dysentery, bloody diarrhoea, fistula, mineral poisoning of adults or children, dizziness.

Ssu Ssu-mao, for aching feet and tight cough. *Li Shih-chen*, warming to the spleen and stomach, and dispelling inflammatory cold.

146 c. 鮓 *CHA*. CONDIMENT OF THE GOLDEN CARP.

Uses. *Li Shih-chen*, sliced and applied to eruptions on the hands, or the pounded mixture with peach leaves is used. *Sheng Hui Fang*, it is given for chronic dysentery.

146 d. 頭 *T'OU* GOLDEN CARP HEAD.

Uses. *Su K'ang*, for ulcers on children on the head and in the mouth, swollen tongue and films over the eye.

Ch'en T'sang-ch'i, the ash is taken for a cough.

Li Shih-chen, the ash is given for dysentery, with wine it is given for prolapse of the uterus, it is also applied mixed with oil. Mixed with soybean sauce it is applied to facial eczema in children.

146 e. 子 *T'SE* GOLDEN CARP ROE. (13)

Not to be taken with pig's liver.

(12) 癩 translated by Williams as itch. The Chinese Medical Dictionary's description is more like Hong-kong foot.

(13) See note 11 to the carp No. 128 concerning the vitamin C content of the various organs of the golden carp.

Uses. *Chang Ting*, a liver tonic, regulating the viscera.

146 f. 骨 *KU* GOLDEN CARP BONES.

Uses. *Chang Ting*, ashed and applied several times it cures *pruritus vulvae*.

146 g. 膽 *TAN* GOLDEN CARP BILE.

Uses. *Li Shih-chen*, applied to venereal sores, and *pruritus vulvae*, to stop the pain: applied to the throat to remove bones and bamboo splinters. Anthelmintic.

The *Pen Shih Fang* prescribes it with pumice, oysters, and cicada skins for diabetes. The *Sheng Hui Fang* recommends it with donkey fat dropped into the ear for deafness.

146 h. 腦 *NAO* GOLDEN CARP BRAIN⁽¹³⁾.

Sheng Hui Fang. Boiled in a bamboo tube and dropped into the ear for deafness⁽¹⁴⁾.

147. 鯽魚 *CHIEH YÜ* FALSE CARP⁽¹⁾

Meng Hsien states that there is a kind of fish called the *chieh yü* which is very much like the golden carp but the flavour is different and its action is not as good. It is said that the *chieh* is a comb 櫛 *chieh* metamorphosed into a carp, and the golden carp is metamorphosed from panicked millet, hence the belly is straw coloured. The broad and large fish is the golden carp *chi yü*, the narrow small kind is the *chieh yü*. *Li Shih-chen* states that *Meng Hsien's* ideas about the metamorphosis of these fishes are incredible fables, but the mole (earth rat) is able to change into the *chieh yü*, and the fish is able to change into a mole, as is recorded in the *Fei Hsueh Lu* written by *Liu Chi* (Ming). *Li Shih-chen* has witnessed this himself. It follows the laws of procreation and metamorphosis, for not all carp have an abundance of eggs.

The *Chieh Yü* is the same as the 鯽魚 *chieh chow* of the *Erh Yah*, which *Kuo Pu* called the 妾魚 *chieh yü* or 婢魚 *pei yü* the concubine or handmaid fish. *Tsui Pao* called it the 靑衣魚 *ching yi yü* 靑衣魚⁽²⁾. They were commonly called 鯽魚 *Pang pi chi*, like the golden carp but smaller, thinner and reddish black. They travel in formation of threes, one is leader with two behind like the concubine and the maidservant following the wife, hence the name. *Su Sung* states that at Kueichow there is a heavy lipped fish the 石鯽魚 *shih chi yü* with a fine flavour, which is a kind of golden carp.

See Footnote Page 39

(14) The tench *Cyprinus Jinca*, L. was in the old London Pharmacopoeias (17th century) as a remedy for fever, painful joints and jaundice.

(1) There is no reference to this in the Zoological Nomenclature. It suggests the *Pseudoperilampus ocellatus* described by Y. T. Chu under *Rhodeus ocellatus* (Kner) 鯽魚 p. 29. Under the name 靑鯽魚 Y. T. Chu describes the *Parapelecus argenteus*, Gunther (Cyprinidae) China J. 1930. 13. 333. Ann. Mag. Nat. Hist. 1889. 4. 227.

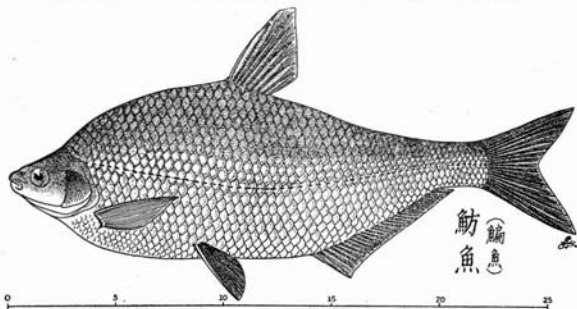
(2) The fish with a green coat. Underlings used to wear green clothes, and the term was also applied to a handmaid.

148. 魴魚 *FANG YÜ* CHINESE BREAM.⁽¹⁾ ⁽²⁾ ⁽³⁾ ⁽⁴⁾ ⁽⁵⁾

Shih-liao Pen-t'sao: Hsu Nos. 73 & 74: ZN. 1989. Sowerby NM. 4.94; W. 248: G. 3454: Y. T. Chu p.23; Index No. 336: CMM. 442: CNH p. 582:

Synonyms. 鱖魚 *pien yü* PT. Hsü; W. 647; G. 9184: 長春鱖 *ch'ang ch'ou pien* Hsü: 草鱖 *t'sao pien* Hsü: Korean name, *Pang uh* SC⁽⁶⁾.

Interpretation of Names. *Li Shih-chen* states the bream is a square fish hence the name *fang*, it is also flat hence the name *pien*, it is square in shape and the body is flat.



No. 148. *Parabramis pekinensis*, (Basilewsky)
Shanghai, Feb. 26, 1938. 16 cents.

Explanatory Notes. *Li Shih-chen* states the bream is found everywhere, and is particularly plentiful in the Han and Mien rivers, Hupeh. The head is small with a shortened neck. The spine is arched and the belly is long. The body is flat with thin scales. It is

- (1) Hsü lists the Chinese bream, *Parabramis pekinensis* (Basilewsky) as the *pien yü* or *fang yü*. Richardson's bream is also known as 三角鱖 *san chiao pien* the triangular bream. Nearly 5000 piculs were sold on the Shanghai market in 1934 at \$12 to \$35 a picul. Chu's Index calls this *P. bramala*, C & V with other synonyms and many references.
- (2) There is identified and fully described by Y. T. Chu the *Parabramis terminalis* (Richardson), China Journal 1930. 13. 330 (Illus.), specifically known as the *p'ing hsiung pien yü* 平胸鱖魚. This is also given by Hsü and S. Y.
- (3) The ZN calls this the John Dory *Zeus japonicus*, C. & V., an uncommon fish in China, and very different from this.
- (4) Sowerby gives the following references to the Chinese bream:—*Abramis pekinensis*, Basilewsky, Nouv. Mem. Soc. Nat. Mosc. 1855. 10. 238. *Parabramis pekinensis* (Basil.) Berg. Ichth. Amur. Mem. Acad. Imp. Sci. St. Peters. 1909, 8th. series, 24. 135.
- (5) Chu gives the references, "Poissons des Eaux Douces de la Russie" by Berg 1916, p. 319; and *Megalobrama terminalis*, Nichols, Bull. Amer. Mus. Nat. Hist. 1938. 58. 30.
- (6) The Severance notes call it *Töynnus secundo-dorsalis*, one of the mackerel or tunny fish. Wu lists it as *Chelidonichthys Kamu*, L. & G. to which Hsü gives the name 魴鱈.

greenish white. The belly contains much fat (7). The taste is rich and fine. The bream likes running water, as the poem says, "How is it if you want to eat fish, you must have bream from the river." The proverb says, the carp and bream from the Yi and Lo rivers (Honan) are as good as beef and mutton. There is another species called the 火燒鰱 *huo shao pien* in which the head and tail are like the bream but the spine is more arched, the dorsal fin is red, and the caudal fin (tail) is like bat's wings. It is black with red markings, and smokey in appearance, hence the name. It weighs up to 20 or 30 catties (40 lbs.).

148. a. 肉 *JOU FLESH OF THE BREAM.*(7)

Qualities. Sweet, warming and nonpoisonous.

Uses. *Meng Hsien*, it regulates the stomach and viscera, eaten with mustard leaves it assists the respiration. Carminative, digestive, made into a salad it is good for the spleen and is appetising. Made into a broth it is a tonic. Its action is similar to the golden carp but people with dysentery or the 疳 *Kan* (8) disease should not take it.

149. 鱸魚 *LU YÜ PRICKLY SCULPIN*(1)(2)(3)(4).

Sung chia-yu Pen-t'sao: ZN. 2612: Hsü p. 44: Sowerby NM. 4. 227: SY. 264: W. 541: G. 7420: Y. T. Chu Index No. 1215: CMM 541: Couling p. 183:

Synonyms. 四鰓魚 *ssu sai yü* PT: 玉花鱸 *yü hua lu* Hsu: 銀鱸 *yin lu* Hsü: Korean name, *Naw uh*: Japanese, *Suzuki*:

Interpretation of Names. *Li Shih-chen* states that it is called *lu* because it is black. This fish has a black embroidery on a white background which also explains the name. The Sungkiang people call it *ssu sai yü*.

(7) Our analysis shows the following percentage composition which is rich in fat:— fat 6.61, protein 18.45, carbohydrate 0.22, ash 1.0, Ca 0.076, P. 0.211, Fe 0.002, K 0.334.

(8) 疳 *Kan*. This disease is obscure. *Kan ch'uang* Williams translates as venereal ulcers. 疔瘡 *Ya kan* is a gum-boil. 疳積 *Kan chi* is an infantile marasmus. It is commonly considered to be a children's disease caused by eating things too sweet, or too rich, glutinous, greasy or raw food. Infants without breast milk who are fed on cereals or rich food are said to develop it.

(1) This is not the ordinary *lu yü* the perch or sea bass, but a sculpin. Chu and Hsu describe it under the name 松江鱸魚 *Sungkiang lu yü*, *Trachydermus fasciatus* Heckel, the prickly sculpin. Y. T. Chu, China Journal 1931. 15. 155: S. Y. Most of the authorities refer this name to the very much larger fish *Lateolabrax japonicus* which is commonly called *lu yü*. Saiki p. 180: CMM: Fowler HKN 1938. 3. 255. This we bought on the Shanghai fish market and have drawn to scale, see illustration. Von Mollendorff calls this *Labrax luyu*, Basil, sea perch.

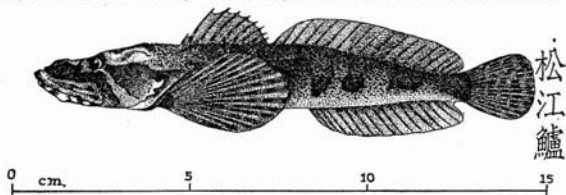
(2) Chu gives the synonyms:—

Centridermichthys ansatus, Rich. 1844 Voy. Sulphur p. 75, Woosung.

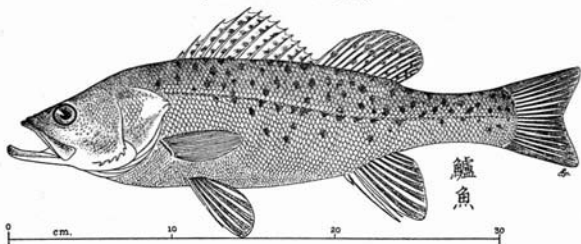
C. fasciatus, Gunth & Blkr.

It is reported from Nanking (Karoli 1882); Ningpo (Peters 1880); Port Arthur (Jordan & S. 1906); Sochow (Fowler and Bean 1920); Fengtien, Shan-hai-kuan, Peitaiho, Kiangsu (Rendall 1924); Sungkiang (Evermann & Shaw 1927); Yalu River (Mari 1927).

Explanatory Notes. *Li Shih-chu* states that the sculpin is found in Kiangsu and is specially plentiful at Sungkiang. It comes up in the fourth and fifth lunar months. It is



No. 149. *Trachydermus fasciatus*, Heckel.
Shanghai market. Nov. 8, 1938., 5 cents.



No. 149a. *Lateolabrax japonicus*, (C. & V.).
Shanghai, Feb. 14, 1938., 45 cents.

several inches long. It is shaped a little like the mandarin fish (148) with black spots on a white skin. Big-mouthed, fine-scaled. It has four sets of gills. The poem of *Yang Ch'eng-chai* (Sung dynasty) described it very exactly and states the sculpin comes from its habitat among the reeds beneath the *Chui Hwag T'ing* (Sungkiang). One buys it without considering the price. It is like a jade footrule but it is short. It is like a smelted silver shuttle only it is round. It is white with black markings of three or four spots, fine-scaled, big-mouthed. A pair of fresh fish in spring taste very fine, just think how excellent they are in the autumn. The *Nan Chou Chi* says that the Kiangsu people presented the minced sculpin to the Emperor *Yang Ti* of the Sui dynasty, the Emperor said the superior foods of the east and south are sour-kroot and minced sculpin.

149. a. 鱸 JOURNAL FLESH OF THE PRICKLY SCULPIN.

Qualities. Sweet, bland and slightly poisonous.

K'ou Tzuong-shih states that though it is slightly poisonous it cannot make one very ill. *Chang Yü-hai* says that eaten to excess it causes stoppage of the bowels, swelling up of boils,

and should not be eaten with cream cheese. *Li T'ing-fei* says that the liver must not be eaten, it will cause the skin to drop off the face. *Meng Hsien* says if one be poisoned with sculpin take the roots of reeds as an antidote.

Uses. *Sung Chia-yu*, a tonic to the five viscera, it strengthens the muscles and bones and regulates the stomach and intestines. It is good for ascites. It is beneficial in large amounts. It is improved by pickling. Sun-dried it is par excellent. *K'ou Tsung-shih*, it is beneficial to the liver and kidneys. *Meng Hsien*, it quietens the fetus, a tonic to the viscera, it is excellent in the form of a salad.

150. 鰻魚 KUEI YÜ MANDARIN FISH⁽¹⁾⁽²⁾⁽³⁾⁽⁴⁾.

Sung K'ai-pao: Hsu No. 71: ZN. 2542: Sowerby NM. 4. 117; NNB Chapter 18: G. 955: W. 477: T. H. Cheng LSJ. 1937. 16. 236: P. W. Fang, Sinensia 1932. 2. 136-192: Couling p. 183.

Synonyms. 鰻魚 *chi yü* PT: 石桂魚 *shih kuei yü* PT, W: 水豚 *shui t'ou* PT: 鱈魚 *hui yü* Hsü: 桂花魚 *kuei hua yü* Hsü: Korean name *K'wul uh*: 花鱈魚 *hua chi yü*, Couling et al:

Explanation of Names. *Li Shih-chen* states that the name *kuei* 鰻 comes from the character 蹶 *chueh* a stiff foot (to stumble), the body of the fish cannot be bent, as if it were rigidly fixed. The name *chi* 鰻 refers to a coarse carpet 縹 *chi* (5), the markings are like those on the woven carpet. *Ta Ming* states the taste is like pork, hence the name *shui t'ou*, it is also called *kuei t'ou*. *Ma Chih* states that in ancient times there was a genius *Liu P'ing* (Han dynasty) who regularly ate a fish called the 石桂魚 *shih kuei yü*, the characters 桂 and 鰻 have the same pronunciation, so it must refer to the mandarin fish.

(1) Hsü describes and identifies this fish as *Siniperca chuatsi* (Basilewsky). Over 11,000 piculs were sold on the Shanghai market in 1933. Its price varies from \$10 to \$100 a picul according to the season.

(2) Williams calls it a perch, and one of the synonyms is rendered rock-bass, but as Sowerby points out it is not a perch as supposed by so many, although its generic name *Siniperca*, created by Gill in 1862, means Chinese perch. It is a member of the great bass family.

(3) The Zoological nomenclature says this is a *Helicolenus* one of the *Scorpaenidae*, the rock fishes. This may apply to some other part of China than Shanghai where Hsü has had a large and constant supply for study. SC. lists it as *Sebastes inermis*, C. & V.

(4) This is considered to be such a valuable and highly prized fish that Sowerby in his *Naturalist's Note Book* devotes a chapter to it. He says it is known in Chinese as *Chua-tzu yü* meaning clawed fish, and gives the following references:—

Perca chuatsi, Basilewsky, Nouv. Mem. Soc. Nat. Mosc. 1855. 10. 218.

Siniperca chuatsi (Basil) Berg. Ichth. Amur. Mem. Acad. Imp. Sci. St. Peters. 8th. ser. 1909 24. 204.

D. XII 13-14; A. III 9-10; 1.1. 108-120; Squ 150 $\frac{28-30}{75-85}$ 180 (Berg).

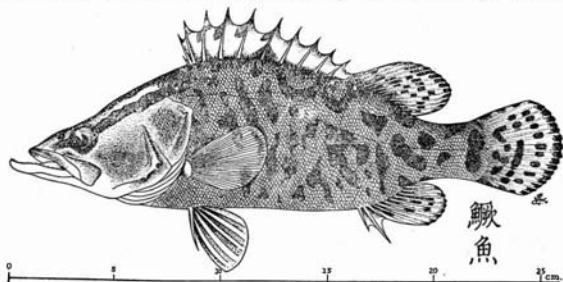
A closely related species *S. scherzeri* Steindachner found in the Yangtse has a richer bronze colour.

P. W. Fang and L. T. Chang have made a thorough study of this genus. Sinensia 1932. 2. (12). 136-192, 14 figures.

The mandarin fish *S. chuatsi* is reported from the Amur basin by Skvartzow, B. W. under the name *hua chi yü* 花鱈魚 N. C. Roy. As. Soc. Proc. 1919. 59. 75.

(5) This is made of camel hair from Western Tartary. It has a variegated design which the skin of this fish resembles.

Explanatory Notes. *Li Shih-chu* states that the mandarin fish is found in all the rivers and lakes. It is flat with a wide belly, big mouthed, fine-scaled, with a black



No. 150. *Siniperca chuatsi*, (Basilewsky)
Shanghai, Jan. 10, 1938. 35 cents.

embroidered skin. The sparkling coloured ones are males, the females are slightly clouded, they both have fins and dorsal spines, which prick one. The skin is thick, the flesh is firm and without any small bones. They have air-bladders. They can bite and swallow small fish. In summer they live in holes in the rocks, in winter they lie in the mud and are caught with a fish trap on the bottom. The small ones taste good but those weighing three to five catties are not nice. In the *Yen Shou Shu* by *Li Ting-fei* (Yuan dyn.) it says the mandarin fish has twelve spiny rays to the dorsal fin corresponding to the twelve months in the year, accidentally swallowed they are harmful. The best antidote is made by rubbing the stones of canarium fruit in water, probably because fish are afraid⁽⁶⁾ of canarium fruit.

150 a. 鰱 JOU FLESH OF THE MANDARIN FISH⁽⁷⁾:

Qualities. Sweet, bland and nonpoisonous.

The *Jih-lua* says it is slightly poisonous.

Uses. *Sung K'ai-pao*, a vermifuge, a tonic making people fat and strong. It expels old blood clots from the bowel. *Meng Hsien*, a tonic for frail people (tuberculosis), stimulant to the spleen and stomach.

Jih-lua, it cures wind in the bowels and hemorrhagic stools.

Explanatory Notes. *Li Shih-chu* states that according to the *Yi Shuo* by *Chang Kao* (Sung dyn.) at *Yueh Chou*⁽⁸⁾ there was a woman named *Shao*, 18 years old, sick with pulmonary tuber-

(6) *Wei* meaning afraid is regularly used to indicate incompatibility. Canarium is considered an antidote to all fish poisoning, fishing utensils made with this substance are said to paralyse fish as soon as they touch them.

(7) It has the following percentage composition:—

Protein	Fat	Cbhyd.	Ash	Ca.	P.	Fe.	K.
19.29	0.82	0	1.15	0.045	0.226	0.002	0.392

(8) This is *Ho P'u Hsien* in Kwangtung.

culosis many years who accidentally ate some mandarin fish soup and subsequently recovered from her sickness. It can be seen that this is exactly in accord with the previous statement of the uses of this drug in acting as a tonic in tuberculosis, a stimulant to the stomach, and anthelmintic. The liking of the genius *Liu P'ing* and the recluse *Chang Chih-ho* for this fish is worthy of note.

150 b. 尾 *WEI* TAIL OF THE MANDARIN FISH

Uses. It is a good thing to apply to soft boils on children, *Li Shih-chen*.

150 c. 膽 *TAN* MANDARIN FISH BILE

Qualities. Better. cooling and nonpoisonous.

Uses. *Li Shih-chen*, to remove fish bones stuck in the throat, no matter for how long a time.

151. 鰐魚 *T'ENG YÜ* ROCK-FISH⁽¹⁾⁽²⁾⁽³⁾.

Li Shih-chen: ZN. 2458: W. 770: G. 10885: SY. 307, 309: Y. T. Chu Index Family No. 166: CNH p. 694:

Li Shih-chen states that according to the *Shan Hai Ching* they are plentiful in Honan. Shaped like the mandarin fish it lives in the holes in the rocks. It has azure blue markings with a red tail. If eaten it prevents the growth of carbuncles (*). It can be used to treat scrophula. *Kuo P'u's* comment on this says the name is pronounced *t'eng* and the *k'uei* refer to the caverns under the water where it travels. *Li Shih-chen* says that the shape, habits, and uses are so like the mandarin fish that it is in the same class. The *Shui t'ui* fish mentioned by *Ta Ming* author of the *Sih-Hua Pen-t'sao* as being a mandarin-fish is probably this species.

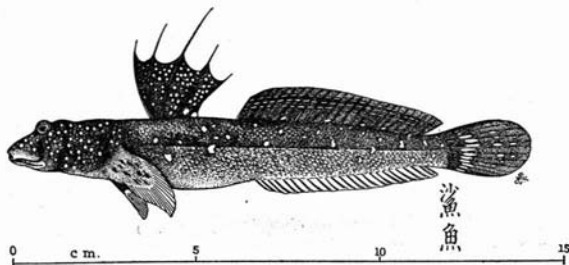
152. 鯊魚 *SHA YÜ* GOBY⁽¹⁾⁽²⁾⁽³⁾⁽⁴⁾.

Pen-t'sao Kang-mu: ZN. 2311, 2431: Sowerby NM. 4. 207: NNB. 122: Hsü 43: SC: W. 678: G. 9623: Y. T. Chu Index p. 160: Saiki p. 178: CMM 493: CNH p. 689:

- (1) This is given in the Zoological nomenclature as *Pelor* 或 *Minous adamsi*, Reh. It gives a number of allied species, *Erosa*, *Declerias*, *Snyderina*, *Ocosta*, *Erisphex*, *Para-centropogon*, *Aploactis*, *Inimicus* genera of the rock-fish family *Scorpaenidae*, under this heading.
- (2) Williams says it is a kind of mailed fish, a gurnard or *Scorpaena*.
- (3) The SY applies this name to species of rock-fish.
- (4) The China rock-fish (given as *Sebastes nebulosus*) is reported as having an extraordinarily high content of vitamin D in the liver oil 140,000 inter. units per 100 grams. C. E. Bills, Phys. Reviews 1935. 15. 1.
- (1) Identified in the Zoological nomenclature as a family name for the *Gobiidae*, and specifically *Acanthogobius flavimanus*, T. & S. This is not in the same series as *Pseudogobio rivularis* (Basilevsky) which Chu renders 沙鯧 *sha t'o*,
- (2) Hsu gives the *fan t'u* 或 跳蚤 *tiao sha* as the goby, *Boleophthalmus chinensis* (Osbeck). Nearly 16,000 piculs of *sha yu* were reported sold on the Shanghai market in 1933, at \$2 to \$40 a picul.
- (3) Williams and Giles say this is a shark. This is confused with the 沙魚 *sha yü* 或 鯢魚 *chiao yü* No. 183. The characters 鯢 and 鯢 are not identical as given in these dictionaries. The *t'o yü* they translate as snake-fish, a species of bull-head.
- (4) A. W. Herre has written upon Chinese gobies, Lingnan Sc. J. 1933. 12. 429.

Synonyms. 鮫魚 *l'o yü* PT; W. 802, G. 11360: 吹沙 *ch'ui sha* PT: 沙溝魚 *sha kou yü* PT: 沙鯧 *sha wen* PT: 鯧虎 *hsia hu* ZN: 彈塗 *tan t'u* ZN: Korean name *Sang uh*: Japanese *Haze*.

Interpretation of Names. *Li Shih-chen* states that this is not the marine fish, the shark; but is a small fish found in the hill streams of the South. It is found in the sandy caves spurting up the sand as it swims. It nibbles the sand and eats it. It is fleshy and round and thick.



No. 152. *Boleophthalmus chinensis*. (Osbeck).

Shanghai, May, 13, 1938. \$1.70.

Explanatory Notes. *Li Shih-chen* states that the largest are four to five inches long. The head and tail are of equal length. Its head is like the barbel, the body is round like an eel and fleshy. It is thick lipped, fine-scaled, yellow white in colour. It has black spots and is striped. It has very hard spines on its back, the tail is not divided. It has eggs even when small. The taste is very fine. Its common name is 阿浪魚 *ho lang yü* the wave-blowing fish.

152 a. 肉 *JOU* FLESH OF THE GOBY⁽⁵⁾.

Qualities. Sweet, bland and nonpoisonous.

Uses. *Li Shih-chen*, warming to the stomach, and a tonic to the constitution.

152 b. The *Pen-t'sao Shih-yi* add the fins.

(5) Saiki gives the following percentage composition:—

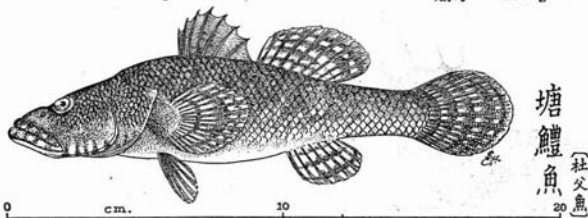
Protein	Fat	Ash	CaO.	P ₂ O ₅	Fe ₂ O ₃	Na Cl.
18.70	1.11	1.65	0.255	0.825	0.004	0.180

153. 杜父魚 *TU FU YÜ* SCULPIN (BULLHEAD)⁽¹⁾⁽²⁾.

Pen-t'sao Shih-yi: ZN. 465; Hsu p. 44; Sowerby NM. 4. 217; NNB. p. 85; Chu p. 51; Index p. 148; W. 937; G. 13396; CNH p. 689;

Synonyms. 渡父魚 *tu fu yü* PT: 黃鰭魚 *huang yü yü* PT. W. 937. G. 13396: 船釘魚 *ch'uan ling yü* PT: ZN. 466. W. 937: 伏念魚 *Fu nien yü* PT: 鰻 鰻 ZN: 河鹿 *ho lu* ZN: Korean name, *Too nao uh* SC:

Interpretation of Names. *Li Shih-chen* states that *tu fu* comes from 渡父 *tu fu* an old boatman. It is a small fish found in the mountain streams, eaten by fishermen. Upon seeing people it drops straight down into the mud like an anchor 船釘 *ch'uan ling*.



No. 153. *Eleotris potamophila*. Gunther. Shanghai. Feb. 22, 1938. 7 cents.

Explanatory Notes. *Ch'en T'sang-ch'i* states that the sculpins are found in the mountain streams, two to three inches long. Shaped like a goby but shorter, it has a forked tail. It has a big head and a broad mouth. The colour is yellowish black, striped. The dorsal fin has sharp spines which will sting people.

Qualities. Sweet, warming and nonpoisonous.

Uses. Infantile hernia⁽³⁾ will be cured if the child be made to bite a fish seven times.

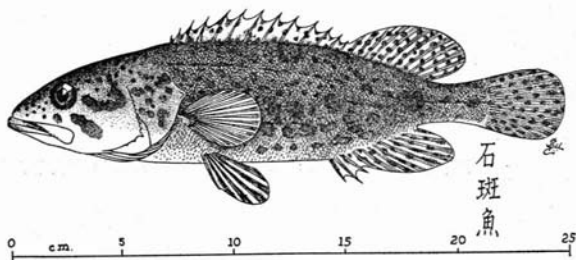
154. 石斑魚 *SHIH PAN YÜ* BASS⁽¹⁾⁽²⁾⁽³⁾⁽⁴⁾.

Pen-t'sao Kang-mu: S. Y. 265; Sowerby NM. 4. 185; Y. T. Chu Index p. 118:

- (1) The family name for *Cottidae*, the sculpins or bullheads. The Zoological nomenclature applies it specifically to *Cottus pollux*. Gunther; and for the synonym 船釘魚 it gives *Trachidermis fasciatus* (Heckel) the prickly sculpin, to which Hsu applies the name 砂江鱧. There are many other species. Hsu lists on the Shanghai fish market *Eleotris potamophila*, Gunther, one of the common sculpins.
- (2) Chu renders 船釘魚 *Rhinogobius giurinus* (Rutter) one of the gobies. 黃鰭魚 he gives as *Eleotris swinhonis* Gunther, neither of these has a forked tail as described in the Pen-t'sao. He lists 8 species of sculpins in his Index. In "Fishes of the West Lake" he applies the name *tu fu yü* to the family *Eleotridae*.
- (3) 鰻鱧 *l'zu l'ui* this is described as a lack of uniformity in the size of the testes, and may refer to undescended testicle.
- (1) The *Shih pan* are given by Herklots and Lin as the GROUPERS. They list 4 species in Hongkong food-fishes: the spotted grouper *Serranus moga-hi* (Richardson), banded grouper *Serranus awo-ara* (Schlegel), red-spotted grouper *Serranus aka-ara* (Schlegel), and the orange-spotted grouper *Serranus fatis* (Thunberg).
- (2) Fowler lists the *Shih pan* as *Serranus fasciata-maculatus* (Peters) and *S. fatis*, Thunberg. The banded sea perch, one of the groupers, *Serranidae*; syn. *Epinephelus f. Hette*.
- (3) This is given in the 尚魚 as *Epinephelus septemfasciatus* (Thunberg) of the *Serranidae*. They also cite *E. chlorostegma* (C & V), *E. megachis*, *E. latifasciatus* (T & S). These are given in ZN under 鰻鱧 *ch'iu shu*, the groupers.
- (4) This is given in the Severance Notes and by Wu as *Richardsonius hakunensis*, rendered by ZN. *yü kuei*, one of the dace. Saiki calls it *Hexagrammos otakü*, J. & S., a greenling.

Fowler 1931. 2. 295; 1937. 8. 276; CMM 88; Fowler HKN. 1931. 2. 298; 1937. 8. 273; Herklots and Lin Nos. 14-17; CNH. p. 659;

Synonyms. 石斑魚 *shih fan yü* PT; 高魚 *kao yü* PT; Korean name *Suh pan uh* SC;



No. 154. *Serranus* sp.

Cantonese shop, Shanghai. Jan. 27, 1939., 10 cents.

Explanatory Notes. *Li Shih-chen* states that this fish is found in the rocky mountain streams and pools of the South. It is a few inches long with white scales and black markings. It swims and floats on the surface of the water. On hearing human noises it shoots down into the deep water. The *Lin Hai Shui T'u Ching*⁽⁵⁾ says that it is over a foot long, striped like a tiger, unchaste in character. In spring it copulates with the male lizard. On this account the eggs are poisonous. The *Nan Fan Yi Wu Chih*⁽⁶⁾ says that the *kao yü* is like the barbel (131) there are females but no males, in the second and third lunar months it copulates with the lizard on the surface of the water, the roe is poisonous. The *Yu Yang Tsa Tsu*⁽⁷⁾ says that the bass copulates with snakes. In the South there are humble bees, the natives kill this fish and hang it in the trees to attract the birds, which eat up both the bees-nests and the fish completely.

154 a. 子 TZU. BASS ROE.

腸 CH'ANG BASS GUTS.

These are poisonous causing vomiting and diarrhoea. The *Yi Shuo* (*Chang Kao, Sung*) says that a little of the juice of *Buddleia japonica* is an antidote.

(5) Written by *Shen Ying* 沈瑩 of the T'ang dynasty.

(6) Written by *Fang Ch'ien-li* 房千里 of the T'ang dynasty.

(7) Written by *Tuan Ch'eng-shih* 段成式 of the T'ang dynasty.

155. 石鮠魚 SHIH PI YÜ BARILIUS⁽¹⁾⁽²⁾⁽³⁾.

Pen-t'sao Shih-yi: ZN. 346: Sowerby NNB. p. 80: W. 638: G. 8940: SC:
Y. T. Chu Index 261-267:

Korean name, *Suk p'il uh* SC:

Explanatory Notes. *Ch'en T'sang-ch'i* states that it is found in the mountain streams of the South. One inch long. The belly and back are red. Southerners make it into a salted condiment of fine flavour.

156. 黃鯛魚 HUANG KU YÜ FALSE CULTER⁽¹⁾⁽²⁾⁽³⁾⁽⁴⁾

Pen-t'sao Kang-mu: Chu p. 17: Von Mollendorf: W. 457: G. 6208: Y. T. Chu Index No. 334:

Synonyms 黃骨魚 *huang ku yü* PT: Korean name *Wang ko uh*: 黃花條子 *huang hua f'iao tzu* W:

Interpretation of Names. *Li Shih-chen* states that fish guts which are fat are called *ku* (鮠) 鯛. The guts and belly of this fish have much fat, from which fishermen separate a yellow oil used for lighting their lamps; of very rank odour. Southerners mistakenly call them 黃姑 *huang ku*, and Northerners erroneously use the name 黃骨魚 *huang ku yü*.

Explanatory Notes. *Li Shih-chen* states that they are small fish found in the rivers and lakes, shaped like a culter but the head and tail are not turned upwards. The body is flat, it is fine-scaled and white, not more than an inch thick. Less than a foot long. It is salted in slices which are excellent fried or broiled.

156 a. 肉 JOU. FLESH OF THE FALSE CULTER.

Qualities. Sweet, warming and nonpoisonous.

Uses. *Li Shih-chen*, the soup made from plain fish is given for cold in the stomach with diarrhoea.

156 b. 油 YU FALSE CULTER OIL. Porter Smith p. 159. (2)

Uses. *Li Shih-chen*, for ringworm and boils. This oil burnt in lamps makes the vision indistinct.

(1) The Zoological nomenclature and SC. state this is one of the carp family *Barilius temminchi*, there are two kinds large and small.

(2) Sowerby says the *Barilius* is one of the totally new Oriental forms of the carp family.

(3) Williams says this is a species of red trout, an inch or two long; perhaps a kind of pilchard. Giles says it is a kind of bleak with pink eyes, *Squaliobarbus* sp. Chu gives *Squaliobarbus elongatus* Garman as a synonym for *Barilius elongatus*, (Kner). No. 267.

(4) Von Mollendorf lists this as *Pseudoculter exiguus*, Basil. (and Bleeker), and says that from the entrails of this little fish there is distilled a yellow oil used in lamps.

(2) Under 黃骨魚 *huang ku yü* Chu gives another of the carp family *Distoichodon tumirostris* (Peters).

(3) Williams says this is the *Culter exiguus*, a kind of roach. The term *ku* 鯛 means fish guts.

(4) Chu places *Pseudoculter exiguus* as a synonym to *Chanodichthys mongobius*, (Basilewsky).

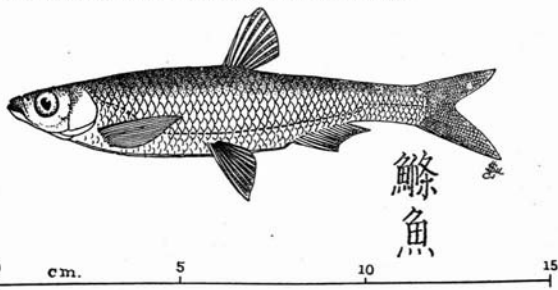
(5) The products of combustion of this oil are unknown. As a freshwater fish its fat is likely to contain fatty acids of the series C₁₅ and C₁₈. Marine fish more frequently contain acids of the series C₂₀ and C₂₂. J. A. Lovern, Biochem. J. 1937. 31. 755.

157. 鱮魚 T'IAO YÜ HEMICULTER⁽¹⁾(2)⁽³⁾(4)

Pen-t'sao Kang-mu: Hsu p. 54; Chu p. 26; Index No. 373; Sowerby NM. 4. 97; NNB. p. 81; G. 11098; W. 783; LSJ. 1937. 16. 228:

Synonyms. 白鱮 *pai l'iao* PT: W. 783; 鱮魚 *l'san yu* PT; W. 813; G. 11566: 鱮魚 *ch'iu yu* PT; W. 165; G. 2298: Korean name *Cheu uh* SC:

Interpretation of Names. *Li Shih-chen* states that the name comes from 條 *l'iao* meaning a narrow strip. The name *l'san yu* comes from 燦 *l'san* meaning sparkling. The name *ch'iu yu* comes from 囚 *ch'iu* a prisoner. The narrowness refers to the shape, the sparkle refers to its colour, and the imprisonment refers to its character⁽⁵⁾.



No. 157. *Hemiculter leucisculus*, (Basilewsky).
Shanghai, June 9, 1938. 2 cents.

Explanatory Notes. *Li Shih-chen* states that the hemicultter is a small fish found in the rivers and lakes, only a few inches long, thin and flat, shaped like a willow leaf. The scales are fine, regular and clearcut of very attractive appearance (pretty). It likes to float around

- (1) Identified by Hsü as *Hemiculter leucisculus* (Basilewsky). 882 piculs were sold on the Shanghai market in 1934 at \$4 to \$8 a picul.
- (2) Chu uses the name *Cultricus Kneri* (Warpachowski) for *pai l'iao*, for which he gives the synonyms *Hemiculter K.* (Warp), *H. leucisculus* Gunther, *H. clupeoides* Nichols, *Culter leucisculus* Kner; Y. T. Chu, *China Journal* 1930, 13, 331 (illus). He adds the references:—*Ann. Corn. Mus.* 1919, 12, 253; *Bull. Amer. Mus. Nat. Hist.* 1925, 58, 27.
- (3) Sowerby refers to the *H. leucisculus*, which he calls the dace-like culter or little knife fish, which offers such good sport to Shanghai anglers. Described by L.W.C. Lordon in the *China Journal* 1924, May.
- (4) Williams says it is a small white fish, like dace, such as the hairtail *Trichurus* or *Thryssa*. Also translated minnows. Giles says the *l'san yu* is the hairtail *Trichurus armatus* and *T. intermedius*. All other authorities give the hairtail as 帶魚 *tai yü*.
- (5) This is hard to explain. The character 鰣 means to float. The explanatory notes refers to its love of floating or swimming on the surface.

in shoals. *Hsün tzu*⁽⁶⁾ states that the hemicultur likes to float in the sunlight. It is best when salted in slices.

Qualities. Sweet, warming and nonpoisonous.

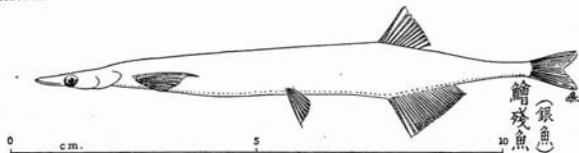
Uses. *Li Shih-chen*, boiled and eaten it dispels sorrow, is warming to the stomach, a cure for cold diarrhoea.

158. 鱈殘魚 K'UAI TS'AN YÜ SILVER FISH OR ICE FISH⁽¹⁾⁽²⁾⁽³⁾⁽⁴⁾

Shih-chien Pen t'sao: ZN. 1870: S. Y. 222: Hsu 37: Sowerby NM. 4. 72: SC: W. 476: G. 6476: Y. T. Chu Index, Family 43: Saiki p. 180: CMM 535: P. W. Fang, Sinensia 1934. 4. 231-268; 5. 505-511: CNH p. 566:

Synonyms. 銀魚 *yin yü* PT; Hsu: 鱈長魚 *mieu ch'ang yü* Hsu: 王餘魚 *wang yü yü* PT: Korean name *Hoi Chau uh*, SC: Japanese *Shirauo*:

Interpretation of Names. *Li Shih-chen* states that according to the *Po Wu Chih*⁽⁵⁾ when the prince *Wu Ho-hu* was travelling on the river he was eating hashed fish and the remnants thrown overboard turned into this fish, hence the name. It is also attributed to Prince Yuch or to the Priest *Pao Chih*. This is an extremely common idea but there is nothing to substantiate it.



No. 158. *Salanx microdon*, Bleeker.
Shanghai, March 2, 1938. $\frac{1}{2}$ cent.

(6) Author of *Jung Fu P'ien* 榮辱篇 in the time of the *Chan Kuo* after *Meng-Tzu*.

(1) Given by the Zoological nomenclature and S. Y. as *Salanx microdon* Bleeker, the latter also adds *S. cuvieri* Valenciennes. The term is used generically for the *Salangidae*, and for the family *Salanx*, Chinese white-bait.

(2) Hsu calls it *Salanx microdon* (C & S). \$5 to \$16 a picul on the Shanghai Fish markets. Chu does not list this in his Index. His most widespread species is *S. chinensis*, (Osbeck).

(3) Sowerby says the members of this family are at once recognisable on account of their translucent, slender, elongate, scaleless bodies, their flattened heads, pointed snouts and posteriorly placed dorsal fin. He doubts if the *S. microdon* is taken in Tientsin, it is the common species in Japan, from which the above identifications are probably taken. Sowerby says the Chinese ice-fish *Salanx chinensis* (Osbeck) ranges from Peitaiho to Canton, where Osbeck found and described it under *Albula chinensis*, Osbeck; Reise China (Rostock) 1765, p. 309. A voyage to China and the East India (Eng. Ed.) 1771, p. 385. Saiki lists it under the synonym *Salagichthys m.* Wu lists it as *Amphioxus lanceolatus* (*Branchiostoma* L.)

(4) Williams and Giles say this is the Chinese white-bait *Leucosoma argentea*.

(5) Written by *Chang Hua* of the Chin dynasty. Prince Wu was the head of the Eastern of the Three States A. D. 250, comprising Chekiang and extending north and west.

Explanatory Notes. *Li Shih-chen* states that this fish is found in the rivers of Kiangsu, Sungkiang city and Chekiang. The largest are four to five inches long. The body is as round as a chopstick, as clean and white as silver. It has no scales. It is as thin as a slice of fishmeat but it has two black dots as eyes. The natives prefer the little ones. Sundried they are sold in all parts. Before the spring festival they have roes and make excellent food, after the spring festival they shed their eggs and become thin, but can be used for making pickled or dried fish.

Qualities. Sweet, bland and nonpoisonous. (6)

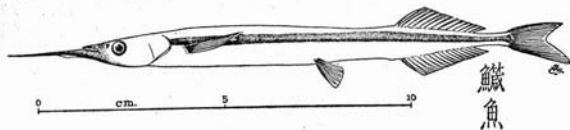
Uses. *Ming-yuan*, made into a thick soup it is taken to strengthen the stomach and as a laxative.

159. 鱺魚 CHEN YÜ GAR-FISH (THE HALF-BEAKS) (1)(2)(3)

Pen-t'sao Kang-mu: ZN. 2612: SY, 256: Sowerby NM. 4. 162; NNB. p. 121: W. 42: G 617: SC: Y. T. Chu Index Family 76: Saiki p. 180: CMM 541: Fowler H K N 1932. 3. 267 illus.: CNH p. 638:

Synonyms. 針魚 *chên yü* ZN: 姜公魚 *chiang kung yü* PT: 銅兜魚 *t'ung shui yü* PT: Korean name, *Ch'im uh* SC: Japanese *Sayori*:

Interpretation of Names. *Li Shih-chen* states that this fish has a needle on its snout, hence the various names. It is commonly said that this fish was *Chiang Tai Kung's* fish-hook (4), but this is only gossip.



No. 159. *Hyporhamphus sajori*, T. & S.
Shanghai, March 29, 1938. 1 cent.

(6) Analysis shows the following percentage composition:—

	Protein	Fat	Cbhyd.	Ash.	Ca.	P.	Fe.	K.
Shanghai (Read et al)	6.33	0.18	1.11	0.75	0.258	0.102	0.001	0.025
Japan (Saiki)	13.30	1.13	—	1.29	0.152	0.213	.003	—

- (1) The Zoological nomenclature and SY give this as a generic term for the *Hemirhamphidae*, and specifically for *Hyporhamphus sajori*, T & S and quotes four other species.
- (2) Sowerby quotes the sajori or Eastern half-beak, or gar-fish *Hemirhamphus sajori* Schlegel, Fauna Jap., Poiss. 1846. p. 246 pl CX: synonym, *Beloue microstoma* Basilewsky, Nouv. Mem. Soc. Nat. Mosc. 1855. 10. 260.
D. 16; A. 16-17; p. 13-14; l. 1. 95-100.
- (3) Williams and Giles say this is the *Hemirhamphus intermedius* the needle fish, called at Canton the *ch'ang tuan chên* 長短鱺; in Kiangnan it is known as the 鬚鱺魚 *ma p'o yü*.
- (4) Known as *Chiang Shang*, a famous general B. C. 1122.

Explanatory Notes. *Li Shih-chen* states that this fish is found in the rivers and lakes⁽⁵⁾. The size and shape are similar to the silver-fish, except that the snout has a fine black bone like a needle. The *Tung Shan Ching*⁽⁶⁾ mentions a fish with a snout like a needle and shaped like the hemiculter found in great number in the lake fed by the northern running water from the *Che Shui*⁽⁷⁾, which is this fish.

Qualities. Sweet, bland and nonpoisonous.⁽⁸⁾

Uses. *Li Shih-chen*, taken to ward off epidemic disease.

160. 鱮魚 YÜ YÜ WHITE BAIT⁽¹⁾⁽²⁾⁽³⁾

Pen-t'sao Kang-mu: ZN. 2541: W. 953: G. 13684: Saiki p. 18.

Synonyms. 春魚 *ch'un yü* PT: 糊魚 *hu yü* ZN: Korean name *Youh uh* SC:

The dried meat is called 鰲毛脰 *ô mao t'ing* PT: Japanese *Shirasu-boshi*:

Interpretation of Names. *Li Shih-chen* states that according to the *Erh Ya* the *yü yü* is a small fish, the meaning of the name is not stated. The name *ch'un yü* relates to the season of spring. The name *t'ing* refers to the dried strips of meat.

Explanatory Notes. *Li Shih-chen* states that according to the *Pei Hu Lu* by *Tuan Kwng Lu* (T'ang dyn.) the dried meat *ô mao t'ing* comes from *En Chou* in Kwangtung Province, where it is stored away in salt, it is in strands like fine hair and has a splendid flavour. *Kuo Ying-kung* (Liang dyn.) says that at *Wu Yang*⁽³⁾ there is a small fish like a needle, a thousand weigh one catty. The Szechuanese used it to make a sauce.

In the *Yi Tung Chih* (Ming dyn.) it says that this fish comes from *Yang Chiang Hsien* in Kwangtung. But in *Li Shih-chen's* time they were found at various places in the *Hsing Kuo* district (Hupeh, Wuchang), where it was called *ch'un yü*. They say that in spring it comes out and follows the waters which flow from the rocky caves. They are like young fry. The natives collect and dry them in the sun and use the dried fish as presents. They are eaten with ginger and vinegar and taste like shrimps. Some people say they are the fry of the snake-head (No. 162).

Qualities. Sweet, bland and nonpoisonous.⁽⁵⁾

Uses. A tonic, regulating the insides, and making people happy.

(5) The only Fresh-water Half Beak listed by Fowler is the *Zenarchopterus ectuntis* (Buchanan-Hamilton):

(6) One of the parts of the *Shan Hai Ching*.

(7) The *Che Shui* 沢水 is at the east end of the Yangtse.

(8) Saiki reports the following percentage composition of the flesh:—

Protein	Fat.	Ash	CaO,	P ₂ O ₅ .	Fe ₂ O ₃ .	NaCl.
18.60	2.10	1.85	0.173	0.595	.010	0.930

(1) Identified by Saiki as *Leucopsarion petersi*.

(2) The ZN. says it is a small slightly transparent little fish, over 1000 to the catty, with a good flavour. No identification is given.

(3) Giles says this is a small slender fish from Canton eaten as white bait.

(4) This is *Peng Shui Hsien* 彭水縣 of Szechuan.

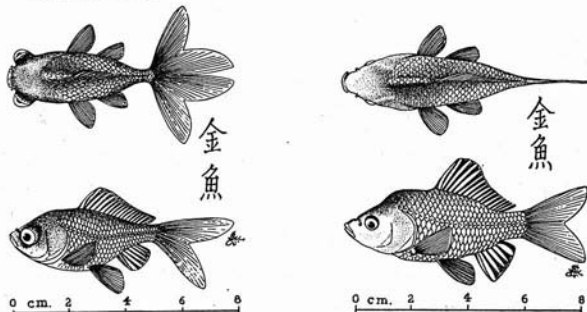
(5) Saiki gives the following percentage composition of the dried product:—

Protein	Fat	Ash	P ₂ O ₅	CaO	Fe ₂ O ₃	NaCl
30.00	3.16	18.65	1.666	0.460	0.028	15.54

161. 金魚 *CHIN YÜ* GOLD FISH⁽¹⁾⁽²⁾⁽³⁾⁽⁴⁾

Pen-t'sao Kang-mu: ZN. 687; Sowerby NNB. 80; G. 2032; SC: CMM 183; LSJ 1932. II. 429; 1933. 12. 346; 1937. 16. 229; R. A. Pareira H K N 1937. 8. 41; 111 illus: CNH p. 585:

Synonyms. 硃砂魚 *chu shi yü* PT: 丹魚 *tan yü* PT: 錦魚 *chin yü* ZN: Korean name *Kum uh* SC:



No. 161. Gold fish.

Shanghai, April 15, 1938. 10 cents.

Explanatory Notes. *Li Shih-chen* states that there are four kinds from the carp, golden carp, eel, and white bait⁽⁵⁾; it is difficult to obtain the eel and whitebait kinds, but the carp and golden carp varieties are of longstanding, though ancient people knew little about them. The *Po Wu Chih* says that they came from the 潞婆塞 *lo p'o sai* river, and had gold in their heads, this is probably a false report.

(1) As is well known these have been bred from the golden carp *Carassius auratus* (Linnaeus), though the text indicates other sources.

(2) The Zoological Nomenclature describes in Chinese the numerous types.

(3) See Kreyenberg, M. "Ueber die Zucht der Goldfischrasen in China." Blatt. Aquar. Terrar. Kunde, 1911. 22. 265.

(4) Pareira's two excellent articles in the Hongkong Naturalist deal with the shapes, colours, eyes, and a full description of the Chinese and Japanese varieties. Of other older references one should consult:—Cuvier et Valenciennes, *Histoire naturelle des Poissons* Vol. 16, pp. 101-121; W. F. Meyers, Notes and Queries on China and Japan, Vol. 2, p. 123, *Goldfish cultivation*.

(5) In the *Yang Yü Ching* 養魚經 there is cited the 五色文魚 *wu se wen yü* of which the colors varied but for which the name 金魚 *chin yü* was used generically. Originally people valued those completely red, pure white, white with red gills, white with red on the forehead; later there was a preference for snow-white eyes, pearly eyes, purple eyes, agate eyes, amber eyes, and those with 13 red stripes or 26 stripes. Those with protruding eyes were also sought after, also those with tails divided into three or five, or at the most seven were rarely seen.

The *Shu Yi-chi*⁽⁶⁾ records that in the Chin dynasty *Huan Ch'ung* visited the *Lu Shan* (Kiangsi) and saw in its lakes fish with red scales, which were gold fish. Gold fish have been cultivated ever since the Sung dynasty, now (*Li Shih-chen's* time) people everywhere breed them in their homes. At the end of spring they shed their eggs on the grass, and they like to eat them. The fish very readily develop from the spawn, at first they are black and later they turn red. There are also those that turn white and are called 銀魚 *yin yü*. Also there are those with red white and black stripes, or irregular markings. The taste of the flesh is bland and tough. The *Wu Lei Hsiang Kan Chih*⁽⁷⁾ states that gold fish will die if they eat canarium fruit stones or soap-bean water. A piece of poplar bark will prevent lice⁽⁸⁾. There is also the 丹魚 *tan yü*, it is uncertain whether it be the same as the gold fish so it is given as an appendix.

161 a. 肉 JOU FLESH OF THE GOLD FISH

Qualities. Sweet, saline, bland and nonpoisonous.

Uses. For chronic dysentery, *Li Shih-chen*.

161 A. 丹魚 TAN YÜ

According to *Pao Pu Tzu* the *tan yü* comes from the *Chong Ling* mountain in *Shang Hsien*, Shensi and enters the *Shuo Shui* river. To catch them one waits 10 nights before the start of summer and the fish swims in the water giving its reddish light like a fire. The blood of the fish smeared on the feet will enable one to walk over ice⁽⁹⁾.

162. 鱧魚 LI YÜ SERPENT-HEAD (MURREL)⁽¹⁾⁽²⁾⁽³⁾

Pen-ching, 1st. group: Hsü No. 80: Chu p. 48: Von Mollendorff: W. 509: G. 6951: Sowerby NM. 4. 116: NNB. p. 85: ZN. 2588: Chu Index No. 823: SY. 303: SC: Couling p. 183: CNH p. 645:

(6) Written by *Jen Fang* in the Liang dynasty.

(7) Written by the priest *Tsan Ning* in the Sung dynasty.

(8) The bark put in the water prevents the growth of the fish-lice so commonly seen.

(9) *Pao Pu Tzu* in the *P'ei Wen Yun Fu* refers to this, with this difference that he says the blood of this fish smeared on the feet will enable one to walk on the surface of water. The *Shih Lei Fu* by *Wu Ssu* (Sung) gives the same rendering.

(1) Identified by Hsü, Chu, Mollendorff and others as *Ophiocephalus argus*, Cantor, the spotted serpent-head or murrel. Whilst the Zoological Nomenclature gives no scientific identification, it says the Japanese erroneously consider this the marine eel *hai man li* No. 164, *Muraenesos cinereus*, see also SY. p. 232; and SC.

(2) It is well illustrated and described from the West Lake by Y. T. Chu, who gives a length up to 250 mm. His "Index" gives numerous references.

(3) Sowerby refers to it as a typical Chinese form, which extends from the Yangtse to the Amur, references:—

Cantor; Ann. Mag. Nat. Hist. 1842 9. 484.

Berg. Ichth. Amur. Mem. Acad. Imp. Sci. St. Peters. 8th series 1909. 24. No. 9, p. 197.

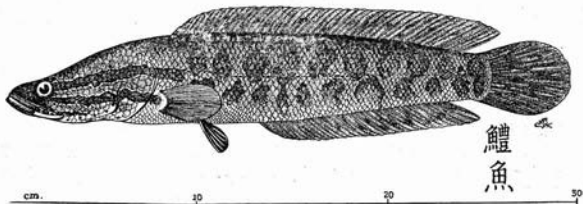
D. 49-50; A. 31-35; r. 1. 60— $\frac{7.9}{14.20}$ 66. (Berg.)

He says it is a valuable food fish, extremely plentiful, but not of a very fine flavour. This species is reported from the Amur basin by Skvortzov, B.W. in the N. C. Roy. Asiat. Soc. Proc. 1919. 50. 75, under the name *hei yü*

Synonyms. 蠡魚 *li yü* PT; W. 509; G. 6953: 黑鱧 *hei li* PT; Hsu, Chu: 黑魚 *hei yü* Hsu, SY, Sowerby⁽⁴⁾: 玄鱧 *hsuan li* PT: 烏鱧 *wu li* PT. Hsu: 烏魚 *wu yü* SY. Hsu: 鱧鱧 *l'ung li* PT; W. 864; G. 12286: 文魚 *wen yü* PT; G. 12633:

Korean name *Nai uh*, SC:

Interpretation of Names. *Li Shih-chen* states that the serpent-head has seven stars (spots) on its head, it worships towards the Dipper in the sky at night, so it has a natural propriety 禮 hence the name *li*. It also is associated with snakes, black in colour, it is a northern fish⁽⁵⁾, hence its various names using the characters *hsuan* and *hei*. Its colloquial name is 火柴頭魚 *hao ch'ai l'ou yü* the kindling (charcoal) headed fish, for the same reason. The small ones are called 鱧魚 *l'ung yü*. *T'u Ching Pen-t'sao* by *Su Sung* mentions the various references given in the *Mao Shih*⁽⁶⁾ falsely attributed to the serpent-head which rightly refer to the ide. This *Li* curtly dismisses without discussion.



No. 162. *Ophiocephalus argus*, Cantor.
Shanghai, Jan. 25, 1938. 20 cents.

Explanatory Notes. The *Pieh Lu* states that they are obtainable in all seasons, in the ponds and waterways of Kiukiang. *T'ao Hung-ching* states that they are found everywhere. It is said that they metamorphose from water-snakes, with which they also interbreed. They die with difficulty and have the characteristics of a snake.

Li Shih-chen states they are long and round, the head and tail are identical in length. The scales are fine and black. It has black spots and a variegated pattern very similar to the pit-viper. It has a tongue, teeth, & a stomach. The belly and the back have fins running down to the tail. The tail is not forked. It has a horrid appearance and a stinking smell. It is a very inferior food. Some Southerners prize it, but Northerners dislike it. The Taoists have picked it out as one of the prohibitions⁽⁷⁾.

(4) This name is more appropriately referred to the *Onychodactylus japonicus* Houtt. ZN. 1615.

(5) The north point of the compass is associated with the colour black.

(6) 毛詩 *mao shih* is the 詩經 as interpreted or narrated by *Mao Heng* of the Han dynasty.

(7) 水厭 *shui yen* refers to one of the three prohibited foods of the Taoists, referred to in the *Erh Ya Yi*, (1) that from the air—the wild goose, (2) from the earth—dog meat, (3) from water—the snake head. These are also prohibited by the Buddhists. In India some classes object to its resemblance to the snake. Watt p. 389.

162a. 肉 JOU FLESH OF THE SNAKE-HEAD⁽⁸⁾(⁹)(¹⁰).

Qualities. Sweet, cooling and nonpoisonous.

Pieh-lu, it should not be eaten by people with boils, for when the boils heal they leave a white scar. *Meng Yuan*, it is slightly poisonous and one derives no benefit from it when eaten. *K'ou Tsung-shih*, it inflames chronic affections, and can only be used for specific therapeutic effects.

Uses. *Fen-ching*, for fistula and piles, rheumatic pain, oedema of the face and eyes, a strong diuretic.

T'ao Hong-ching says that cooked with meng beans it is very effective for ascites.

Meng Hsien, it is a strong diuretic and purgative, it relieves windy colic; it is excellent minced for beri-beri and humoral diseases.

Su Kung, for edema in pregnancy.

162. b. 腸及肝 CHANG CHI KAN GUT AND LIVER OF SERPENT HEAD⁽⁹⁾

Uses. *Pieh-lu*, for toxic broken boils and for eruptions infested with worms.

Jih-hua, cooked with spices it is applied to fistula and piles, and to boils on the shins.

162 c. 膽 TAN BILE OF THE SNAKE-HEAD

Qualities. Sweet and bland.

It is prepared by drying in the shade during the last month of the year. The bile of all other fishes is bitter, it is strange that only this one is sweet and can be eaten, from the *Jih-hua Pen-f'sao*.

Ling Yuan Fang, applied to sore throats, swollen to the point of death.

163. 鰻鱺魚 MAN LI YÜ EELS⁽¹⁾(²)(³)(⁴)

Pieh Lu, 2nd. class: ZN. 2508: Hsu No. 53: Chu p. 46; Index No. 173: SY. p.

(8) Analysis shows the following percentage composition:—

	Protein	Fat	Ash	Ca.	P.	Fe.	K.	NaCl
Shanghai (Read et al)	18.29	0.67	1.06	0.056	0.199	.0005	0.328	—
Japan (Saiki)	17.90	5.55	1.29	0.094	0.228	.001	—	0.230

(9) See note 11 of the carp No. 128 concerning the vitamin C. content of the various organs of the murrel.

(10) This fish in Ayurvedic medicine is said to be a tissue producer, vitalising and a galactagogue. K. M. Nadkarni, *Indian Mat. Med.* Bombay, 1927, p. 1130.

(1) This name is applied by the Zoological Nomenclature to the family of the TRUE EELS the *Anguillidae* and to the genus *Anguilla*; classed by Fowler under the synonym *Muraena*. The species from the West Lake *Anguilla japonica* Temminck and Schlegel is well described and illustrated by Y. T. Chu. This specific name is also given by Häll. Originally given in *Fauna Jap.* Poiss. p. 278. Fowler also describes from the South the allied species, *Muraena mauritiana* (Bennett) and *M. bengalensis*, Gray.

(2) Y. T. Chu's Index gives many references of its occurrence from Newchuang in the North to Hainan Island in the South.

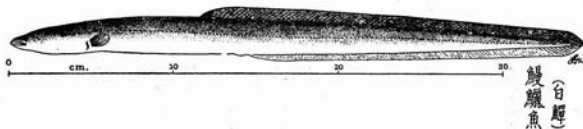
(3) The Chinese species Sowerby says differs from the European eel in having a slightly smaller mouth, larger eyes, and a good deal larger pectoral fins. Sowerby prefers to consider this as distinct from the Japanese species and lists it as *Anguilla pекinensis* (Basilewsky) syn. *Muraena pекinensis* Nouv. Mem. Soc. Nat. Mosc. 2nd. series, 1855, 10, 246. Specimens were secured by him in the Yalu' River,

(4) Giles refers to this as the *Anguilla pекinensis*. Williams erroneously calls it the salt water eel. Couling cites both the *Anguilla bengalensis*, Gray and *A. japonica*, T. & S. under the name *pai shan*.

229; L. S. J. 1937. 16. 224; Fowler H. K. N. 1932. 3. 49 illus.: Couling p. 181; Tschirch 1932. 2. 807; CNH p. 601:

Synonyms. 白鯧 *pai shan* PT; W. 683; G. 9705; 河鯧 *ho man* Hsu; 蛇魚 *she yü* PT; Dried 風鯧 *feng mau* PT; Korean name *Mahu nai uh* SC; Japanese *totagi*:

Interpretation of Names. *Li Shih-chen* states that this name in olden times was pronounced like 漫黎 *man li*² but according to the *Shuo wen* 鯧 was pronounced the same as 鱧 *li*³. The *Tso Lu* by *Chao Pi Kwng* (Sung) also states that this fish has only males and no females⁽⁵⁾, it uses its shadow to cover 漫 *man* the snake-head 鱧 *li*, and then its eggs are carried on the fins of the snake-head and hatched there, hence it is called *man li*³. This with *Hsue's* statement shows that it is correctly read *li*¹. The names *she* snake, and *shan* mud-eel, refer to the shape.



No. 163. *Anguilla pkinensis* (Basilewsky).
Shanghai, March 30, 1938. 10 cents.

Explanatory Notes. *Su Sung* states that it is found everywhere. It is like the mud-eel but the belly is larger and the colour is greenish yellow. It is said to be in the same class as the crocodiles, able to break down the banks of the rivers and greatly feared by man. *Meng Hsien* states that a special kind is found at *She Hsien* (Anhui) in the deep and shallow pools. It has a five coloured pattern on its back, the head is like the pit-viper, and is the best for making medicine. It is difficult to find this species in the rivers and streams. *Li Shih-chen* states that the eel is shaped like a snake, with a fleshy back. The fins are united with the tail. It has no scales. It has a tongue, and the belly is white. The large ones are several feet long. It is exceedingly fatty⁽⁶⁾. There is a species with a yellow band along the back called the 金絲鯧鱧魚 *chin ssu man li yü*,⁽⁷⁾ which can penetrate into very deep holes but not like the way crocodiles break down the banks of rivers. It is said to be born from the sheat fish, it is also said that the eel and the snake cohabitate.

- (5) In the "Book of Fishes" of the National Geographic Society 1924, La Gorce states that the great bulk of the Eel catch (*Anguilla*) everywhere consists of females. The Eels found far inland are always females and remain in fresh water for several years. Male Eels remain in tidal water and are smaller and less in evidence. Both males and females die at sea after the first and only breeding season in their lives. The Eel is very prolific, each female producing 5 to 10 million eggs.

- (6) Analysis of the edible part shows the following percentages:—This figure for fat is greater than in most fishes.

	Protein	Fat	Ash	Ca.	P.	Fe.	K.	NaCl
Shanghai	14.48	7.98	1.41	0.166	0.211	0.002	0.712	—
Japan	13.40	38.88	0.84	0.061	0.240	0.004	—	0.170

The European eel is said to have 32.9 percent of fat in the muscle.

- (7) Fowler describes and illustrates an eel in South China with yellow bands on a bluish body, *Herklotsina viridianguilla*. Fowler. Hongkong Naturalist 1931. 2. 311.

Corrections. *T'ao Hong-ching* states that eels can climb trees and eat the flowers on the vines. *Su K'ung* states it is the *ni yü* salamander which can climb trees. The eel has no feet so how can it go up a tree? This is an erroneous statement.

163 a. 鰻 *JOU EEL MEAT*⁽⁶⁾⁽¹²⁾⁽¹³⁾ Ayurvedic medicine

Qualities. Sweet, bland and poisonous.

Sun Ssu-mao says that it is very warming. *Ch'en Shih-liang* says it is cooling. *K'ou Tsung-shih* says it disturbs the humors. *Wu Jui* says that those with black stripes under the belly are most poisonous, eaten with ginkgo seeds it causes weakness of the extremities. *Wang-chi* says that it is all right to eat the small varieties, but those weighing four to five catties which swim along with the head raised should not be eaten. He once saw seven fishermen all of whom died after eating them. *Li Shih-chen* says that according to the *Yi Chien Hsu Chih*⁽⁸⁾ those with four eyes will kill people (poison them). Those with white spots on the back and no gills can not be eaten; if eaten by pregnant women the foetus will be affected.

Uses. *Jih-hua*, for piles and fistula, it kills the parasites; *Meng Hsien* says that piles and fistula which are treated with the smoke have the parasites killed. Three to five doses of the ashed meat taken on an empty stomach is vermifugal and will effect a cure. *Jih-hua*, it is used to cure toxic boils and vaginal sores with itching. For infectious diseases⁽⁹⁾ and for tuberculosis⁽¹⁰⁾. Warming to the back and knees, and stimulating erection (aphrodisiac). *Meng Hsien*, for beri-beri (wet type), for retention of water in the lumbar region, rheumatism; washed and boiled with the five condiments it is an excellent tonic; people suffering from all kinds of boils⁽¹¹⁾, scrophula, or wind in the bowels ought to eat it often. *Li Shih-chen*, for wasting disease in children (tuberculosis) and for cardiac pain due to intestinal worms. *Chang Ting*, for leucorrhoea, itching of the skin due to the effects of winds, for-ication⁽¹²⁾; it is an antidote to all kinds of vegetable and mineral poisons.

Explanatory Comments. *Su S'ung* states that although some fish are poisonous, when boiled with the five condiments into a soup they make a good tonic for weak people, and for chronic diseases and tuberculosis⁽¹⁰⁾. *Li Shih-chen* says that the use of eels in curing various

(6) See Footnote Page. 59

(8) Written by *Hung Mai* 洪邁 In the Sung dynasty.

(9) Hsu says the Japanese on the first day of summer eat eels with the idea that they will prevent sickness for a whole year. They contain vitamin A in considerable amount, T. Saiki, League Nations Health Bulletin 1926. III. 25.

(10) The Australian eel *Anguilla australis* contains 47 international units of vitamin D per gram of whole fish oil, compared with 100 units in cod liver oil. M. M. Cunningham, New Zealand J. Sc. & Tech. 1935. 17. 563.

(11) The *Anguilla* are known to be rich in vitamin A, which is antiinfective and essential to the health of the skin. The body fat of the common eel has 9,980 to 74,230 international units per 100 gms. The liver oil is far superior to the cod and similar to the halibut in strength. J. R. Edisbury et al, Bioch. J. 1937. 31. 416.

(12) Eels contain riboflavin, vitamin G, whole adult male 0.51, liver 0.75 to 1.0, blood and muscle <0.1 mg. per 100 grams. N. Fontaine, Compt. R. Acad. Sci. 1937. 204, 1367.

(13) See Note 11 of the carp No. 128 for reference to the vitamin C content of the various tissues of the *Anguilla*.

diseases depends on their anthelmintic action and the removing of the bad body humors. The eel is of the same class as the snake hence its uses are similar.

The *Chi Shen Lu*⁽¹⁴⁾ states that there were people suffering from tuberculosis so infectious that several others were fatally affected. One patient was placed in a coffin and floated down the river so as to get rid of the danger. It floated down to *Chiu Shon* where a fisherman pulled it alongside and looked inside and found a girl still alive. He took her to his fisherhut and gave her eels to eat and she recovered and became his wife. *Chang Ting* states that when burnt, the smoke from eels used as a fumigant against mosquitoes, will liquefy them. It is also used as a fumigant for moths and insects in felt rugs, rooms, houses, bamboos and wooden furniture. The bones placed in boxes of clothes will kill the moths. This is very good evidence for the truth of the statement in the *Pieh Lu* that eels are vermifugal toward all kinds of parasites⁽¹⁵⁾.

163 b. 膏 KAO EEL FAT⁽¹¹⁾ Tschirch 1931. 2. 839: (16)

Uses. *Tao Hwang-ching*, for fistula ani⁽¹⁶⁾. *Su Kwng*, for earache (due to parasites⁽¹⁶⁾). *K'ou Tsung-shih*, applied to leucoderma the colour soon changes, 5 to 7 applications effect a cure.

163 c. 骨及頭 KUCHIT'OU BONES AND HEAD OF EEL.

Uses. Ashed and powdered. *Li Shih-chen*, it is added to medicines for dysentery (with the *Kau* disease), wind in the bowels, metrorrhagia. The ash is applied to toxic boils. It is also used to fumigate piles and fistula, in order to kill the parasites.

163 d. 血 HSUEH EEL BLOOD⁽¹²⁾.

Use. *Li Shih-chen*, a little is applied to the eyes when filmy growths have appeared after smallpox.

164. 海鰻 HAI MAN LI MARINE EELS⁽¹⁾⁽²⁾⁽³⁾⁽⁴⁾

Jih-hua Pen-t'sao: ZN. 1021: Hsu No. 24: Chu Index No. 178: SC: Sowerby

(14) Written by *Hsu Hsuan* 銜銜 in the Sung dynasty.

(15) The liver of the *Anguilla* was official in European medicine in the 18th century. It was washed in wine and dried. Half a drachm of the dry powdered material was given for difficult childbirth, to assist expulsion of the foetus. Schröder, Vollständige und nützliche Apotheke, Frankfurt, 1718.

(16) In the Papyrus Ebers (Egypt 16th century B. C.) eel fat was used for sweaty feet. It was used in the 17th century A. D. for wounds and hemorrhoids, and as an oil for the ear and hair. Mynsicht (1729) recommended it in an antispasmodic balsam. It was listed in the Dispensatorium Pharmaceuticum Austriaco Viennense A. D. 1729 and the D. P. Ratisbonense und Taxe A. D. 1727. In the Pharmacia Galeno-Chymica Antverpiensis (1650) there was an oil distilled from eels.

(11) See Footnote Page 60

(12) See Footnote Page 60

(1) The Zoological Nomenclature applies this name to the family *Muraenescidae*, and the genus *Muraenesox*. Specifically it is applied by all authorities to *Muraenesox cinereus* Forskal, although in Japan Saiki identifies it as *Anago anago*, Temm.

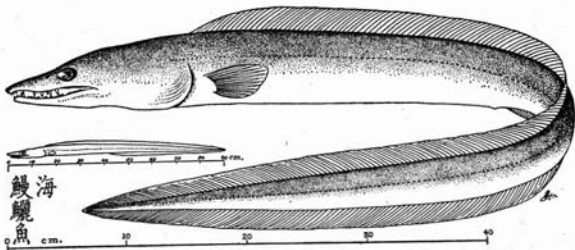
(2) Chu gives various references to its distribution from Pakkoi, Canton, Amoy, Ningpo and Chefoo. Sowerby refers to its occurrence off Fusan. Chu gives the following Synonyms:—*Muraena cinerea*, Forskal; *Muraenesox tricuspidata*, McClell.; *Congrus tricuspidatus*, *protervus*, *angustidens*, and *brevispis* Rich.; *Muraenesox bagio* and *singaporensis*, Blkr. Fowler calls this species *Muraenesox arabicus* (Schneider); he also lists *M. talabon* (Cuvier) from Hongkong and *M. talabonoides* (Bleeker) from Hoihow.

(3) Hsü describes the Shanghai market fish and states that 15, 567 piculs were sold on the local market in 1934, at \$2 to \$21 a picul.

(4) Williams and Giles say this is a large species of conger eel. Wu lists it *Bataedi*.

NM. 4. 153; NNB. p. 127; W. 556; G. 764r; Saiki p. 178; LSJ. 1937. 16. 224; Fowler H K N. 1932 3. 53; CMM 531; CNH p. 601;

Synonyms. 慈鯪鱧 *t'ze man li* PT; 狗魚 *kou yü* PT; 毛魚 *mao yü* Hsü; Korean name *Hai mahi rui*; Japanese *hamo*;



No. 164. *Muraenesox cinereus*, Forskal.
Shanghai, Feb. 17, 1938. 70 cents.

Explanatory Notes. The *Jih-hua* states that it occurs in the Eastern Sea; it is a large type of eel with the same therapeutic uses.

Qualities and Uses. Same as for the eels (160) *Jih-hua*, it is used for toxic boils on the skin⁽⁵⁾, scabies, piles and fistula, and irritant boils in the nose. *Li Shih-chen* says that *Li Chin-hua's* statement that the *kou yü* is warming and non-stimulating refers to this fish⁽⁶⁾.

165. 鱻魚 SHAN YÜ MUD EELS ⁽¹⁾(²)(³)

Pieh Lu, 1st. class: Hsu p. 53; Y. T. Chu p. 47; Index No. 163; ZN. 1422; SY.

- (5) Marine eels contain vitamin A. See foreign analysis and Shimoda, Fujimaki and Saiki, Bull. Soc. Hyg. Alim. 1927. 15. 524. Vitamin A deficiency is often manifested in the skin.
(6) Analysis of the American marine eel shows the following percentage composition in the edible part:—protein 18.6, fat 9.1, ash 1.0

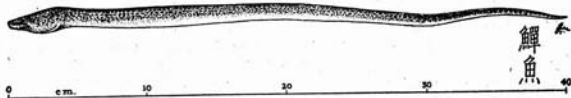
Atwater and Bryant, U.S. Dept. Agric. Off. Expt. Sta. Bull. 1906 No. 28.

- (1) This is identified by Hsu and Chu as *Fluta alba* (Zuiew), for which Chu in his Index gives the following synonyms: *Monopterus javanensis* Lac; *M. leavis*, *marmoratus* and *helvolus* Rich.; *Muraena alba* Zuiew; *Apterigia saccogularis*, *nigromaculata*, and *immaculata* Basil. It is a member of the family *Flutidae* 鱻科 *shan k'o*. Chu gives a full description in English and Chinese of this fish taken from the West Lake, Hangchow. This is also cited by Fowler from Hongkong, Hongkong Naturalist 1931. 2. 287. See also S. Y. Lin, "Notes on hair-tail and eels of China", Bull. Chekiang Fish Expt. Sta. 1936. 2. 1.
(2) Sowerby referring to *Monopterus* says that this group of eels have the dorsal, caudal and anal fins so reduced as to be almost indistinguishable, while the pectoral fins are absent, so that it looks much more like a serpent. He says it occurs in North China and Corea and everywhere in Eastern Asia. Chu's references stretch from Canton to the Liao Ho, and include Yunnan and Tsinan.
(3) Hsu says they are sold on the Shanghai market for about \$15 a picul. 6676 piculs were sold in 1933. The character *shan* is written in 3 ways 鱻 鱻 鱻
(4) The Severence notes refer to this as the *Lycadontys nubilis*.

p. 227; Sowerby NM. 4. 108; NNB. p. 85; SC: Mollendorff 1877: W. 682; G. 9705; LSJ. 1932. 11. 426; 1937. 16. 224; H K N 1931. 2. 287; Couling p. 181; CNH p. 579;

Synonyms. 黃祖 *huang tan* PT. W. 683. G. 9726; 長魚 *ch'ang yü* Hsü: Korean name *Sot uh*:

Interpretation of Names. *K'ou Tsung-shih* states that the mud eel has a yellow belly hence it is universally known as the yellow eel. *Li Shih-chen* states that the *Yi Yuan*(5) says that the name *huang tan* is related to the term 黃疸 *huang tan* for jaundice. *Ch'en Ts'ang-ch'i* incorrectly states this is the *chan yü*, but the word *chan* has a different tone (it is the 1st. tone and *tan* or *shan* are both 4th. tone) and refers to the *huang yü* the sturgeon (No. 176).



No. 165. *Fluta alba*, Zuiew.
Shanghai, April 5, 1938. 5 cents.

Explanatory Notes. *Han Pao-sheng* states that the mud-eel lives in nests on the muddy banks of rivers. It is like the true eel but slimmer and longer, it is also like a snake and without scales. It is greenish-yellow in colour. *Li Shih-chen* states that it has black spots on a yellow skin with much mucous on its body. The large specimens are two to three feet long. It comes out in the summer and hibernates in winter. There is one kind metamorphosed from snakes the 蛇鱈 *she shan* which is poisonous and will harm people. There are eel-shops in the South where the Southerners place several hundred eels in a jar full of water, at night by the light of a lamp they can pick out and discard those with white spots which float on the surface; or they throw pieces of garlic into the jar, this causes the proper kind of eels to wriggle all over the place unceasingly, for they dislike it. *Ch'en Ts'ang-ch'i* states that in making eel-soup it ought to be boiled for a long time; a mulberry wood fire must not be used, for eels and snakes are allied. *T'ao Hsiang-ching* states that they are metamorphosed from the roots of the water plant 蓴菜 *hsing yin*, or from the hair of a dead man; however eggs are found in the belly of the fish so they cannot all be metamorphosed.

165 a. 肉 JOURNAL FLESH OF THE MUD EEL (6)

Qualities. Sweet, exceedingly warming and nonpoisonous.

Ssu Ssu-mao states that the black kind are poisonous. *T'ao Hsiang-ching* states that it

(5) Written by *Liu Ching-shu* 劉敬叔 in the Sung dynasty.

(6) Percentage composition of the flesh:—

	Protein	Fat	Ash	Ca.	P.	Fe.	K.	NaCl.
Shanghai								
Read	17.18	2.75	1.72	0.011	0.235	0.001	0.578	—
Hsu	16.4	3.28	1.45	—	—	—	—	—
Japan								
Saiki	17.90	5.55	1.29	0.095	0.228	0.001	—	0.230

is warming in character and is a tonic. Eaten after an infectious illness it will cause a recurrence of the disease. *K'ou Tsung-shih* states that it disturbs the body humors, eaten to excess it causes cholera. He saw an official (a vice-minister) who ate this fish, and subsequently nearly died from vomiting and diarrhoea. *Li Shih-chen* states that according to the *Yen Shou Shu*, eaten to excess eels cause one to develop many boils, and they shorten life. The large kind are fatally poisonous to man.

Uses. *Pieh-lu*, a tonic to the stomach and blood. It cures cracked lips.

Ch'en T'sang-ch'i, a tonic for weak people, it is given after childbirth for abnormal lochia, for amenorrhoea, emaciation, styptic, to quieten the bowels, for cold in the bowels, and rheumatism.

Chu Chen-jeng, it is an excellent tonic, and is good for women after childbirth.

Meng Hsien, a tonic to the five viscera, correcting the bad affects of the twelve types of unseasonal weather. People suffering from a feverish cold (damp wind) should take a full meal of eel soup on an empty stomach, then lie down warmly covered until a mucilaginous sweat is produced and the loins and feet perspire; after the sweat has dried a bath should be taken in a warm decoction of the five branches(?), and the patient should keep out of draughts. This repeated in 3 to 5 days is an excellent remedy.

Li Shih-chen, it is specially applied to all kinds of cold sores, piles and fistula, and varicose veins.

165 b. 鱈 HSUEH BLOOD OF THE MUD EEL.

Taken from the tail.

Uses. *Ch'en T'sang-ch'i*, applied to eczema and scrophula.

Li Shih-chen, applied with musk as a cure for facial paralysis, when the right is paralysed it is applied to the left side and vice versa, and when rectified the drug is washed off. A few drops are applied to the ear for earache. A few drops are placed in the nose for epistaxis. A few drops are placed in the eye to prevent filmy growths after smallpox. To get rid of red scabs and cure urticaria it is kept constantly applied with garlic juice.

Comments. *Li Shih-chen* states that mud-eels are without feet and are expert burrowers, and like the snake in its piercing movements. Hence it can circulate through the twelve parts of the circulation to cure humoral complaints, Bell's palsy, and diseases of the body orifices such as the eye and ear. The bad humors enter the blood vessels and cause facial paralysis, so one uses blood to cure it, like curing like.

165 c. 鰓 T'OU HEAD OF THE MUD-EEL CNH p. 598 illus.

Prepared on the fifth day of the fifth lunar month.

Qualities. Sweet, bland and nonpoisonous.

Uses. *Pieh Lu*, it is given roasted for dysentery, diabetes, to expel cold humors, for constipation and indigestion.

(7) 五枝湯 *wu chih t'ang* is made from branches of the peach tree, willow, sophora, mulberry, jujube.

I Hsueh Chi-ch'eng, ashed with snake heads and centipede heads it is given in wine for ulceration of the small intestine. *Li Shih-chen*, roasted and wrapped in cotton it is plugged in the ear to remove all kinds of insects.

165 d. 皮 *PI* SKIN OF THE MUD-EEL.

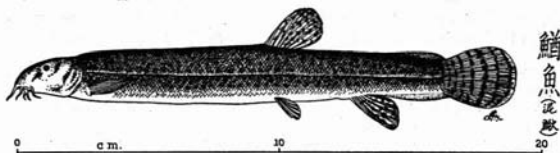
Uses. *Sheng Hua Fang*, ashed it is given in wine to women with hard painful breasts.

166. 鱮魚 *CHI U YÜ* LOACHES⁽¹⁾(2)(3)(4)

Pen-t'sao Kang mu: ZN. 2426: Hsu 59: Y. T. Chu p. 39; Index No. 523: Sowerby NNB. p. 83; NM. 4. 101: W. 170: G. 2343: SY. 247: SC: Saiki p. 176: CMM 516: LSJ 1937. 16. 224: CNH p. 585:

Synonyms. 泥鰍 *ni ch'iu* PT. W. 170. G. 2308: 鱮魚 *shí yú* PT: Korean name *choo uh*: Japanese *Dojo*:

Interpretation of Names. *Li Shih-chen* states that according to the *Lu Tien* the loach is very valiant *chiu* in character, and likes to move about in a most carefree way, hence the name. The small kind are called *ch'iu yü*. *Sun Yen* says that the name 鱮 *hsi* comes from its being accustomed 習 *hsi* to the mud.



No. 166. *Misgurnus anguillicaudatus*, (Cantor).
Shanghai, March 31, 1938. 5 cents.

- (1) The Zoological Nomenclature applies this name to the loach *Misgurnus anguillicaudatus* (Cantor), it is also used generically for the *Misgurnus*, and for the family *Cobitidae*. The same specific identification is given by Hsu and Chu. J. T. Nichols gives, "An analysis of Chinese loaches of the genus *Misgurnus*", in Amer. Mus. Novit. 1925. No. 169.
- (2) Chu describes and illustrates this fish from the West Lake. He gives in his Index 69 species of *Cobitidae*, among which the above species has the greatest number of references to its occurrence all over China. Jordan and Snyder have described the *Misgurnus decemcirrosus* (Basilewsky) from North China: Proc. U.S. Nat. Mus. 1906, 30. 833.
- (3) Sowerby lists this pond-loach and gives the references:—
Cobitis anguillicaudatus, Cantor, Ann. Mag. Nat. Hist. 1842. 9. 485.
Misgurnus fossilis anguillicaudatus, (Cantor) Berg, Ichth. Amur. Mem. Acad. Imp. Sci. St. Peters 8th series 1909. 24. 158.
D. 9: A. 8; P. 1. 9; V. 6 (Jord. & Fowler) 1.1. 155-170 (Berg).
- (4) Williams says this is the fresh water eel, shorter and darker coloured than the yellow mud eel, the *shan* (165). Giles translates it *Cobitis anguillicaudatus*, the loach.
- (5) Saiki gives the following percentage composition for the Japanese fish:—

Protein	Fat.	Ash.	CaO.	P ₂ O ₅ .	Fe ₂ O ₃ .	NaCl.
14.80	1.24	3.28	0.913	1.537	0.012	0.170

Explanatory Notes. *Li Shih-chen* states that the sea eels 海鱓 *hai ch'iu* are born in the sea and are exceedingly large. Those found in the rivers 江鱓 *chiang ch'iu* are only seven or eight inches long. 泥鱓 *ni ch'iu* are found in the mud of ponds and lakes and are exceedingly small three to four inches long. The shape is like a mud-eel (165) but the head is pointed. The body is fleshy, greenish-black, and without scales. It cohabitates with the males or females of other species of fish, hence *Chuang Tze* said that the loach plays with other fish. Those born in the sand are slightly striped. The people in Amoy and Canton bone them and make soup which has a very good flavour. The *Hsiang Kan Chih* states that the loach boiled with the common rush is very good.

Qualities. Sweet, bland and nonpoisonous. *T'ao Hung-ching* says that it should not be eaten with the blood of a white dog. It has been said to be cooling.

Uses. *Li Shih-chen*, warming to the stomach, a nerve tonic, for diabetes and anti-venom, reviving an intoxicated person. *Wu Ch'iu*, made into a soup with rice it regulates the stomach and bowels, and is an astringent for piles.

Prescriptions are given for dyeing the whiskers, for fattening cows and dogs, and for its aphrodisiac effects.

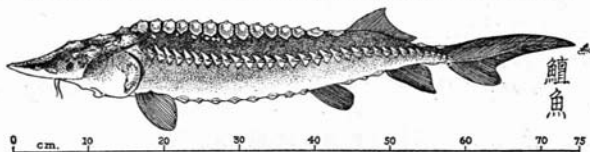
167. 鱓魚 CHAN YÜ STURGEONS⁽¹⁾(²)(³)(⁴)

Pen-t'sao Shih-yi: ZN. 2585; Hsü p. 42; Sowerby NM. 4. 52; NNB. Chap. 14; W. 18; G. 291; Y. T. Chu Index, No. 78; LSJ 1937. 16. 222; SC: CNH p. 492;

- (1) Identified by Hsü as *Acipenser sinensis* Gray. Sowerby devotes a whole chapter to this fish in his Naturalists Note Book concerning which he says there are but few scientific records, due to its large size and the consequent difficulty of preserving it for museum study. Hsü gives the Shanghai market value at about \$50 a picul.
- (2) The Zoological Nomenclature identifies this as *Acipenser sturio* or *A. mikadoi* Hilgd. The name is applied generically to the *Acipenser* and to the family *Acipenseridae*. The species mentioned refers to the common sturgeon which inhabits the rivers of Europe from the Volga and Danube westward, also occurring in the rivers of the eastern states in N. America as far south as Florida; the other species is the common sturgeon of Northern Japan. Up to the Amur basin we find *A. ruthenus* which ranges from the eastern part of European Russia right across Northern Siberia. In the Amur basin there is *A. schrenckii*, which in turn is replaced in Chinese waters by *A. SINENSIS*. Sowerby, NNB.
- (3) Sowerby gives the formula:—
D 41, A 20, P 24, V 28, C 28; Sc. dors. 14, later. 36, vent. 12.
He says a 9 foot specimen was exhibited in Tsinaifu, and in 1911 a specimen 11 feet 5 1/2 in. weighing 438 lbs. was caught in the Dragon River, Fukien. It was purchased by a wealthy merchant who set it free in the Min River the following day.
The size indicated in the Pen T'sao text would include the giant sturgeon *Huso dauricus* (Georgi), which weighs as much as 1000 lbs. and from which the far-famed Russian delicacy "Caviarre" is prepared. From the inner coating of the air-bladder isinglass is made.
- (4) Chu gives references to this fish from Chihli (Mollendorff 1877); Liao Ho basin, N. China (Morrison 1898); Shanghai (Evermann and Shaw 1927); Yangtze River (Tchang 1928); Amoy (Wu 1929), also the *A. dabryanus* Dumeril in Central China. Couling under the name *huang yu* gives the Blue river sturgeon, *A. dabryanus*, Dumeril.

Synonyms. 黃魚 *huang yü* PT: 蠟魚 *la yü* PT: 玉斑魚 *yü pan yü* PT; G. 13630: 鯉魚⁽⁵⁾ *huang yü* Hsü: 着甲魚 *cho chia yü* Hsu: 皇魚 *huang yü* W. 18: Korean name *chou uh*:

Interpretation of Names. *Li Shih-chen* states that the sturgeon is stout. It does not like to move about and has a leisurely style. The name *huang* yellow, and *la* wax, refer the colour of its fat. The name *yü pan* jade slices, refers to the colour of the flesh. The *Yi Wu Chih* has the name 含光 *han kuang*, for it is said that the fat and meat are phosphorescent. The *Yin Shan Cheng Yao*⁽⁶⁾ gives the Manchurian name 阿八兒忽魚 *ah pa erh hu yü*.



No. 167. *Acipenser sinensis*, Gray. 6 lbs.
Shanghai, April 28, 1938. \$3.00.

Explanatory Notes. *Ch'en T'sang-ch'i* states that the sturgeon is 20 to 30 feet long, pure grey in colour. The body has three rows of plates. It can swim up through the Lung Men (Shensi) and change into a dragon. *Li Shih-chen* states that it is found in the Yangtse, Huai and Yellow Rivers, and in the deep sea off the Manchurian coast⁽⁷⁾. It is a large scaleless fish. It is shaped like the beaked sturgeon (168) but the colour is grayish white, and along its back it has three rows of bony plates. It has a long nose and whiskers. Its mouth is close to the neck. The tail is divided. It comes up stream in the third month and sheds its eggs. It lives under the big rocks in midstream in the rapids. In eating, it just opens its mouth and waits to catch whatever comes into it. It eats but does not drink. Many crabs and fish enter its big mouth by mistake. There is an ancient saying that sturgeons live in caverns. There is a common saying that sturgeons eat what comes to them. It travels at the bottom of the river a few inches from the ground. Fishermen use a line with about a thousand small hooks. When one hook has pierced it, it moves its body to remove the source of the pain and then all the hooks get attached to its body. The boat follows the fish several days until it is exhausted, then it is gently pulled in. The small species are about 100 catties in weight. The large ones are 20 to 30 feet long and weigh one to two thousand catties. It smells very rank. Its flesh is interleaved with layers of fat. The flesh is white and the fat is yellow like wax. The backbone, nose, fins, and gills are all soft and crisp and can be eaten. The stomach and eggs can be stored in salt and are nice. The swimming bladder can be made into glue. The flesh and bones can be boiled, broiled, or minced and

(5) This name is applied by Saiki to the Gurnard.

(6) Written in the Yuan dynasty by *Ho Shu-hui* 和駙輝

(7) T. H. Cheng has published notes on a sturgeon from Foochow, Fukien Christian Univ. Sci. J. 1936. 4.

are all very tasty⁽⁸⁾. The *Han Mo Ta Ch'uan*⁽⁹⁾ says that the people of the Yangtse and Huai rivers make the sturgeons into a condiment called 片醬 *p'ien chiang*, it is also called 玉版鮮 *yü pan cha*.

167 a. 肉 JOU MEAT OF THE STURGEON

Qualities. Sweet, bland and slightly poisonous.

Meng Hsien states that it liberates the anima from the body and disturbs the humors. It incites scabies and boils. Eaten with buckwheat it causes a man to lose his voice. *Ming Yuan* states that the taste is very rich and fine, greatly esteemed by Hupeh people. Eaten to excess it produces fever and phlegm. Made into a condiment it is excellent, but it is not beneficial to people. *Li Shih-chen* states that people who are taking Japanese ground ivy as a medicine should not eat it.

Uses. *Li Shih-chen*, benefitting to the five viscera, fattening and improving one's looks. Eaten to excess it is hard to digest.

167 b. 肝 KAN LIVER OF THE STURGEON⁽¹⁰⁾

Qualities. Nonpoisonous.

Uses. *Ch'en T'sang-ch'i*, not to be cooked with salt, used for scabies, eczema, and blood poisoning.

168. 鱈魚 HSUN YÜ BEAKED STURGEON (PADDLE FISH)⁽¹⁾⁽²⁾

Pen-t'sao Shih-yi: ZN. 2586: Sowerby NNB, p. 93: W. 352: G. 4889: Chu Index No. 81: Hsu app. 6⁽⁴⁾: CMM 532:

Synonyms. 鱈魚 *hsun yü* or *yü yü* PT. W. 372. G. 4907: 鱈魚 *wei yü* PT. W. 884. G. 12605⁽²⁾: 王鱈 *wang wei* PT. W. 884. G. 12605: 碧魚 *pi yü* PT: Korean name *sim uh*:

(8) Hsü gives the following percentage composition:—

Water 78.59, protein 18.0, fat 1.9, ash 1.03.

(9) Written by *Kao Tsung* 高宗 in the Sung dynasty.

(10) The liver oil of *Acipenser attilus* contains over 2 million international units of vitamin A per 100 grams. J. A. Lovren et al. *Biochem. J.* 1933, 27, 1461. Of undoubted value for skin affections due to avitaminosis A.

(1) The Zoological Nomenclature identifies this as a *Psephurus* or spoon-beaked sturgeon. The only species cited by Y. T. Chu is *Psephurus gladius* (Martens), syn. *Polyodon gladius* Martens. with the references:— Yangtse (Martens 1861; Blkr 1872); Shanghai (Gthr 1873, Martens 1875); Ningpo (Peters 1880); Wuhu, Yangtze (Kreyenberg and Papp, 1909); Yangtze (Tshang 1928).

(2) Sowerby says the *Psephurus gladius* occurs in the Yangtse Kiang and Huang Ho. It is said to reach a very large size and should not be confused with the shovel-nosed sturgeons of N. America and Central Asia.

(3) This is given by Giles and Williams as the snouted sturgeon. Saiki calls it the tunny Jap. *maguro*; also SY.

(4) Hsu gives the sale on the Shanghai market in 1934 as 19441 piculs, at 0.50 to \$10.00 a picul. Wu lists it as *Acipenser mikadoi*, Hilg. see No. 167.

Interpretation of Names. *Li Shih-chen* states that this fish is very long, hence the names *hsun* and *yin* are used⁽⁵⁾ both of which refer to great length. The *Yueh Ling*⁽⁶⁾ says that in the last period of spring⁽⁷⁾ the Son of Heaven, the Emperor, should sacrifice the sturgeon in the ancestral hall, hence the name *wang wei*, the royal sturgeon. *K'uo P'u* says that the big ones are called *wang wei*, the small ones are called 鮓 鮓 *shu wei*. Those exceedingly small are called 鮓子 *to tsu*. The *Han Shu* written by *Li Ch'i* (Nanyang man) states that the Honanese call it *wei*, the Szechuanese call it *ken meng* 鮓鮓. The *Mao Shih Shu Yi*⁽⁸⁾ states that the people of Fengtien and Shantung used the name 尉魚 *wei yü* because in old Korea there was a man named 尉 *Wei Chong-ming* who was drowned in a river and changed into this fish. It is more likely that the character 尉 was incorrectly written for 鮓. The *Yin Shan Cheng Yao* says that the Fengtien people call it 乞里麻魚 *ch'i li ma yü*.

Explanatory Notes. *Ch'en T'sang-ch'i* states that the beaked-sturgeon occurs in the rivers, with a dragon-like back, ten to twenty feet long. *Li Shih-chen* states that the beaked sturgeon is found in the Yangtze, Huai and Yellow Rivers, and in the Liaotung Gulf and places with deep water. It is in the same class as the ordinary sturgeon. It is found in the gorges over 10 feet long. It comes out at the opening of spring and floats towards the light. If it sees the sun its vision is blurred. It is shaped like the ordinary sturgeon but it has no plates on its back. It is azure-green in colour, with a white belly. The nose is as long as the body. The mouth is close to the neck. It eats but does not drink. The lower part of the cheeks has green markings shaped like plum blossoms. The tail is forked. The flesh is pure white. The flavour is not as good as the sturgeon. The bones and fins are not crisp. *Lo Yuan* says that it is shaped like a *hsui ling* caldron, big at the top and small at the bottom. It has a big head with a gaping mouth like an iron helmet. Its swimming-bladder can be made into glue, like the bladder of the sturgeon. Similarly it can metamorphose into a dragon.

168 a. 肉 JOU FLESH OF THE BEAKED-STURGEON

Qualities. Sweet, bland and nonpoisonous.

Meng Hsien states it is poisonous, although its taste is excellent it accentuates the poisonous properties of all drugs and disturbs the body humors causing all kinds of boils and scabies. Eaten constantly it causes painful indigestion, and pain in the loins. Practicers of alchemy should not use it. It should not be eaten with dried bamboo-sprouts, it will cause paralysis. It will give children a cough and cause obstruction of the bowels. Although the pickled meat is tasty it is not nutritious.

Uses. *Ch'en T'sang-ch'i*, a tonic for weak people, a vitalizer, making people fat and strong. *Meng Hsien*, made into a soup it is used for hematuria.

(5) 尋 *hsun* was an old term for a measure of eight feet, about a fathom, like that of the outstretched arms, W. 352.

(6) A poem from the *Li Chi*.

(7) Spring is divided into three periods, 孟春 *meng ch'un* in the first lunar month, 仲春 *chung ch'un* in the second lunar month and 季春 *chi ch'un* in the third lunar month (April).

(8) Written by 孔穎達 *K'ung Ying-ta* in the T'ang dynasty.

168 b. 鼻肉 PI JOU FLESHY SNOUT OF THE BEAKED-STURGEON.

Made into 脯 *fu* dried meat, it is called 鹿頭 *lu t'ou* deer's head, also 鹿肉 *lu jou* venison. It is said to be tasty.

Uses. *Ch'en T'sang-ch'i*, a tonic for weak people, and to remove gas.

168 c. 子 TZU CAVIARRE. STURGEON'S EGGS⁽⁹⁾⁽¹⁰⁾ Watson 354 :

Shaped like a small bean.

Uses. *Ch'en T'sang-ch'i*, it is fattening and beautifying, anthelmintic.

169. 牛魚 NIU YÜ SEA-COWS⁽¹⁾⁽²⁾⁽³⁾.

Pen-t'sao Shih-yi : ZN. 942 : Sowerby NM. 2. 135 : CP :

Synonyms. 引魚 *yin yü* PT⁽³⁾ : Korean name *Woo uh* :

Explanatory Notes. *Ch'en T'sang-ch'i* states that it is found in the Eastern Sea, and has a head like a cow. *Li Shih-chen* states that according to the *Yi T'ung Chih* the sea-cow is found in Manchuria⁽²⁾ in the *h'un t'ung* river⁽⁴⁾. It is large measuring over 10 feet long and weighing 300 catties. It has no bony scales, the meat is interleaved with layers of fat⁽⁵⁾. It has a rich flavour. The *Yi Wu Chih* says the sea-cow is found in the South Seas⁽²⁾, where it is also called the *yin yü* 引魚, weighing three to four hundred catties. Shaped like a snake-fish, without bony scales, its back is striped and the belly is dark green in colour. It knows the tides. Its taste is very rich. From these two references one concludes that the sea-cow belongs to the sturgeon class. The pronunciations of the names *hsou* and *yin* are similar.

(9) Saiki lists 鰐子 *Karasumi* which is probably this. Percentage composition :— Protein 41.2, fat 23.03, ash 5.61.

(10) The number of eggs taken from one sturgeon is given by Le Gorce as 800,000 to 2,400,000 which range from 5 to 15 gallons in bulk. He describes the commercial method used in America for preparing the eggs. The Book of Fishes, Nat. Geog. Soc. Washington, 1924.

(1) The Zoological Nomenclature refers the 海牛 *hai niu* to *Manatus* the Sea-cows, of the *Manatidae*, this family includes the dugong *Halicore dugong* Iliger, see No. 173.

(2) Sowerby says there are a number of living species of this family, all of which are tropical or sub-tropical in their habitats. The *Yi T'ung Chih* record of a sea-cow in Manchuria must refer to Steller's sea-cow *Manati gigas* Zimmermann, Geogr. Gesch 1780. II. 426, discovered by Steller in 1741, but which was supposed to have become extinct in 1768.

When first discovered this animal occurred along the shores of the Commander Islands in great herds, feeding upon kelp. They were apparently, very stupid and slow, and so fell easy prey to whalers, by whom they were ruthlessly butchered, and so exterminated. Sowerby 2. 135. It is also known as *Rhytina gigas* (Zimmermann) and *Hydrodamalis stelleri* Retzius, Vetensk. Acad. Nya Handl. Stockh. 1794. 20. 202. Adams found skulls of these sea-cows on the shore of Aniwa Bay. Saghalin Island, "Travels of a naturalist in Manchuria and Japan."

(3) The name *yin yü* probably refers to the Dugong found in the tropics.

(4) This is in Kirin where the Heilungchiang and Sunghuachiang meet at Halasusu in T'ungchiang Hsien.

(5) Dugong oil is recommended as a substitute for cod liver oil. Chopra, Indigenous drugs of India, Calcutta 1933 p. 547. Its analysis is given in Lewkowsitch 2. 477.

169 a. 肉 *JOU* FLESH OF THE SEA-COW

Qualities. Nonpoisonous.

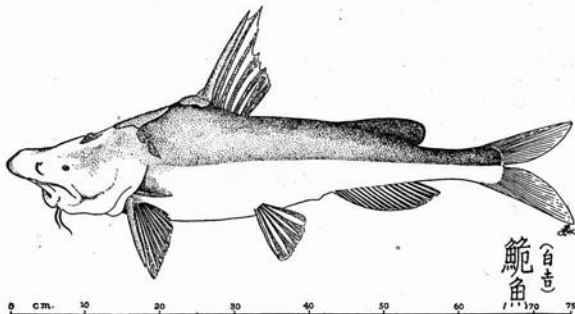
Uses. *Ch'en T'sang-ch'i*, veterinary use, in the treatment of epidemics among domestic animals⁽⁶⁾. It is made into dried meat and powdered, mixed with water and poured up the nostrils, a yellow secretion will flow out. Where there is an epidemic among cows the material is placed in their stalls as a fumigatory measure.

170. 鮠魚 *WEI YÜ* CATFISH⁽¹⁾(²)(³).

Pen-t'sao Shih-yi: Hsu p. 38. Y. T. Chu Index No. 632: W. 881: G. 12593. Sowerby NNB. p. 84: LSJ 1937, 16. 230; CNH. p. 587:

Synonyms. 鮠魚 *hwi yü* PT. W. 374. G. 5174: 鯪魚 *hu yü* PT. 鯪魚 *hua yü* PT: 鮠魚 *lai yü* PT. W. 495. G. 6698: 白吉 *pai chi* Hsü: Korean name *Myon uh* SC:

Interpretation of Names. *Li Shih-chen* states that northerners call it *hu* and southerners call it *wei* which is similar in sound to the name *hwi*. To-day it is generally known as *hwi yü*, and the names *hu* and *wei* are seldom used. The name *hua* 鯪 is just a modification of *hu*.



No. 170. *Leiocassis demerili*, (Bleeker). 8 lbs. Shanghai, April 8, 1938. \$1.80.

- (6) 六畜 *liu ch'u* refers to the horse, sheep, cow, pig, chicken, and dog.
- (1) Identified by Hsu as *Leiocassis dumerili* (Bleeker), to which Y. T. Chu cites the following synonyms: → *Rhinobagrus dumerili*, Bleeker; *Leiocassis longirostris* Gunther; *Macrones longirostris* Gthr. Hsu quotes them on the Shanghai Fish markets at \$20 to \$50 a picul.
- (2) Sowerby cites various Chinese catfishes; *Pseudobagrus tenuis*, *P. t. emarginatus* &c. which are closely related to the *Parasilurus* sheatfish.
- (3) Williams gives its general description and says it is possibly a member of the sturgeon family. *Hwi yü* he says is a member of the salmon tribe common in the Yangtse. He says the *lai yü* is the *Trypauchen vagina*, a small kind of goby common about Macao. The Severance Notes say this is the *Plecoglossus altivelis*.

The Shensi people say that it causes 癩 *lai*⁽⁴⁾ eczema, hence the name *lai yü*. There is further discussion of this fish under the sheatfish, No. 171.

Explanatory Notes. *Li Shih-chen* states that it is found in the Yangtse and Huai Rivers⁽⁷⁾. It is without scales, and belongs to the sturgeon family. The head, tail, body and fins are like the beaked-sturgeon, but it has a short snout. The mouth is on the neck. The bones are hard. The belly is like the sheatfish. It has a fleshy fin on its back. *Kuo Pu* says that the catfish is like the sheatfish but it is larger, and is white in colour.

Corrections. *Ch'en T'sang-ch'i* states that the catfish is a large marine fish like the maigre, not smelly; it makes a condiment as white as snow. In the Sui dynasty hashed catfish was used as tribute by the Kiangsu people. The material was cut and rapidly dried in the sun and bottled. When used, it was wrapped in cloth and soaked in water, to make a salad which was identical with the freshly cut up fish. *Li Shih-chen* states that what *Ch'en T'sang-ch'i* says is taken from the *Shih Yi Lu* by *Tu Pao* which states that in the sixth year of *Ta Yeh* of the Sui dynasty (A. D. 610) the people of Kiangsu sent hashed maigre as tribute. It was prepared by taking the larger fish, 4 to 5 feet long, with fine scales, purple coloured, without any fine bones, without rank odour, and after separating the meat it was cut up and sunned till exceedingly dry. It was placed in new bottles and sealed with mud. When used it was wrapped in cloth and soaked in water a few minutes, when removed from the water it was as white as fresh meat. According to this the *hai wei* 海鯢 is a large type of maigre, it has scales and is odorless. If it referred to the fresh water catfish it would be without scales and would have a very rank odour. *Chen* probably confused the two characters 鯢 *nien* and 鮓 *wei* which are very alike; he did not carefully look into the matter and so made this mistake which I now correct.

170 a. 肉 JOU FLESH OF THE CATFISH. Ayurvedic medicine ⁽⁵⁾⁽⁶⁾

Qualities. Sweet, bland and nonpoisonous.

Su Shing states that it will intensify chronic illnesses. It should not be eaten with boar's meat or wild chicken meat, such will cause skin diseases⁽⁴⁾.

Uses. *Ch'en T'sang-ch'i*, an appetiser. It is used for urinary retention.

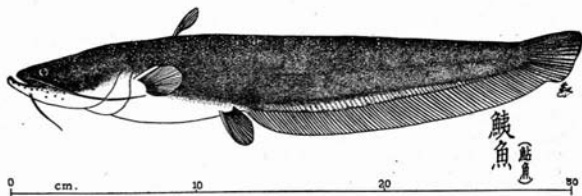
- (4) *Lai* is translated as a virulent chronic eruption of the skin; scabies, leprosy, or scrofulous sores. The Syrians, in antiquity, who esteemed fish sacred, thought that if they ate fish their bodies would break out in ulcers, and their feet and stomach would swell up. Similar ideas in Egypt are associated with the sanctity of the pig. See Frazer's *Golden Bough*, abridged p. 473. These ideas apparently have a common superstitious origin.
- (5) In Ayurvedic medicine the catfish is said to be appetising, stimulating to the brain, decreasing the marrow. It increases *Vāyu* and *Pitta*, i.e. wind and bile. Nadkarni, q. v.
- (6) Analysis of the flesh of the American catfish shows the following percentage composition:—
protein 14.4, fat 20.6, ash 0.9
Atwater and Bryant, US Dept. Agric. Exp. Sta. Bull. 1906, 28.
- (7) It is abundant from Chinkiang to the mouth of the Yangtse, with two catches in the spring and autumn. BFT 1933 p. 250.

171. 鯪魚 *YI YÜ* SHEAT-FISH (CHINESE WELS) ⁽¹⁾⁽²⁾⁽³⁾

Pieh-lu 1st. class: Mollendorff: Sowerby NM. 4. 104; NNB. 84; Hsu p. 57; W. 778; G. 11023; Y. T. Chu p. 40; Index No. 596; ZN. 2101; Saiki p. 180; CMM 478; Tschirch 1932. 2. 815:

Synonyms. 鯪魚 *l'i yü* PT. W. 778. G. 11011: 鯪魚 *yen yü* PT. *nien yü* PT. Hsu. W. 598. G. 8299: Korean name *Chum uh* SC: Japanese *Namazu*:

Interpretation of Names. *Li Shih-chen* states that the forehead is flat 夷 *yi* and depressed 偃 *yen* and the mucus is sticky 黏 *nien*, hence the three names associated with these characters. The old name was *yü yü*, at the present time the name is *nien yü*. Northerners call it *yen*, and Southerners use the name *nien*.



No. 171. *Parasilurus asotus*, L.
Shanghai, June 17, 1938. 10 cents.

Explanatory Notes. *Tao Hong-ching* states that the *l'i yü* is the same as the *nien yü* the sheatfish. There is also the hu 鱧 (No. 170) which is like it only it is larger. The catfish (*wei* No. 170) is similar to the sheatfish in being yellow in colour. The *jen yü* (173) 人魚 is like the sheatfish except that it has four feet. *Han Pao-sheng* states that those with large mouths and bellies are catfish called *hu*, those with small mouths and azure backs are sheatfish called *nien*, those with small mouths, yellow backs and white bellies are catfish called *wei*.

Li Shih-chen states that these two writers have not carefully examined these fish. The sheatfish *nien* is without scales, the head is large and depressed, the forehead is broad,

- (1) It is generally known as *nien-yü* and identified by Hsu, Chu and ZN. as *Parasilurus asotus* (Linnaeus). The name 黏魚 is applied generically to the *Parasilurus* and to the family *Siluridae*. Chu gives many references.
- (2) Sowerby describes it and says it differs from the catfishes (No. 170) in having its lower or anal fin extending the whole length of the tail, joining up with the rounded caudal fin.
- (3) Williams says it is a common name for mudfish or silure, of which many species exist (*Bagrus*, *Silurus*, and *Pimelodus*). Caps are said to be made from their skins, which in the Han dynasty perhaps led to the Chusan islanders being called *tung l'i jen* 東鯪人. Wu gives it as *Hexagrammos otakü*, J. & S. SY lists *l'i yü* as *Engraulis japonicus*, T. & S. and *nien yü* as *Plecoglossus altivelis*, T. & S.

it is big mouthed and large bellied; its body is like the catfish and the tail is like the snake-fish (No. 159). It has teeth, a stomach, and barbels. Those born in running waters are greenish white, those born in still waters are greenish yellow. The large ones weigh up to 30 or 40 catties. They all have big mouths and big bellies and there is no small-mouthed species. The *hu yü* catfish is what is called to-day the *hu yü* 鱖魚 which is similar to the sheatfish but the mouth is low on the neck, the tail is forked. The Southerners in their pronunciation have changed the sound *hu* to *wei* 鰱. This puts the matter straight now. When people eat sheatfish or catfish they always cut off the fins and hang up the fish. The mucus then all runs off and they are no longer sticky and slippery.

171 a. 肉 JOU FLESH OF THE SHEATFISH⁽⁴⁾.

Qualities. Sweet, warming and nonpoisonous. *Meng Hsien* states that those without scales are poisonous, and must not be eaten to excess. *Su Sung* states that it is cooling and is poisonous and it is not a good food. Red eyes, red whiskered, and those without gills are all toxic, and fatally poisonous for man. It should not be eaten with ox liver, it will cause humoral complaints, regurgitation and salivation. It must not be eaten with boar's meat, it will cause hematemesis. *T'ao Hong-ching* states that it must not be eaten with venison, it will cause one's muscles and finger-nails to shrink. *Li Shih chen* states that it is incompatible with Japanese ground-ivy.

Uses. *Pieh-lu*, a general panacea.

T'ao Hong-ching, made into a soup it is used as a tonic.

Su Kwng, for oedema. Diuretic.

Li Shih-chen, for facial hemiplegia, the tail is stuck on the face around the mouth on the side affected. For piles and fistula, bleeding piles, and painful anus; it is boiled with onions and eaten.

Prescription from *Sheng-chi Tsung-lu* for leucoderma.⁽⁵⁾

171 b. 涎 YEN MUCUS OF THE SHEATFISH

Su Sung, with coptis rhizome and decoction of plums it is given as a cure in three doses on the 5th, 7th, and 9th days for the three types of diabetes⁽⁶⁾.

(4) Saiki gives the following percentage composition:—

Protein	Fat.	Ash	P ₂ O ₅	CaO.	Fe ₂ O ₃	NaCl.
18.3	2.25	1.35	0.695	0.083	0.007	0.060

(5) The wels, *Silurus glanis* L., was used in Egyptian medicine to heal wounds, and for the removal of splinters. Papyrus Ebers, 16 century B. C.

Dioscorides used the salted flesh for drawing out splinters. The brine from the pickled fish was used as a bath for dysentery. The vapour, or the brine as an enema was used for sciatica. Galen and the Arabs used it in ways similar to the Greeks and Egyptians.

(6) 消渴 *Asiao K'e* is said to have three types 上, 中 and 下.

(a) 上消 *shang hsiao* shows a lack of nutrition to the tongue from the digestive juices of the stomach. This appears to mean a lack of enzymes in the salivary secretions.

(b) 中消 *chung hsiao* shows excellent digestion of the food, rapidly followed by hunger and thirst; although much food is taken the patient is thin; there is polyuria.

(c) 下消 *hsia hsiao* shows a dryness and inflammation of the stomach and bowels, unquenchable thirst, the legs are emaciated, and there is lipoduria.

The *shang hsiao* is easily cured, the *hsia hsiao* is difficult to cure.

After drinking a desire to urinate once, is easily cured; cases showing a desire to urinate twice after every drink are hard to cure. If the urine has a sweet taste and a lard-like froth it is incurable.

171 c. 目 EYE EYE OF SHEATFISH

Uses. The ash is applied to infected cuts, *Ssu Ssu-mao*.

171 d. 肝 KAN LIVER OF THE SHEATFISH⁽⁷⁾⁽⁸⁾

Sheng-chi Tzuang-lu, for fishbones stuck in the throat.

172. 鯢魚 T'I YÜ NEWTS⁽¹⁾⁽²⁾⁽³⁾

Pen-t'sao Kang-mu: W. 778: G. 11017: ZN. 2401: Sowerby NNB. 74:

Synonyms. 人魚 *jen yü*⁽⁴⁾ PT. ZN. 1994: 孩兒魚 *hai erh yü* PT: Korean name *clath uh* SC:

Li Shih-chen states that formerly this was included under the sheatfish, but is now separated.

Interpretation of Names. *Li Shih-chen* states that the *t'i yü* cries like a child, hence it is given these various names. It is erroneously called 鯉 *t'i* and 鯪 *yi* (see No. 171),

Explanatory Notes. *T'ao Hwang-ching* states that it is plentiful in Hupeh at Chingchow and Linchü and in Kiangsu at Chinghsi. It is similar to the sheatfish but it has four feet and cries like a child. The oil when burnt lasts interminably. This is the oil 人膏 *jen kao* used in the tomb of Ch'in Shih Huang at *Li Shan* in Shensi.

K'ou Tzuang-shih states that this fish is somewhat like an otter with four feet and a heavy belly that hangs down like a sac. The body is faint purple in colour. It is scaleless and in a class similar to the catfish and sheatfish. People cut it up and often observe inside it several small crabs, small fish and small stones. *Li Shih-chen* states that there are two kinds of *hai erh yü*. Those found in the rivers and lakes are similar in shape and colour to the catfishes and sheatfish, the fins below the belly are like feet, the gills and cheeks make a noise like a child crying, these are the *t'i yü* 鯢魚. Those found in mountain streams are the same in shape and cry, but they are able to climb trees, these are the *ü yü* 鯪魚 (No. 170). The *Pei Shan Ching* says that there are many *jen yü* 人魚 at *Chüeh Shui* (Honan), shaped like the *t'i yü* with four feet and a cry like a baby's. When eaten it frees one from stupidity. It also states that the northern running stream *Hsiu Shui* of the Lo River (Honan)

(7) The liver oils of the related catfishes are often rich in vitamin A, the *Anarhicas lupus* contains about 1500 international units per gm. C. E. Bills et al. J. Nutrition 1937. 13. 43; J. A. Lovern et al. Biochem. J. 1933. 27, 2461.

(8) See Note 11 of the carp No. 128, for vitamin C studies made by T. Matsubara and K. Chuda, Hyg. Inst. Med. Acad. Kyoto. 1937. 31. 849.

(1) To show how confused this identification has been Williams translates it, "a newt or water lizard; an eft; the name is applied to a large carp in some books."

(2) The Severance Notes translate this as *mermaid*.

(3) The Zoological Nomenclature lists various newts and salamanders but it makes no mention of the *t'i yü*. Wu refers to it as the *Halicore* or Dugong, which is very remote from the description in the text.

(4) This is translated by C P as mermaid, see also No 173. The Pen-t'sao picture is like a seal.

has many *l'i yü* shaped like a *chou wei*⁽⁵⁾ but it has a pair of white long clawed feet. Eaten it cures worms, the *Ku*⁽⁶⁾ disease, and protects one against assaults with weapons. These two statements (of the Pei Shan Ching) agree with those given, the former with *T'ao Hung-ching*, the latter with *K'ou Tsung-shih*. Fishermen to-day when they find them in their nets regard them as useless and are afraid of them. They throw them away not knowing they are edible. According to the *Chi Shen Lu* of *Hsu Hsuan* (Sung), *Hsieh Chung-yü* often saw women bobbing up and down in the water who from the waist down had bodies entirely like fish, these are the *jen yü* 人魚 i.e. MERMAIDS. The *Tsu Yi Chi* states that *Cha Tao* went to Korea on Imperial business and saw on the sands a woman with red fins behind the elbows, which on enquiry he found were mermaids *jen yü*. These two accounts use the same name but they do not refer to the same thing as the *l'i* fish, newt; or the *ni* fish (No. 173) salamander.

Qualities. Sweet and poisonous.

Uses. *T'ao Hung-ching*, it will cure stupidity.

Li Shih-chen, given for worms (the *Ku* disease)⁽⁶⁾.

173. 鯢魚 NI YÜ GIANT SALAMANDER⁽¹⁾⁽²⁾⁽³⁾

Pen-t'sao Shih-yi: ZN. 2371: W. 394: G. 5435: Sowerby NNB. 74: Saiki p. 174: CMM 503: Tschirch 1932. 2. 814:

Synonyms. 人魚 *jen yü* PT. ZN. 1994: 鰐魚 *na yü* PT; ZN. 1991; W. 587; G. 8105: 鯢魚 *l'a yü* PT. W. 745. G. 10:24: 大者 large type 鯢 *hsia* PT: Korean name *Yai uh* SC: Japanese *Hanzaki-niku*:

Explanation of Names. *Li Shih-chen* states that it has a cry like a child hence the name. It is a water-lizard (*l'i yü*) which is able to climb trees. It is commonly said that the sheat-fish climbs the bamboos, it refers to this fish. The marine animal the whale has the same

(5) The *wei* is a long-tailed monkey. The term *chou wei* is ill defined. This citation is from the *Chung Shan Ching*.

(6) 魚 *Ku*. The description of this disease is peculiar. Williams translates it worms in the belly, which are thought to be the cause of dropsy; a venomous worm; a slow poison.

(1) The Zoological Nomenclature identifies this as *Cryptobranchus japonicus* How. said to be able to climb trees and eat the 山椒 *shan chiao*, from which habit it is also called 山椒魚 *shan chiao yü*. The name is applied to the family *Amphiumidae*. Saiki gives this as *Megalobatrachus japonicus*, Temm.

(2) The various synonyms appear to be applied to a variety of animals, Williams states that the *yi yü*, *na yü* and *l'a yü* are all synonymous for the seal or dugong. The Zoological Nomenclature says the *na yü* is the guitar fish *Rhinobatus schlegelii* M & H., of ZN. 1487, 1878, & 1991; but the name 人魚 *jen yü* syn. 儒艮 *ju kan*, it applies to the dugong *Halicore dugong* Illiger. The Zoological Nomenclature also calls the 大鯢魚 *ta ni yü* *Megalobatrachus*, giant salamander. According to Sowerby the two names *Megalobatrachus* and *Cryptobranchus* are applied to the same genus (and so are synonymous).

(3) Sowerby describes and illustrates the giant salamander *Megalobatrachus sligoi*, Boulenger; which he says is called *wa wa yü* or "child fish" because when it is handled it makes a cry like a new born infant. He says it is also known as the *na yü*. Living specimens of *Megalobatrachus maximus* were exhibited in the Peking Zoological Gardens in 1926. The cage was labelled 鯢魚 syn. 山椒魚.

name but it is not the same thing⁽⁴⁾. The Szechuanese call it *na* 鮎⁽⁵⁾. The Shensi name is t'a. The *Erh Ya* says the large species is called *asia* 鯪. The *Yi Wu Chih* says that it is shaped like a fish with feet so that it can walk like a shrimp, hence the name *asia* 鯪. *Ch'en T'sang-ch'i* took this to be the catfish without fully investigating the subject. He also says that it is called 王鮪 *wang wei*, this is erroneous; the *wang wei* is the beaked sturgeon (No. 168).

Explanatory Notes. *Ch'en T'sang-ch'i* states that the giant salamander occurs in the mountain streams. It is like the sheatfish, with four feet and a long tail. It can ascend trees⁽⁶⁾. In times of drought it fills its mouth with water, goes up the hills and wraps itself in the leaves of plants. Lying with its mouth open, birds come to drink the water, and are sucked in and eaten. It has a cry like that of a small child. *Li Shih-chen* states that according to *K'uo P'u* the salamander is like the sheatfish. It has four feet. The forefeet are like a monkey's, the hindfeet are like a dog's. It has a cry like a child. The large ones are eight to nine feet long. The *Shan Hai Ching* states that at *Chueh Shui* (Honan) there are many *jen yü* 人魚, shaped like a water lizard. They are eaten to cure idiocy. The *Shu Chih* says that the *na yü* 鮎魚 is found in the Western Hills *Chia Ku* of *Ya Chou* (Szechuan), it is like the sheatfish, with feet and can climb trees; it has a cry like a child; it is edible. The *Yu Yang Tsa Tzu* states that people in the *Chia* mountains eat the salamander. They tie the fish to a tree and whip it; there exudes a white juice like semen, it can then be eaten. If this is not done the animal is poisonous.⁽⁷⁾

Qualities. Sweet and poisonous.⁽⁸⁾ ⁽⁹⁾ ⁽¹⁰⁾.

Uses. It is eaten to stop idiocy, *Shan Hai-ching*.

174. 黃鰐魚 HUANG SANG YÜ YELLOW-HEADED CATFISH⁽¹⁾⁽²⁾⁽³⁾

Shih-liao Pen-t'sao: ZN. 1639: Hsu p. 56: Y. T. Chu p. 42; Index No. 617: Sowerby NM. 107; NNB. 84: SC: LSJ 1937. 16. 230: SC:

(4) The *Erh Ya* calls the female whale *ni* 鯨. This name is given in the Zoological Nomenclature p. 2376.

(5) Written by *Ch'en Shou* 陳壽 in Hou Han dynasty.

(6) In "Ancient accounts of India and China by two Mohammedan Travellers in the 9th century" translated by E. Renaudot, London 1732, referring to conditions in the ancient Chinese port called *Canfu* it says, "It is moreover said, that in another Port there is a Fish which, leaving the sea, gets up into the Coconut Trees; and having drained them of their juice, takes to the sea again".

(7) It has a venom like the viperine snakes, and an alkaloidal principle, salamandrine, which produces picrotoxin-like convulsions. D. J. Macgowan, Chin. Recorder 1886. 17. 45, 139.

(8) The salamander is used in Annamite Medicine as an aphrodisiac. Perrot et Hurrier p. 60.

(9) Saiki gives the following percentage composition of the meat:—

Protein	Fat.	Ash	P ₂ O ₅	CaO.	Fe ₂ O ₃	NaCl.
9.46	0.76	0.65	0.490	0.026	0.063	0.043

(10) The salamander was used in the old Pharmacopoeia Homoeopathica of W. Schwabe. Dioscorides used it boiled in oil to prevent falling out of the hair; also as a plaster or ointment for ulcers and leprosy.

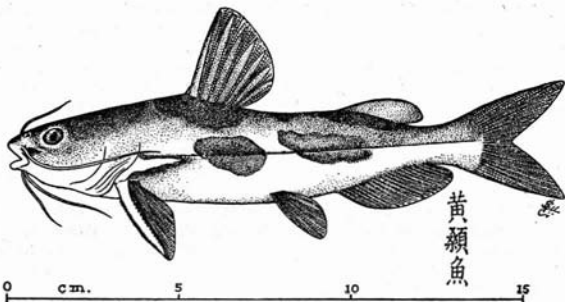
(1) This is identified in the Zoological Nomenclature as *Pseudobagrus aurantiacus* Temm. & Schlegel. Hsu says this is Richardson's *Pseudobagrus fulvidraco* of which a good amount is purchased on the Shanghai fish market.

(2) Chu lists it under the synonym *Pelteobagrus fulvidraco* (Richardson) for which he also adds the names:—*Macrones fulvidraco* Gthr; *Fluvidraco fluvidraco* Jord. & Seale; *Pelteobagrus calvarius* Blkr. with numerous references from Canton to Chihli, and Hankow. He describes and illustrates it from the West Lake, Hangchow.

(3) Sowerby lists a number of catfish, but this particular species is clearly indicated in the various Chinese names and the description given. It has a fin formula, D. II. 7; A. 21; P. I. 7; V. I. 5.

Synonyms 黃鰱魚 *huang ch'ang yü* ZN. 1640. PT: 黃頰魚 *huang chia yü* PT. 鯪魮 *yang ka* PT. W. 902: 黃魮 *huang ka* PT. W. 901 G. 12870: 鯪絲魚 *yang ssu yü* Hsu: Korea name *Whang sang uh* SC:

Interpretation of Names. The terms *sang* and *chia* refer to its anatomy. *Ch'ang* refers to its strong flavour. *Yang-cha* refers to its cry. People to-day have split up the names and call them *huang yang* and *huang ka*. *Lu Chi* (Chin) erroneously named them *yang huang*.



No. 174. *Pseudobagrus aurantiacus*, T. & S.
Shanghai, Feb. 26, 1938. 4 cents.

Explanatory Notes. *Li Shih-chen* states that the yellow-headed catfish is a scaleless fish with a body and a tail like a sheat fish; the under side is yellow, and the back is greenish-yellow; under the gills there are two horizontal bones; it has two barbels; it has a stomach; they swim around in schools making a noise like *Ka Ka*.

It is very hard to kill. *Lu Chi* states that it has a fish-like body and a swallow-like head, and the jaws are a bright yellow. It is a strong fish able to fly and caper. *Lu Tien* states a strange thing, the gall of this fish in spring and summer rises (in the abdomen), in autumn and winter it is lower in the body.

Qualities. Sweet, bland and slightly poisonous.⁽⁴⁾ *Meng Hsien* states that scaleless fish are not beneficial to people, they cause boils and scabies. *Li Shih-chen* states that it is incompatible with Japanese ground-ivy, and is harmful to people.

Uses. *Tao Hung-ching*, the flesh is strongly antivenous, able to revive a drunken person.

Wu Ju, it cures humoral complaints.

Li Shih-chen, it is taken boiled to reduce oedema, and as a diuretic. The ash is given for old suppurating scrophula, and for all kinds of toxic boils.

(4) Considered in Japan as an important source of Vitamin C in the diet, raw. Detailed studies by T. Matsubara and K. Chuda, Kyoto Hyg. Inst. Med. Acad. 1937. 21. 849.

174. a. 涎 YEN. MUCUS OF THE YELLOW-HEADED CATFISH.

From the fins.

Uses. *Wu Jui*, given for diabetes.

174. b. 頰骨 CHIA KU. JAW BONES.

Use. *Li Shih-chen*, ashed, three drachms are taken with tea for a swollen sore throat.

175. 河豚魚 HO T'UN YÜ PUFFERS⁽¹⁾(2)(3)(4)
(GLOBE FISH) (SWELL FISH)

Sung K'ai-pao Pen-t'sao: ZN. 605: Sowerby NM. 4. 201; NNB. 126: W. 859: G. 12240: Hsu Nos. 60, 61, 62: Y. T. Chu Index Nos. 1474-77: Saiki p. 176: CMM 167: LSJ 1935. 14. 319 illus.; SY 299: CNH p. 726:

Synonyms. 鰐鯪 *hou yi* PT; W. 291. 778; G. 4020: 鰐鯪 *hu yi* PT: 鰐魚 *kuei yü* PT. W. 474. G. 6427: 噴魚 *ch'en yü* PT: 吹肚魚 *ch'ui tu yü* PT: 氣包魚 *ch'i pao yü* PT: Japanese *fugu*:

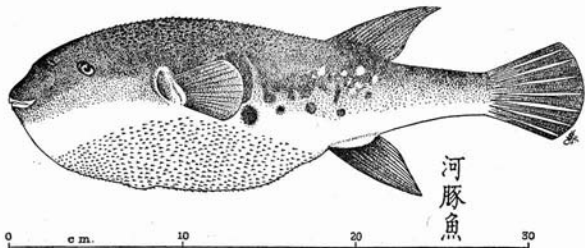
Changes. This heading now includes the *hou yi* of the *Shih-liao Pen-t'sao*, and the *kuei yü* of the *Pen-t'sao Shih-yi*.

Interpretation of Names. The name *t'un* meaning a pig is used because it has a fine flavour. *Hou Yi* refers to its ugly shape. The name *kuei* (compounded from fish and a pair of compasses) refers to the round body. *Ch'ui tu* and *ch'i pao* refer to blowing itself up. The name in the *Pei Shan Ching* is 鰐魚 pronounced *p'ei yü*.

Explanatory Notes. *Ma Chih* states that the puffer is found in the Yangtse, Huai and Yellow Rivers, also in the sea. *Ch'en T'sang-ch'i* states that it has a white belly and red variegations on its back. It can open and shut its eyes. If it strikes anything it puffs out in anger and its belly swells up like an air ball and floats on the surface, therefore people incite it and haul it out. *Li Shih-chen* states that it was most plentiful in his time in Kiangsu

- (1) The Zoological Nomenclature identifies this specifically as *Spherooides vermicularis* (Schlegel) syn. *Tetrodon vermicularis* Schlegel, taken from the fauna of Japan. The name applies generically to the *Spherooides* GLOBE-FISH, and to the family *Tetraodontidae*.
- (2) Hsu says there are many species, the common type in Shanghai is *Spherooides ocellatus* Osbeck, the spotted puffer; he also describes and illustrates the 花河豚 *hua ho t'un S. xanthopterus* (T & S), and the 虎河豚 *hu ho t'un S. rubripes* (T & S). He mentions the extremely poisonous character of this fish, and tells how best to prepare it for the table. In 1934, 387 piculs were sold on the Shanghai market at \$1 to \$8 a picul.
- (3) Chu lists the above 3 species, also *S. basilewskianus* (Basilewsky) from Chihli. He gives numerous references. Saiki in "Food in Japan" lists *S. porphyreus* T. & S. The species distribution in Japan is given in J. Coll. Sci. Imp. Univ. Tokyo 1913. 33. 229.
- (4) Sowerby describes 8 species from Manchuria, he implies that the spotted puffer and Basilewsky's puffer are identical. Tetrodotoxin in doses 0.32-4 mg. causes a great increase in adrenalin secretion in the dog. T. Aomura et al. Tohoku J. Exp. Med. 1930. 15. 36.

and Chekiang. It is shaped like a tadpole. The large ones are more than a foot long. The back is greenish-white with yellow stripes. It is scaleless and has no gills, and no gallbladder. Below the belly it is a dull white. Probably three fish can be reckoned as one school. The local people prize them very highly in the spring, especially the soft roes⁽⁵⁾ which they



No. 175. *Spheroides ocellatus*, Osbeck.
Shanghai, May 5, 1938.

call the milk of *Hsi Shih*⁽⁶⁾. The *Yi Yuan Tzu Huang*, written by *Yen Yu-yi*, states that the puffer has a remarkable flavour for an aquatic animal. Although it is universally considered to be fatally poisonous to men, when Mr. Yen was prefect at *Hsuan Ch'eng* in *Tan Yang*⁽⁷⁾ he saw that all the local people ate it but they boiled it with three vegetables; cabbage, beach wormwood and the sprouts of rushes, and he never saw anyone die. Southerners say that those fish which have no scales, no gills, no gallbladder, those that cry, and those which can move their eyes are all poisonous. The puffers fulfil all these qualifications so people are afraid of them. However there are two species especially poisonous, those that are reddish black and those that are spotted and called 斑魚 *pan yü*. It is also said that after the third month they develop spots and cannot be eaten.

According to the *P'ao Chih-tsu* of *Lei Kwang* it is said that the 鮭魚 *kuei yü*⁽⁸⁾ is able to bore into trees and they immediately dry up. If dog's bile is applied they revive and become luxuriant. *T'ao Lan* says that although the puffer is a small fish the otter is afraid to eat it. So it not only is able to poison people it can poison other living things. The *Lau Heng* by *Wang Ch'ung* says all things which are born because of the influence of the heat of the sun are poisonous; among fishes there is the puffer and the 鮭魚 *to shu*, hence the liver of the puffer is fatally poisonous and the *to shu* will kill people.

- (5) 胰 *yü* literally this is the fat on the belly, omentum. The *Tzu Yuan* calls it the 魚白 *yü pai* the roe.
 (6) This was a most beautiful woman of the *Yueh* Kingdom in the time of the Five Kingdoms.
 (7) This refers to present day Anhui, south of the River near Wuhu.
 (8) This is given in the Zoological Nomenclature as *Oncorhynchus keta* Walbaum. It is applied generically to the *Salmonidae*, though it also states that it is a synonym for the *Ho t'un yü*.

Qualities. Sweet, warming and poisonous.⁽⁹⁾⁽¹⁰⁾⁽¹¹⁾ *K'ou T'soug-shih* states that the puffer is exceedingly poisonous, but how is it others say that it is not poisonous. Although the flavour is especially fine, if improperly prepared and eaten it will kill people. People who value their lives will keep a long way away from it.

Ch'en T'sang-ch'i states that the large marine species is very toxic, the estuarine species is not so poisonous⁽¹²⁾. When boiled the fish should not touch the cauldron, it should be suspended in the water. *Li Shih-chen* states that when boiled one must not let coal ash drop in the pot. It is incompatible with Japanese ground-ivy, chrysanthemum flowers, bluebell root, liquorice root, aconite and the secondary roots of aconite. It is beneficial to give it with

(9) Saiki gives the following percentage composition :—

Protein	Fat.	Ash.	P ₂ O ₅	Ca O.	Fe ₂ O ₃	Na Cl.
17.32	0.26	1.19	0.480	0.121	0.007	0.047

(10) Hsu in the Food Fishes of Shanghai gives a lengthy statement in Chinese regarding globe-fish poisoning. He says there are present two poisonous principles, a crystalline neutral toxin and an acid resinoid, both of which cause paralysis. There is an immediate flushing of the face, contraction of the pupil, vomiting, coldness of the extremities, slowing of the pulse, there is a general paralysis of the nervous system, with irregular respiration, with slowing and finally paralysis, and death ensues due to paralysis of the heart. The toxins occur in largest amount in the roe and secondly in the blood serum. It was formerly considered that the liver and the roe were most poisonous; this is because the unwashed liver contains so much blood, it is not because the toxins are stored in the liver. The roe is most toxic in the fourth month, so it is wiser not to eat the fish at all at this time, i. e. when the rushes have grown a foot high. This poisonous principle called *tetrodonin* has been isolated and found chiefly to affect the sympathetic nervous system. A dilution of this toxin as great as 0.0002 percent paralyzes a nerve fibre in 30 minutes. Read, China Med. J, 1918. 32. 487.

(11) 906 cases of globe-fish poisoning with over 64 percent of death were recorded from Japan between 1915 and 1923. This subject has received considerable attention from Japanese workers, F. Ishihara, Tokyo Igakukai Zasshi 1917. 31. 12; (abst. CMJ 1918. 32. 467); Y. Tahara Biochem. Zeit. 1910. 30. 255; M. Muira, Zeit f. d. Med. Gesell. zu Tokyo 1895. 9. 499; R. Tahara, idem. 1894. 8. 1; Muira, M. Virchow's Archives 1898. 122. 92.

三浦, 竹崎 Mitteil. medizinisch. Gesell. zu Tokyo. 1889. 3. 451, 514, 533:

高橋順 ibid. 1889. 3. 1092, 1151, 1242, 1263.

田原良 J. Pharm. Soc. Japan (Yakugaku) 1894. 150. 733; 1895. 159. 409.

田原良 (衛) J. Hygiene 1902. 9. 1. 20; 10. 1.

石尾正文 (衛) „ „ 1922. 18. 137.

Itakura, J. Mitt. med. Fakt. Kais. Univ. zu Tokyo. 1917. 17. 455.

Kimura, S. Tohoku Jour. Exp. Med. 1927. 9. 41.

假家昇一 Osaka Igakukai 1928. 27. 1163.

Chyidi Muto J. Korean Med. Soc. 1924. 49. No. 3.

Yoshida Shige Giryoshinbo 1926. 455. 1413.

Inaba, M. Okayama Igaku Zasshi 1935. 47. 3348 (abs. J. Jap. Med. Sc. 1936. 9. (114)).

松原氏 東洋學藝雜誌 1889. p. 253; 1890. p. 615.

明石氏 醫事新聞 1901. p. 79.

Remy Compt. rend. de Biolog. 1883. p. 263.

Gubarew Schmidt's Jahrbucher 1883. 198. 127.

Görz Mitteilungen Ges. f. Natur. Volkerkunde, Ostasiens, 1875. 1. Part 8. p. 24.

(12) S. Couling in the Encyclopedia Sinica, Shanghai 1917 p. 450 says, "Those caught in rivers would appear to be more poisonous than those taken in sea-water."

the sprouts of rushes, beach wormwood and cabbage. Its effects are lessened by canarium, sugar-cane, common reeds, liquid feces. The *Cho Keng Lu* by *T'ao Chin-ch'eng* (Yuan dyn.) states that anyone eating the puffer fish should not during the same day take medical decoctions for fear that they may contain Japanese ground-ivy which is so extremely incompatible, also it is dangerous given with the aconite family of drugs. Mr. Li himself at Kiangyin saw a scholar who died from puffer poisoning. One must not eat the roe of the puffer. If previously soaked in water overnight the eggs swell to the size of foxnuts. From olden times it has been known that for this type of poisoning the following antidotes can be used: the *Chih Pao* pill⁽¹³⁾, or canarium, or Borneo-camphor in water. There is another prescription which is very efficient, it contains Chinese yellow-berry lightly roasted, with an equal quantity of Malabar nightshade, powdered and mixed with bean water. According to the *Wu Lei Hsiang Kan Chih*, when cooking the puffer it should be brought to a boil 5 to 7 times with Japanese ground-ivy, after changing the water it is no longer poisonous. These two statements are diametrically opposite, perhaps it is because the poison from the puffer goes into the ground-ivy, but one would rather follow *T'ao Hsiang-ching's* ideas and not be sorry afterwards.

Uses. *Sung K'ai-pao*, a tonic for weak people⁽¹⁴⁾, dehydrotic, good for the loins and feet, for piles, anthelmintic. *T'u-su Pen-l'sao*, it regulates the action of sal ammoniac.

175. a. 肝及子 *KAN CHI TZE* LIVER AND ROE OF THE PUFFER⁽¹⁴⁾

Qualities. Exceedingly poisonous.

Ch'en T'sang-ch'i states that if it enters the mouth it is necrotic to the tongue, in the belly it is necrotic to the bowels, and there is no antidote except a decoction of canarium, 木魚 *mu yü* tea tree wood, reed roots and bulrush roots.

Li Shih-chen states that Kiangsu people say that the poison is in the blood. The fat of the fish will anaesthetise the tongue, the roe will cause one's belly to swell, the eyes will cause ones eyes to become blurred; there is a saying, "the oil is anaesthetic, the eggs cause swelling, the eyes blur." The Kiangyin people salt the eggs, and ferment the roes; they are eaten after burying in the ground. There is the saying, if you want to commit suicide eat the puffer.

Uses. *Li Shih-chen*, ashed with centipedes it is applied with sesame oil to scabies, eczema, and infectious boils.

175. b. The *Pen-l'sao Shih-yi* adds the EYES.

(13) 至寶丹 *chih pao lan* contains rhinoceros horn, cinnabar, antimony sulphide, turtle shell, amber, musk, Borneo-camphor, gold leaf, silver leaf, cow bezoar, and benzoin. From the *T'ai-p'ing Hui-min* 太平惠民 *Ho-chi-chü-fang* 和劑局方 (Song dynasty).

(14) The liver oil of *Sphaeroides maculatus* is unusually rich in vitamin D, 57000 inter. units per 100 grams. C. E. Bills, *Physiol. Reviews* 1935. 15. 1. Analysis of the liver oil is given by M. Tsujimoto, *J. Chem. Indus. Tokyo* 1916. 19. 723. The unsaponifiable matter contains no hydrocarbons.

176. 海豚魚 HAI T'UN YÜ DOLPHINS⁽¹⁾⁽²⁾.

Pen-t'sao Shih-yi: ZN. 973: Sowerby NM. 2. 88: G. 12239: SC: CMM 242: CP:

Synonyms. 海猪 *hai hsi* PT: Korean name *Hai taun uh* SC: Estuarine species 江豚 *chiang t'ui* PT. W. 859⁽³⁾: 江猪 *chiang chu* PT: 水猪 *shui chu* PT: 鯨魚 *chih yü* PT: 鯨魚 *ch'au yü* PT: 鯨鯨 *fu p'ei* PT:

Interpretation of Names. The names *hai t'un* and *chiang t'ui* are both used because of its resemblance in shape to the pig, *t'un*; *K'uo P'u's* poem says that the *hai hsi* is the same as the *chiang t'ui*. *Wei Wu's* poem *Shih Chih*⁽⁴⁾ mentions the *fu p'ei*. The *Nan Fang Yi Wu Chih* refers to it as the *shui chu*. The other name *ch'au yü* is used because of its excessive salivation.

Explanatory Notes. *Ch'eu T'sang-ch'i* states that the porpoise is a marine animal, it follows the wind and the tide. It is shaped like a pig. The snout is on the upper side of the head, and makes a noise spouting water upwards. Over one hundred form a school. It's eggs are the snakefish. The young follow the female by the tens of thousands. People catch the young and suspend them in the water, the females then come after them and are caught. The estuarine species is found in the rivers bobbing up and down in the water similar in shape to the sea-porpoise but smaller. The boatmen wait to see them as a sign of approaching wind. It contains much oil⁽⁵⁾ used for burning in lamps which shines brightly for people who gamble but it gives a feeble light for reading or doing work⁽⁶⁾. There is a common saying that this fish is metamorphosed from a lazy woman. *Li Shih-chen* states that it is very large like a pig several hundred catties in weight, greenish-black like a sheatfish. It has two nipples and has males and females like human beings. Several travel together, one above and one out of sight below, which is called "worshipping the wind." Its bones are hard, its flesh is fat and not good eating. It has much fat. It is a good thing used with lime for caulking boats.

176 a. 肉 JOU FLESH OF THE DOLPHIN

Qualities. Saline, stinking. It tastes like the flesh of the sea-cow. Nonpoisonous.

Uses. *Ch'eu T'sang-ch'i*, for infectious diseases, for treating the *Ku* poison, and malaria; it is eaten dried.

(1) This is identified in the Zoological Nomenclature as *Delphinus longirostris* Gray. The name is used generically for the *Delphinus* and applies to the family *Delphinidae*.

(2) Wu calls this *Prodelphinus longirostris*, Gray.

(3) Williams and Giles both translate this as the Yangtze porpoise.

(4) *Wei Wu Yi* is the well known warrior *T'sao T'sao* of the Three Kingdoms. It says it is like a too catty pig, which can rise, *fu p'ei*, and fall in the water as it desires. It is fat and inedible.

(5) It is said one fish has three to four hundred catties, from the *Yu Yang Tsa Tsa*.

(6) In the *K'ai T'ien Yi Shih* 開天遺事 there is reference to the lamp oil from this fish the *chan yü*. It is a very fat Southern fish. People prepare the oil for lamps which gives a poor light for people working on cloth, but it is very bright when used at big dinners, so it was called, *ch'au yü*.

176 b. 肪 FANG FAT OF THE DOLPHIN⁽⁷⁾⁽⁸⁾

Uses. *Ch'en T'sang-ch'i*, applied to toxic boils, scabies, eczema, piles and fistula, a parasiticide. For running eczema in dogs and horses.

177. 比目魚 PI MU YÜ FLAT FISHES (FLOUNDERS)⁽¹⁾⁽²⁾⁽³⁾.

Shih-liao Pen-t'sao: ZN. 182: Sowerby NM. 4. 169; NNB. 120: Hsu 16: S. Y. p. 320-22: Chu Index 736: Saiki p. 178: CMM 45: Fowler H K N 1934. 5. 60, 213 illus.; 1933. 4. 164: CNH p. 684:

Synonyms. 鯧 *tieh* ZN. 2421; W. 786, G. 11128; PT: 鞋底魚 *hsieh ti yü* PT; Hsu (4): 奴屨魚 *nu chiao yü* PT; ZN. 1930: Korean name *Pi moh uh* SC: Japanese *Hirame*:

Interpretation of Names. *Li Shih-chu* states that *pi* means two travelling together. Each fish has only one eye so they travel along in parallel pairs. As the *Erh Ya* says the Eastern Provinces have flat fishes, if there is not a pair they don't move, they are called *tieh* fish 鯧⁽³⁾. The *Pei Hu Lu* by *Tuan Shih* calls it *chien* 鱈. The poem *Wu Tu*⁽⁵⁾ calls it the *chieh* fish 魷. The poem *Shang Liu* calls it the *hsü* fish 鮠. The name *tieh* is because it is like the sole of a shoe. The name *chien* means paired. The name *chieh* means mutual help. The name *hsü* means side by side 胠⁽⁴⁾. The common name is "shoe sole" *hsieh ti yü*. The name in the *Liu Hai Chih* is *pei hsi yü* 婢屨魚 the maidservant's shoe fish. The

(7) Watson p. 130 lists 海猪油 which he calls *porpoise oil*.

(8) Tsujimoto has reported on the oil from the blubber of this species (Japanese name *Mairuka*). He lists three types of oil with their analyses. In addition to clupanodonic acid it contains an acid of the formula $C_{16}H_{24}O_2$. Chemical Review 1913 p. 72. Cited by Lewkowitsch vol. 2, p481.

(9) G. M. Allen in the "Mammals of China & Mongolia" (Amer. Mus. Nat. Hist., N. Y. 1938), volume 1, pp. 494-513 gives a systematic account of these small cetaceans. Of the many genera of the *Delphinidae* he says only five appear to be definitely known from China, the *Sotalia* white dolphins, *Tursiops* bottle-nosed dolphins, *Neomeris* finless porpoise, *Grampus*, and *Globicephala* blackfish. The *Neomeris phocaenoides* G. Cuvier is the common Yangtze species. The cosmopolitan species *Delphinus delphis* the common ocean dolphin and *Orcinus orca* the killer whale he says certainly occur, although he has no actual records from China.

(1) The Zoological Nomenclature says this is the *Paralichthys olivaceus* T & S. It is used generally and applies also to the family *Pleuronectidae*. From other references it may apply to the suborder *Platysoni* which includes the SOLES, as well as the plaice, dabs, flounders, halibuts and turbot.

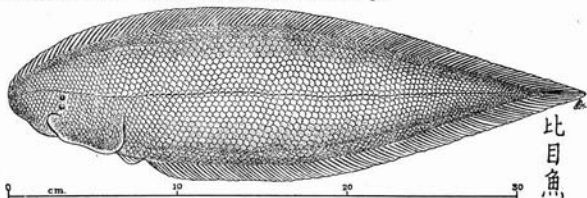
(2) The commonest flat fish on the Shanghai market is the *Cynoglossus abbreviatus* Bleeker. (Synonym *Areliscus a.* (Gray), Chu 776) listed under the name 署鰓魚 *jo l'a yü*, also known as *hsieh ti yü* the sole, 牛舌魚 *niu she yü* the cow's tongue fish, or 禿魚 *l'u yü* the hairless fish. In 1934 there were 15,464 piculs sold; the price is \$2 to \$28 a picul.

(3) The term 鯧 *tieh* the ZN. applies to the flounders *Pleuronectes*. Various species are quoted in S. Y. under this name, belonging to the *Pseudorhombus*, *Psetodes*, *Platophrys*, *Verasper* and *Pleuronichthys*. S. C. translates *pi mu yü* as flounder. Saiki lists *tieh* as *Limanda angustirostris*, Kitahara, the rusty dab, one of the flounders: Fowler 1933.

(4) This is given by Saiki under *Shitabirame*, a sole *Rhinoplagusia japonica*.

(5) Written by *Tso-ssu* 左思 in the Chin dynasty.

Lin Hai Feng Tu Chi (6) name is *nu chiao yü* 奴屨魚 the slave's sandal. The *Nan Yueh Chih* name is 版魚 *pan yü* the board fish. The *Nan Fang Yi Wu Chih* calls it 箬葉魚 *jo yeh yü* (2) the bamboo-leaf fish. These are all on account of its shape.



No. 177. *Cynoglossus abbreviatus*. Bleeker.
Shanghai, Jan. 27, 1938. 25 cents.

Explanatory Notes. *Li Shih-chen* states that according to Kuo P'u it is found everywhere where there is water (7), shaped like an ox spleen, or like the sole of a woman's shoe. It has fine scales and is blackish purple in colour. When two of them come close together they can move along, they only come together on the scaleless sides. The mouth is placed low toward the belly. *Liu Yuan-lin* thought that this was the *Wang Yü Yü* (No. 158) the silver fish, but it probably is not.

Qualities. Sweet, bland and non-poisonous. (8)

Uses. *Meng Hsien*, a tonic to the weak, benefitting the respiration and vitality (9). Eaten to excess it disturbs the anima.

178. 魷魚 SHAO YÜ CORNET FISH (1)(2)(3)(4).

Pen-t'sao Shih-yi: W. 314: G. 4308: Sowerby NM. 4. 161: Saiki p. 192:
CMM 494: Fowler, H K N 1935, 6. 73: CNH p. 632:
Korean name *Ch'o uh* SC: Japanese *Tako*:

(6) Written by *Ssu ma Hsiang ju* 司馬相如 in the Han dynasty.

(7) This fish is so abundant in the U.S.A. in 1935 nearly 1255 million flat fish and fish eggs were put out by the Government hatcheries, second only to the cod. G. C. Leach and M. C. James, Bureau of Fisheries Report No. 22, 1936.

(8) Percentage composition of flesh (Saiki):—

Protein	Fat	Ash.	P ₂ O ₅ .	Ca O.	Fe ₂ O ₃	Na Cl.
15.92	0.79	1.25	0.445	0.033	0.003	0.008

(9) The liver oils of various flat fishes have been examined and found to contain about 2000 units per gm. of vitamin A. J. A. Lovren et al, *Biochem. J.* 1933. 27. 1461. Also very rich in vitamin D. C. E. Bills, *Physiol. Reviews* 1935. 15. 1.

(1) Fowler describes and illustrates the "horse-whip fish" under the cornet fishes as *Fistularia petimba* Lacépède. He gives various synonyms and references.

(2) Williams says this is probably *Fistularia* or *Belone*. The *Severance Notes* give the identification *Octopus vulgaris*. The *Zoological Nomenclature* gives 魷 *asiao* as a synonym for the 章魚 *chang yü* *Octopus octopodis*, L. which is discussed separately in the Pen T'sao, No. 182, and from the description is certainly different, and the Chinese character is different.

(3) Saiki gives this as a polyp, *Polypus vulgaris*, Lamerck.

(4) Wu gives *Clypeaster japonicus*. Dod.

Explanatory Notes. *Ch'en T'sang-ch'i* states that it is found in the lakes and rivers, shaped like a horse whip, and the tail is divided like the top of a horse whip, hence the name.

Qualities. Sweet, bland and non-poisonous.

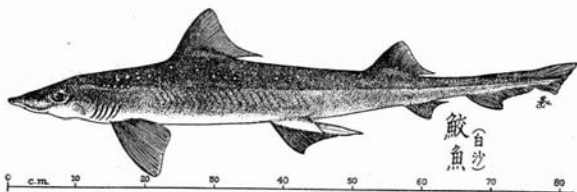
Uses. For piles and fistula, rectal hemorrhage, and blood stasis in the abdomen.

179. 鮫魚 CHIAO YÜ SHARKS ⁽¹⁾(²)(³)

T'ang Pen-t'sao: ZN. 2238: W. 93: G. 1315: Hsu Nos. 17, 18, 19, 20 & 21: Sowerby NM. 4. 135; NNB. 127: S. Y. p. 182-195: Y. T. Chu Index 1-38: SC: Saiki p. 180: Fowler 1930. I. 24: Ho Chi, LSJ 1928. 6. 179: CNH p. 431; p. 442:

Synonyms. 沙魚 *sha yü* PT. ZN: 鯊魚 *hsi yü* PT. W. 827. G. 2238: 鮫魚 *po yü* PT. W. 267. G. 3720: 溜魚 *liu yü* PT:

Korean name *Kyo uh* SC: Japanese *Same*:

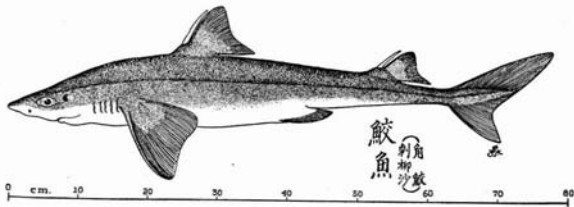


No. 179. *Calcorhinus manazo*, (Bleeker).
Shanghai, May 13, 1938. \$1.70

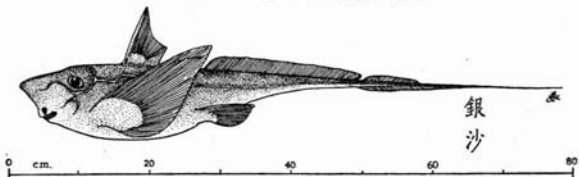
Interpretation of Names. *Li Shih-chen* states that the skin of the sharks is rough, and the markings are crisscross and piebald, hence the various names. Its ancient name is *chiao*, but now it is called *sha yü*, but they are the same thing. It is said that originally it was written 鮫 *po*, which was erroneously changed to *chiao*. *Tuan Ch'eng-shih* says that it is very strong, so it was called 河伯健兒 *ho po chien erh*, the stalwart of the yellow river god.

- (1) The Zoological Nomenclature applies this name to the sharks *Selachoides*, of which it cites many species. It says the name 沙魚 *sha yü* is erroneously written 鮫.
- (2) Hsü lists 5 species on the Shanghai Fish Market. 白鮫 *pai hsiao* the dog shark *Calcorhinus manazo* (Bleeker), 青鮫 *ch'ing hsiao* the porbeagle *Isurus glauca* (M & H), which is very plentiful, 角鮫 *chiao hsiao* the dogfish *Squalus mitsukurii* (J & S), 雙髻鯊 *shuang chi sha* the hammer-headed shark *Sphyrna zygaena* Linnaeus, and 花鰐鮫 *hua mao hsiao* the tiger shark or bullhead *Centracion zebra* (Gray).
- (3) Sowerby lists nine species of sharks in Manchurian waters. He says that there are numerous sharks, large and small, to be found in the China Seas, some occurring with considerable frequency close in to shore.

Ch'en T'sang-ch'i states that the shark has the same name as the abalone 鮑, but they are different things.



No. 179a. *Squalus mitsukurii*, (J. & S.)
Shanghai, May 20, 1938. \$1.80.



No. 179b. *Chimaera ogilbyi*, Waite.
Shanghai market, Dec. 10, 1938., 85 cents.

Explanatory Notes. *Su K'ing* states that the shark is found in the Southern Sea, shaped like a mud-turtle, without feet, with a tail. *Han Pao-sheng* states that it has a broad round body more than a foot in circumference, and a tail nearly a foot long. The back is rough.

Su S'ung states there are two kinds which are unlike the mud-turtle, both of which Southerners call the *sha yü*. The large kind with a long snout and like a saw is called 胡沙 鮫 *hu sha*. It is good natured and the flesh is good tasting. The small kind with a rough skin is called 白沙 *pai sha*, the meat is tough and slightly poisonous. The local people use them both for salting and making dried fish strips. The skin is scraped to remove the tubercles and cut up into a salad, which has an excellent flavour as a nutritious food. The skin is used to cover knife handles⁽⁵⁾. *K'ou T'sung-shih* states that the *chiao yü* and the *sha yü* are not quite the same, but the skin is alike. *Li Shih-chen* states that the old name was *chiao* and the modern name *sha*, which are one genus with numerous species. The coastal districts on

(5) Watson p. 397 states that the skins of various large fish appear in Chinese commerce, usually greyish or greyish brown, of various sizes average about 24 by 10 inches. After having been cured and stained, fish skin (then known as *shagreen*) is largely used to cover boxes, scabbards, fancy articles, &c.

the South-East all have them⁽⁶⁾. They are all like fish, with green eyes and red jaws, a spiny dorsal fin on the back, and a fin on the under side of the belly. Both of these fins have a rich flavour, and are highly prized by Southerners. The large species has a tail several feet long. It can attack and wound people. The whole skin is covered in pearl-like tubercles. The species in which the back has pearly spots like a deer, are very strong, and are called 鹿沙 *lu sha* deer pebbles, or 白沙 *pai sha* white pebbles⁽⁷⁾; it is said they can change into deer. Those in which the back is striped like a tiger, which are very tough, and strong are called 虎沙 *hu sha*⁽⁸⁾ the tiger shark, or 胡沙 *hu sha* the foreign shark; it is said to have changed into this from a porcupine fish 魚虎 *yü hu* No. 185. The kind with a bony snout like an ax which can hack things to pieces and destroy boats is called the 鋸沙 *chü sha* the saw shark⁽⁹⁾, or the 挺額魚 *t'ing ô yü*. There is also one called 鱸魚 *fan t'so* which has a snout like a broad ax⁽⁸⁾. The *Nau Yueh Chih* by *Shen Huai-yuan* says that the 環雷魚 *luan lei yü* is the 鰩魚 *t'so yü*, a shark. It is nearly ten feet long, on the under side of the belly it has two cavities in which it keeps fluid for nourishing its young, for which it has room for three or four. They come out of the orifice in the morning and return to the pouch at night⁽⁹⁾. The scaly skin has tubercles, which is used for decorating knives and daggers, and for polishing bones and horns.

Ch'en T'sang-ch'i states that this group of fish has many varying shapes, all of which have pimply skins used for polishing wood, in the same way as the horsetail (plant). The young follow the mother, and when frightened they enter the mother's belly through an orifice.

179 a. 肉 JOU FLESH OF THE SHARK⁽¹⁰⁾(¹¹)(¹²).

Qualities. Sweet, bland and nonpoisonous.

(6) This is the tiger shark *Centracion zebra* (Gray), Hsü No. 21. Gray, Zool. Miscellany, 1831. 1. 5. Garman, Mem. Mus. Comp. Zool. 1913. 36. 181. Fowler, Hongkong Naturalist 1930. 1. 29, syn. *Heterodontus zebra* (Gray). Fowler also gives under *Laou hoo sha Aletomycterus marmoratus*, (Bennett); he lists numerous other species with descriptions and illustrations of sharks from South-East China.

(4) This is the dog shark *Calorhinus manazo* Bleeker, Hsu No. 17.

(7) This statement is probably taken from the description of sea trade in the *P'ing-chou-K'o-l'an*, 12th century, which states "There are saw-fish 鋸鯊 hundreds of feet long, with snouts like saws, and when they strike a ship they cleave it asunder as though it were a piece of rotten wood". The saw-shark *Pristiophorus japonicus*, Gunther of the China Seas is described and illustrated by Fowler, Hongkong Naturalist 1930. 1. 129.

(8) This is probably the hammer-head, *Sphyrna* sp. of which Fowler describes three species, Hongkong Naturalist 1930. 1. 85.

(9) Not all fishes are oviparous. The shark is viviparous which may account for this statement.

(10) Our analysis of the dogfish flesh gave the following percentage composition:—

Protein	Fat.	Cbhyd.	Ash.	Ca.	P.	Fe.	K.
21.29	0.66	0	0.96	0.037	0.151	0.002	0.174

(11) The body fat of the shark is rich in Vitamin A, 426700 units per 100 gms. N. K. De, Indian J. Med. Res. 1935. 22. 509. The livers of the sharks and dogfish are moderately rich in vitamin D, C. E. Bills, Phys. Reviews 1935. 15. 1; J. Nutrition 1937. 13. 43.

(12) In India the hammer-headed shark is valued for its flesh, the oil from the liver, the gelatinous fins and the skin used in the manufacture of shagreen. Watt p. 397.

Uses. *Meng Hsien*, as a salad it is given as a tonic for the five viscera. Its action is inferior to the golden carp. It can be made into a dried product. *Su Sung*, it is very nutritious.

179 b. 皮 *P'I SHARK'S SKIN*⁽⁵⁾(13) CNH p. 183.

Qualities. Sweet, bland, saline and non-poisonous.

Uses. *Pieh lu*, for cardiac weakness, hematemesis, the "ku" poison, and infectious disease (12). *Su Kuang*, anthelmintic, for internal weakness, antidote to *ku* poison, and to infections. *Ch'en T'sang-ch'i*, the ash is given with water as an antidote for fish poisoning. *Li Shih-chen*, the powdered ash is given in water as an antidote to puffer fish poisoning; a cure for indigestion following a meal of fish hash.

179 c. 膽 *TAN SHARK BILE*.

Collected in the last lunar month of the year (January).

Uses. *Meng Hsien*; made into pills with burnt alum and wrapped in cotton and held in the throat for swollen sore throat; after spitting out the bad secretions the patient is better.

180. 烏賊魚 *WU TSEI YÜ CUTTLE FISH (INK FISH)*⁽¹⁾(2)(3)(4).

Pen Ching, Middle Class: ZN. 1032: W. 821: G. 11658: Hsu No. 94: SC: Watson 386: Porter-Smith p. 81: Sowerby NM. 5. 39: NNB. p. 144: Saiki p. 192: CMM 233: London Pharmacopoeia A.D. 1677: EBL. No. 65: SC: Coulting p. 137: Pharmacopoeia Homoeopathica:

Synonyms. 烏鯢 *wu tse* PT. W. 821. G. 11658: *mo yü* PT. Hsu: 纓魚 *lan yü* PT. Hsu: Northern name 繸魚 *miu yü* Hsu: Salted and dried it is called 齏 *hsiang* PT.(5): Korean name *Oh chuk uh*, SC: Ger. *Tintenfisch*: Japanese *Ika*: The bones 海螺蛸 *hai p'iao hsiao* PT. W. 644 G. 9130.

(5) See Footnote Page 87

(13) See Footnote Page 88

(12) 鬼症 *Kuei chü* in old terminology is demon possession. It is a kind of feverish cold highly infectious from the following ten sources:—air, overexhaustion, cold, food, old corpses, water, earth, living people and dead people. An evil miasma from these sources may enter the human body and cause illness &c. This corresponds in many ways to current ideas about infectious disease.

(1) The black pirate fish *wu tsei yü* is given in the Zoological Nomenclature as *Sepia esculenta* Hoyle. The name also applies generically to the *Sepia* and to the group *Sepioidae*.

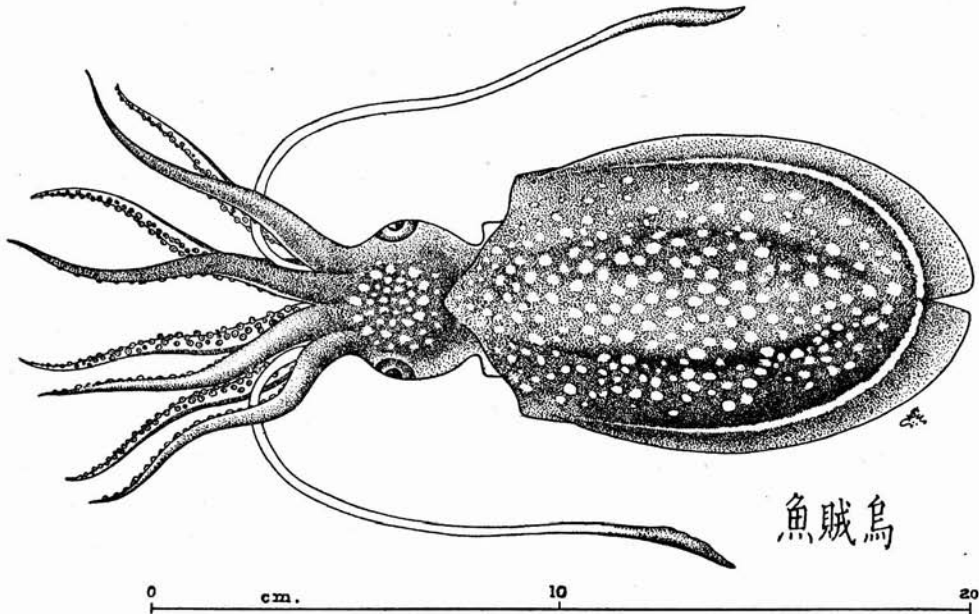
(2) Hsu identifies the Shanghai species as *Sepiella japonica* Sasaki. He says there are sold annually about 70,000 piculs at \$4 to \$25 a picul.

(3) Sowerby lists five species of cuttle taken on the "Challenger" expedition.

(4) Watson says, "Great quantities are obtained from the China Sea constituting a very important industry at many of the southern ports, particularly at Ningpo, caught in the waters of the Chusan Archipelago; the fish exported from Pakhoi come chiefly from the Tonkin Gulf. Catching and drying season from the third to the sixth moon.

(5) Hsu says the Shanghai name is 鹹蜆齏 *ming fu hsiang*, of which 30,000 to 40,000 piculs are prepared annually and sold for about \$20 a picul. The brine pickled and dried material is called 墨菜 *mo tsao* ink dates, which is not considered as good as the salted fish.

Interpretation of Names. *Su Sung* states that *T'ao Yin-chu* says this is metamorphosed from the fish-hawk from which it has retained the beak and belly which it greatly resembles. There is ink in the belly which can be used, hence the name *wu tse*. It can suck in the waves and shoot out ink and darken the water so as to protect itself from attack by man.



魚賊烏

No. 180a. *Sepia esculenta*, Hoyle.
Shanghai, March 3, 1938. 4 cents.

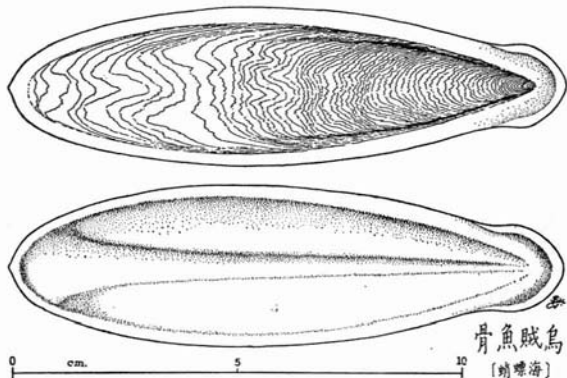
The *Nan Yuch Chih* says that it likes to eat blackbirds. When it floats on the surface of the water the flying birds think it is dead and dive for it. It then encircles the bird and pulls it into the water and eats it, hence the name "black pirate" *wu tsei*. It is commonly regarded as a dangerous pirate for crows.

Li Shih-chen states that according to the *Erh Ya Yi* by *Lo Yuan* in the ninth moon the winter species of blackbird enters the water and changes into this fish. It has writer's ink which can be used for rules of conduct 則 *tse*, hence the name *wu tse*. The bones are called *p'iao hsiao*, the chrysalis, because it is similar in shape. The *Ta Ming* states that it has two barbels which when the wind and waves rise it drops like an anchor and attaches to the rocks below, like a drag-rope 纜 *lan*, hence the name *lan yü*. *Wu Jui* states that the dried and salted fish is called *ming hsiang* 明養, the plain dried material is called *p'u hsiang* 脯養.

Explanatory Notes. The *Pieh Lu* states that the cuttle fish is found in the lakes and marshes of the Eastern Seas, and is collected at any time. *Su Sung* states that all the seaside districts have it (6). It is shaped like a leather bag. The mouth is on the under side. It

(6) The total annual catch off Kiangsu is estimated at \$500,000. They come from *Hsia Chih* in the latter part of June, and from *Chu Shu* toward the end of August. They are salted or dried and sold at \$18 to \$40 a picul. In Chekiang there is a total catch of 4 to 5 million dollars. The Taichow group of 440 boats use bamboo pots and the Ningpo group use nets. BFT. 1933 p. 249; 1935 p. 363.

has eight feet which grow together on the side of the mouth. The back has just one bone three to four tenths of an inch thick, shaped like a small boat, light in weight and not strong, it is white. It has two barbels like very long straps. The blood and bile in the abdomen are as black as ink, which can be used for writing purposes, but after one year it disappears



No. 180 b. Cuttle-fish bones.
Shanghai drug store.

and leaves behind an empty record. It is said that the cuttle has ink in its bosom and so understands decorum, so it is commonly called the sea-god's clerk. *Li Shih-chen* states that the cuttle fish has no scales, it has barbels, a black skin and white flesh; the large kind are like reed fans. It is very rich and tasty when well fried and eaten with ginger and vinegar. The bones from the back are called *hai p'iao hsiao* which are shaped like old playing cards but longer with two pointed ends, white in colour and as brittle as rice-paper. It is layered and veined. It can be scraped to a powder by the finger-nail. People carve it into ornaments. The *Hsiang Kan Chih* says the cuttle fish after May 21 (the time of the swelling of grain) is small in size.

Ch'en T'sang-ch'i states that fishermen say *Ch'iu Shih Huang Ti* when travelling in the East threw his writing kit into the sea and it changed into this fish, so its shape is like a writing-kit and the ink is still in its stomach. *Chang Yu-hsi* states that *T'ao Hung-ching*, the *Shu Pen T'sao* and the *T'u Ching Pen-t'sao* all say that this is metamorphosed from the fabulous fish-hawk *fu niao*, which is a water bird like the fish hawk with a short neck, purplish white belly and wings, and a green back.

Su Kwong in the T'ang dynasty said there was no such bird, and he was wrong.

180 a. 肉 JOU CUTTLE FISH MEAT (7)

Qualities. Acid, bland and non-poisonous.

Wu Ju states that the taste is excellent (8) but it disturbs the body humors.

Uses. *Pieh-hu*, a nerve stimulant and a tonic to the constitution. *Ta Ming*, a tonic, for amenorrhoea.

180 b. 骨 KU CUTTLE FISH BONES(9) Watson 386: Hooper(10): Kubota 99: Nadkarni(11): Porter-Smith p. 81: Tschirch 1932. 2. 836:

Synonym. 海螵蛸 hai p'iao hsiao.

CORRECT PROCEDURES. *Tao Hwong-ching* states that they should be toasted to a yellow colour. *Lei Hsiao* states that shark's bones should never be used though they are very similar in shape. The genuine article has longitudinal markings, the spurious material is marked transversely. To prepare the material, it should be boiled with a decoction of 血滴(12) and then filtered off; it is then placed overnight in a red-hot pit. This treatment improves its efficacy several fold.

(7) The following analyses of the meat are published:

	Protein	Fat	Cbhyd.	Ash	Ca	P.	Fe	K
Hsu	18.83	1.28	—	6.73	—	—	—	—
Read	18.00	1.76	0.25	1.16	0.048	0.198	0.001	0.273
Saiki	15.90	1.44	—	1.22	0.029	0.183	0.005	—

- (8) Aristophanes mentions the fact that cooked cuttle-fish were eaten as dainties in old Athens; *Ecclesiastusae*, 126, 554.
- (9) It has been used in European medicine for many centuries. It is given in the Augsburg Pharmacopoeia A. D. 1564. *Cuttle fish bone* is listed in the British Pharmaceutical Codex p. 756 under OS SEPIAE. It is described as occurring in ovate flattened pieces having two convex surfaces, from 10 to 25 cms. long, 4 to 8 cms. broad, and a maximum thickness of 15 to 35 mms. It contains 80 to 85 percent calcium carbonate, small quantities of sodium chloride and calcium phosphate, and 10 to 15 percent of organic matter, with not more than 0.6 percent of acid insoluble ash. Some authorities mention the presence of magnesium. It is used as an ingredient of tooth powders. B. P. C. 1934. A homeopathic remedy SEPIA is prepared from the fluid in the ink gland of the cuttle fish by drying the secretion, dissolving it in caustic soda and reprecipitating by the addition of acid. This material is also used as a water-colour. U. S. D. 22nd. edition, p. 1349. The powdered material is called POUNCE, Porter-Smith p. 178.
- (10) Kaf-i-darya, "foam of the waters" (Arab); Samudraphena (Sans.); Cuttle fish bone is used as polishing material, and reduced to powder is employed in medicine as an antacid. It is often brought by returning pilgrims from Mecca, and hence is looked upon as a very important medicine. The Indian cuttle fish bone has the following composition:—calcium carbonate 87.66, calcium sulphate 0.76, organic matter and water 9.3, iron oxide and alumina 0.46, magnesia and alkalis 1.7, silica 0.1, and phosphoric anhydride 0.62, in 100 parts. From D. Hooper, *Field Mus. Nat. Hist. Botan. Series 1937. 9. No. 3. 196*. in "Useful drugs of Iran and Iraz".
- (11) In Ayurvedic medicine it is used for otorrhoea, earache, and conjunctivitis. Persian name *Zuddul-baher kajdarya*, Hind. *Darya-Ka-Kaf*. K. M. Nadkarni, *Indian Mat. Med. q. v.*
- (12) Unidentified. The name suggests either impure red sal ammoniac or haematite.

Qualities. Saline, slightly warming and nonpoisonous. *Wu Pu* states it is cooling. *Chen Ch'uan* states it is slightly poisonous. *Hsü Chih-t'sai* states that it is incompatible with the Bletia orchid, *Vitis serjanifolia* and secondary aconite roots. It reduces the saline taste of salt, lessens the action of sal ammoniac, and shortens the action of silver.

Uses. *Pen Ching*, for leucorrhoea, amenorrhoea, swollen and painful ulcers of the vagina, obstruction of the bowels due to a feverish cold, for lack of fertility⁽¹³⁾(14). *Pieh Lu*, for umbilical pain following fright, for painful swollen penis, to promote fertility, for suppurating ulcers. *Iih Hua*, for menorrhagia, anthelmintic. *Ch'en T'sang-ck'i*, ashed and powdered it is given to women for retained blood-clots, for dysentery both in adults and children, a vermicide. Thrown into a well it will kill all the parasites present.

Meng Hsien, for inflamed watery eyes, and all kinds of filmy growths over the eye, it is powdered and applied with honey⁽¹¹⁾(15). Given for a long time it increases the semen⁽¹⁷⁾.

Su Kwng says that it is also good for treating filmy growths on the eyes of horses and cows.

Li Shih-chen, for anemia in women, for the liver, for hematemesis and bloody stools. For malaria. To reduce glandular neck swellings. The powdered material is applied to ulcers on children, evil smelling broken smallpox sores, male chancre; it is applied to burns and scalds, to bleeding wounds following a fall. Heated to redness (not ashed, it retains its shape) it is given with wine to newly married women for painful vagina. It is applied with egg-yolk to swollen tongue in children, and sores on the lips. It is applied with powdered cat-tail rhizome to a swollen tongue which is bleeding excessively (arterial). It is used as an insufflation with flowers of the Chinese yellow-berry tree for epistaxis. As an insufflation with vermilion into the nose for swollen throat. It is blown into the nose with alum to relieve the pain of a scorpion bite. It is blown into the ears with musk for deafness and for ears running pus⁽¹¹⁾.

Explanations. *Li Shih-chen* states that the cuttle fish bone is a blood medicine acting on the pericardium and liver. It acts through the blood with a saline taste and hence is

(13) There was an old Greek practice called the "Amphidromia Rite" referred to by Plato and Aristophanes, when the naked father on the tenth day after the birth of a child runs round and round it, and the child is presented with octopuses and cuttle-fish. Sir James Frazer in the "Golden Bough". London 1911, Vol. 1. p. 156, suggests that, "the numerous arms, legs and tentacles of these creatures seem well calculated to strengthen the grip of a baby's hands and to impart the power of toddling to its little toes." But as pointed out by W. R. Dawson in "The Bridle of Pegasus," London 1930 p. 9, these cephalopods were more likely to have had a religious or magical significance. They were emblems of the goddess Aphrodite and hence are regarded as givers of life, health and good luck. See G. Elliot Smith in "The Evolution of the Dragon" Manchester, 1919 p. 165. This old folklore closely resembles the Chinese use of the cuttle-fish as an aphrodisiac and for various women's complaints.

(14) At Patna (India) a concretion from the head of the *Sung-sir-mahi* is said to be powerfully aphrodisiac. Watt p. 368.

(11) See Footnote Page 92

(15) Dioscorides and Galen both used cuttlefish bones as an eye remedy. Ebn Baithor said it was good for the eyes, ashed and mixed with honey; also for gonorrhoea, swollen gums, asthmatic cough, bladder-stone and as a diuretic. A common ingredient in tooth-powders.

used for anemia, retained blot clots, amenorrhoea, menorrhagia, leucorrhoea, dysentery, and the "Kau" disease, which are primary diseases of the cardiac and portal circulations. Malaria, deafness, glandular swelling of the neck, pain in the lower abdomen and painful genitalia are all secondary effects of fundamental defects. Lachrymation and filmy growths on the eyes are vascular diseases arising in the heart and liver. The *Chueh Yin* circulation relates to the liver, the liver controls the blood, hence all blood diseases can be treated with this drug. According to the *Su Wen*, a feeling of overfulness in the chest makes one unable to eat. When an attack of illness arises, there is a bad odour to the breath, and excessive salivation, and there is a preliminary period of hematemesis, the extremities are pale, and dizziness with irregular menstruation. This sickness is called 血枯 *hsueh k'ü*, anemia. It is caused by excessive menstruation when young, or by coitus when in a drunken state, the vitality is entirely lost and the liver damaged which causes a cessation in the menstrual flow. To cure it one uses four cuttle fish bones with one powdered madder root made with sparrows' eggs into pills of the size of small beans. Five pills to a dose. The juice from the abalone is also given. This loosens the bowels and cures the liver. This statement leaves no doubt about this drug acting through the *chueh yin* circulation (16).

CORRECTIONS. *Chang Ting* states that taken constantly it makes one childless, and without posterity. *Li Shih-chen* states that according to the original Classic of Shen Nung it can cure constipation and lack of fertility. The *Pieh Lu* says that it will produce children. *Meng Hsien* also says that taken constantly it benefits the semen. So this statement of *Chang Ting's* which is just the opposite is wrong. If *Chang Ting* had said that people with blood diseases should not take the saline cuttle fish in excess because it is good for amenorrhoea, it would explain his statement. However there are two kinds of amenorrhoea, due to excessive blood and a deficiency of blood respectively. In the former the flow of blood is obstructed, in the latter there is injury to the liver. The kind which is treated with cuttle-fish is that with liver injury, the "blood-deficiency amenorrhoea" which corresponds to the statement in the *Su Wen*. How can it possibly prevent one from having children. The *Pen Ching* and *Pieh Lu* give the correct version. This correction is made lest people pass on this mistake generation by generation.

VARIOUS PRESCRIPTIONS are given for night-blindness, hematuria, and various affections of the eye, ear and nose (11).

180. c. 血 HSUEH. CUTTLE-FISH BLOOD.

Uses. *Chen Ch'uan*; for deafness.

180. d. 腹中墨 FUCHUNG MO. CUTTLE-FISH INK Watson 386: FPS 201:(17)

Uses. *Ch'eu T'sang-ch'i*, rubbed down with vinegar it is given for cardiac pain(18)

180 e. The *Pen-t'sao Shih-yi* lists the EGGS.

(16) See Note 8 on ancient terms for the circulation under No. 136.

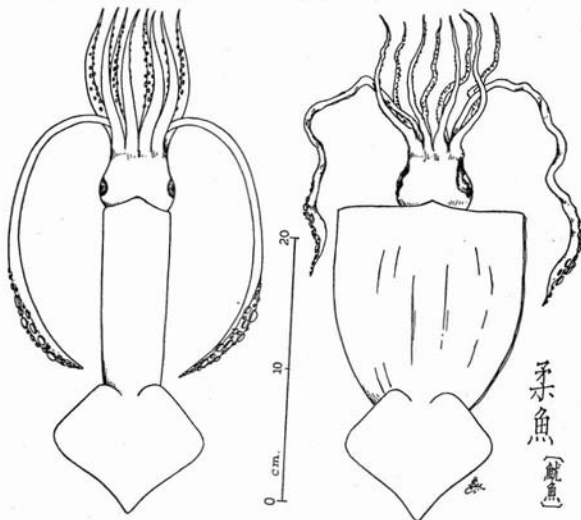
(11) See Footnote page 92.

(17) This in chemical constitution is a melanin, on alkaline hydrolysis it yields an amino acid and a melanin richer in carbon but poorer in nitrogen. See Piettre, *Compt. Rend.* 1912. 253.

(18) E. P. Landis says it is also used in Korean medicine for hemorrhage from punctured wounds. *Korean Repository* 1898, Dec.

181. 柔魚 *JOU YÜ* CALAMARY⁽¹⁾⁽²⁾.

ZN. 1033: Hsu No. 96: Watson 386: Saiki 192:

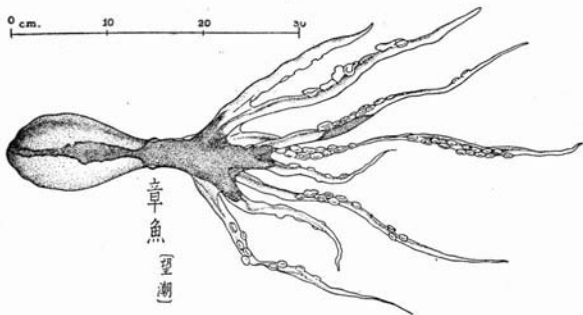
Synonyms. 魷魚 *yu yü* ZN. Hsu: 番腸 *fan yi* ZN:*Su Song* states there is a fish called the *jou yü* like the cuttle fish without any bones, which is highly prized by the Cantonese⁽³⁾.⁽⁴⁾No. 181. *Ommastrephus pacificus*, Appelof.
Shanghai market.

- (1) This is given in the Zoological Nomenclature as the Sagittated calamary, *Ommastrephus pacificus*, Appelof. The same identification is given by Hsu. It is the generic name for the *Ommastrephus*, and is applied to the family *Ommastrephidae*, the squids.
- (2) Hsu reports 2000 catties sold on the Shanghai Fish Markets in 1933 at \$2.20 to \$4 a catty.
- (3) The dried fish has the following percentage composition :-
- | | Protein | Fat | Cbhyd. | Ash | Ca | P | Fe | K |
|-----------------|---------|------|--------|------|-------|-------|-------|-------|
| Shanghai | 61.3 | 3.22 | 9.25 | 6.92 | 0.042 | 0.682 | 0.005 | 0.141 |
| Japan
(Grey) | 61.0 | 5.50 | — | 7.42 | — | 0.140 | 0.802 | — |
- (4) Our analysis of the fresh fish shows 7.48 protein, 0.27 fat, and 0.06 percent of calcium.

182. 章魚 *CHANG YÜ* **OCTOPUS**⁽¹⁾⁽²⁾⁽³⁾⁽⁴⁾.

Pen-t'sao Kang-mu: ZN. 1277: W. 24: G. 390: Hsu No. 95: Sowerby NM. 5. 40; NNB. 143: Saiki p. 192: Watson 386: CMM 296:

Synonyms. 章舉 *chang chü* PT: 鷺魚 *chi yü* PT: 鯨 *chang* ZN. 1277: 望潮 *wang ch'ao* Hsu. ZN. 1279⁽²⁾: Large species 石距 *shih chu* PT. Hsu: 鮑 *hsiao* ZN. 1277: Hsu: Korean name *Chang uh* SC: Japanese *Tako*:



No. 182. *Octopus ocellatus*, Gray.

Shanghai fish market. Nov. 2, 1938., 10 cents.

Explanatory Notes. *Su Song* states that the *chang yü* and the *shih chü* are two species of fish similar to the cuttle fish but larger. A greatly valued excellent food, not used as a medicine. *Li Shih-chen* states that the octopus is found in the South Sea. It is shaped like a cuttle fish but larger. It is an octopod with a fleshy body. Fukienese and Cantonese like to eat the fresh fish with ginger and vinegar. It tastes like the jellyfish. *Han T'ü-chih* refers to this fish in his poem, "The octopus and the window-shell are rivals in their bizarre character." The *shih chü* is an Octopus, with a small body and long tentacles. Salted and roasted it has an excellent taste.

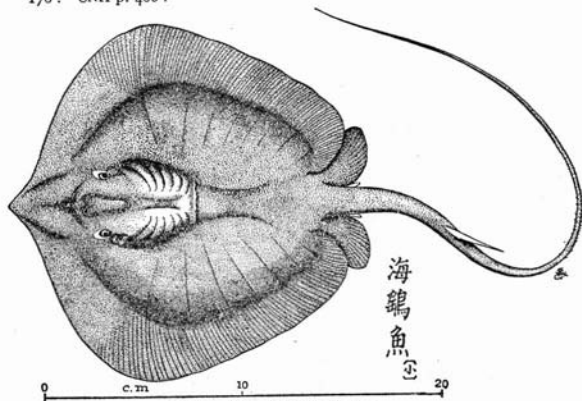
- (1) This name is applied in the Zoological Nomenclature to the devil-fish *Octopus octopodia*, L.; also generically to the *Octopus* and to the family *Octopidae* and the order *Octopoda* or Devil fish.
- (2) The common octopus on the Shanghai market is the *Octopus ocellatus* Gray, this is given under the name *wang chao* in ZN. and has the synonym 飯鮑 *fan hsiao* the rice-grain octopus. There is also a larger species *C. macropus* Risso, the 石距 *shih chü* ZN. 1279, seen in Shanghai; also recorded from Japan by the Challenger expedition, see Sowerby who also cites *O. punctatus* Gabb a large species recorded from Hongkong.
- (3) Hsu reports 25 piculs on the local market in 1934 at \$21 to \$22 a picul. A very fine flavoured dish.
- (4) Saiki gives this as the POULP, *Polyopus vulgaris*, Lamarck; Wu gives the same identification as ZN.

Qualities. Sweet, saline, cooling and non-poisonous⁽⁵⁾. *Li Shih-chen* states that according to *Li Chiu-lua* the octopus is very cooling but it does not cause diarrhoea.

Uses. *Li Shih-chen*, a blood tonic⁽⁶⁾, and a stimulant to the pnuma.

183. 海鰩魚 HAI YAO YÜ STING-RAY⁽¹⁾(2)(3)(4).

Pen-t'sao Shih-yi: ZN. 1021. 1878: W. 910: G. 12926: Hsu 8 to 16: Y. T. Chu Index Nos. 46-76: Sowerby NM. 4. 141; NNB. 127: S. Y. 197: Saiki 176: CNH p. 460:



No. 183. *Dasyatis akajei*, M. & H.
Shanghai, June 8, 1938. 50 cents.

(5) Percentage composition of the edible part:—

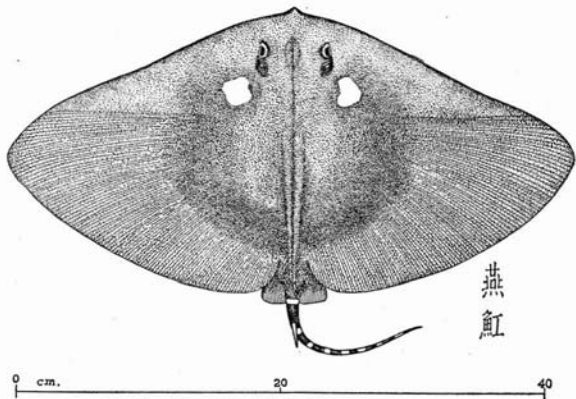
Protein	Fat.	Ash.	P2 O5	Ca O.	Fe2 O3.	Na Cl.
17.7	0.97	1.58	0.48	0.053	0.004	4.525

E. C. Grey, *The Food of Japan*, League of Nations pubn. 1928, III. 2.

- (6) Elliott-Smith in the "Evolution of the Dragon" discusses the association of the octopus with aphrodite and the cowry, interpreted in old cults as the "Great Mother," hence its use for increasing fertility. He quotes Timpel as having established the same association for cuttle fish (No. 180) in their uses for blood diseases.
- (1) This name is given in the Zoological Nomenclature for the sub-order *Batoidei*, Akaje's Sting-Ray *Dasyatis akajei* M & H. is known as 黃鰩魚 *huang tiao yü* or the 赤鰩 *ch'ih fen*. Numerous other species of skates, rays, eagle-rays and devil-rays are listed under Chinese names not quoted in the Pen T'sao, but it seems likely from the description and size that this includes the Japanese sea-devil *Mobula japonica* M & H, ZN. 1882, Hsu No. 16; *Dasyatis zugei* M & H, ZN. 1879, Hsu No. 15; *Aetobatus tobijei* (Bleeker) (*Myliobatis* l.) Bleeker's eagle-ray, ZN. 1881, Hsu No. 14; the swallow-ray *Pteroplatea japonica* Schlegel, Hsu No. 10, Chu 69; the guitarfish *Rhinobatus schlegelii* M & H, Chu 42, Hsu No. 9, ZN. 1882; and species of skate *Raja* ZN. 1879, Hsu No. 11, Chu 46:
- (2) These are all described by Sowerby who says that the *Raja meedervorrtii* and *R. Kenojei* are two of the commonest species of rays of the China coast.
- (3) The Severance Notes give this as *Myliobatis carnuta*.
- (4) Various species of ray from South East China are described and illustrated by H. W. Fowler, *Hong-kong Naturalist*, 1930. 1. 136.

Synonyms. 邵陽魚 *shao yang yü* PT: 荷魚 *ho yü* PT: 鰐魚 *f'en yü* PT. W. 256. G. 3547: 鱧魮魚 *p'u pi yü* PT. W. 668. G. 9495: 善鱗魚 *fan t'a yü* PT: 石蟻 *shih li* PT: Korean name *Hai yoe uh* SC: Japanese *Akaei*:

Interpretation of Names. *Li Shih-chen* states that the "sea-hawk fish" is similar in shape to the hawk. The names *Shao-yang* and *ho*, the lotus, refer to the shape and colour. For the other names he has no explanation.



No. 183a. *Pteroplatea japonica* (Schlegel)
Shanghai, market. Oct. 24, 1938., 45 cents.

Explanatory Notes. *Chen T'sang-ch'i* states that the sting ray is found in the Eastern Sea. It is shaped like a hawk with fleshy wings with which it can fly up on to the rocks. Its teeth are like flat stones. The tail is exceedingly poisonous, when it meets other things it uses its tail to strike and then eats them. If the tail strikes a man deeply it is fatal in its effect. It waits for people at the place where they urinate and sting them on the penis causing it to swell, which recovers when the sting is extracted. Fishermen when poisoned by the sting-ray use the bamboo from fish-baskets and sea-otter skin as an antidote. There are two other species of fish called the 鼠尾魚 *shu wei yü* and the 地青魚 *ti ch'ing-yü* both found in the South Seas which have fleshy wings and a stinging tail; when eaten the stings should be removed.

Li Shih-chen states that they are very plentiful in the Sea, and there are times when they are found in the Yangtse and lakes. They are shaped like a plate or a lotus leaf. The large kind are seven to eight feet in circumference, without feet or scales. They are dark green on the back, and white on the belly. The mouth is on the underside with the eyes on

the forehead. The tail is jointed, and can sting people with a strong poison. The colour of the skin and the taste of the flesh are like the sheatfish. They are full of soft crisp edible bones, closely matted and jointed. Kiangsu people dry them. The *Shih Chih* by *Wei Wu-ti* says that the *fan fa yü* is a large fish like a dust pan, with a long tail several feet long. The *Ling Piao Lu Yi* says the 鱸子魚 *chi teu yü* has a snout shaped like a hawk's; it has fleshy wings, no scales, color like a sheatfish, a tail narrow and long, when there is a rough sea it follows the wind and flies on the surface of the water. This is a kind of rayfish.

183 a. 肉 JOU FLESH OF THE STING-RAY⁽⁵⁾(6)⁽⁷⁾(8).

Qualities. Sweet, saline, bland and nonpoisonous.

Li Shih-chen states it is slightly poisonous.

Uses. *Tao Hung-ching*, it is not nutritious.

Ming Yuan, for gonorrhoea, and painful urination.

183 b. 齒 CHIH TEETH OF THE STING-RAY

Quality. Nonpoisonous.

Uses. *Ch'en T sang-ch'i*, for malaria, 2 drachms of the ashed and powdered material is given with wine.

183 c. 尾 WEI TAIL OF THE STING-RAY

Quality. Poisonous.

Use. *Tao Hung-ching*, for toothache.

184. 文鱈魚 WEN YAO YÜ FLYING FISH⁽¹⁾(2)⁽³⁾.

Pen-t'sao Shih-yi: ZN. 175: W. 908: G. 12925: S. Y. 257: Sowerby NM. 4. 159; Y. T. Chu Index 695-707: SC: Saiki p. 182: CMM 46: Fowler, H K N 1932. 3. 271: CNH p. 615:

(5) Kenoje's Skate is listed by Hsü, who gives the following percentage analysis of the meat:— Water 77.23, protein 21.45, fat 0.26, ash 1.23. On the Shanghai market nearly 20,000 piculs of skate were sold in 1934 at \$0.50 to \$1 to a picul.

(6) Akaje's sting-ray has a high content of vitamin A and D in the oil from the liver; T. H. Wang & C. H. Kan. J. Chinese Chem. Soc. 1936. 4. 393.

(7) Saiki gives the following percentage composition of Akaje's sting-ray:

Protein	Fat.	Ash.	P ₂ O ₅	Ca O.	Fe ₂ O ₃	NaCl.
21.8	0.98	2.29	1.245	0.400	0.006	0.220.

(8) In India the rays and skates are eaten fresh or salted, and they are valued for their liver oil, fins and skins. Watt. p. 393.

(1) This name in the Zoological Nomenclature is applied specifically to the long-finned flying fish *Cypselurus agoo* Schleg. It is used generically for the *Cypselurus* and for the family *Exocoetidae*.

(2) Sowerby also describes *C. hirundo* (Stein) ZN. 175 the swallow flying-fish, originally found in Hong-kong and later recorded from Japan, Korea and the Pe-chi-li Gulf; and the doppelwinged flying-fish *C. pauciloferus* C & V. ZN. 174.

(3) Fowler also describes and illustrates *C. exiliens* (Müller), *C. rondeletii* (Valenciennes), *C. monacirrhus* (Richardson), *C. simus* (Valenciennes), *C. bahiensis* (Ranzani), *C. articeps* (Günther), and *C. cirriger* (Peters) all from the China Seas.

Synonyms. 飛魚 *fei yü* PT: Korean name *Moon yo uh* SC: Japanese *Tobiuo*:

Explanatory Notes. *Ch'en T'sang-ch'i* states that it is found at Hainan. The large ones are over a foot long. It has wings and a tail. They fly in shoals over the sea. The fishermen watch for them as a sign of a coming typhoon. *Wu Tu-fu* says, the fish fly at night and catch in the fishnets; this refers to the flying fish. *Li Shih-chun* states that according to the *Hsi Shau Ching* in the *Kuan Shui* (Shensi) river flowing west to *Liu Sha* (Kansu) there are many flying-fish, shaped like a carp, with birdlike wings and fishlike body, striped brown, a white head with a red snout. It always flies at night from the Ch'inghai in the West to the China Sea in the East⁽⁴⁾. It has a cry like a pheasant. It tastes acid and sweet. It is eaten to control madness. When people see it they say they will have good crops. The *Liu Yi-chi* says the body of the flying fish is round. The large ones are over 100 feet long with wings like a horned cicada. They go about in shoals flying in and out of the water in shady places. When they sink they go to the bottom of the ocean. The *Yi T'ing Chih* also states the *Lao Shui* river at Huhsien in Shensi has flying fish shaped like golden carp, they are eaten to cure piles.

184 a. 肉 JOU FLESH OF THE FLYING FISH⁽⁵⁾.

Qualities. Sweet, acid and non-poisonous.

Uses. *Ch'en T'sang-ch'i*, a drachm of the ashed and powdered material is given for difficult labour. Carrying on the body in the month approaching birth it gives easy delivery. *Li Shih-chun*, it cures madness, and piles.

185. 魚虎 YÜ HU⁽¹⁾ PORCUPINE FISH⁽²⁾⁽³⁾⁽⁴⁾.

Pen-t'sao Shih-yi: ZN. 1359: Y. T. Chu Index 1486: Sowerby NNB. 126: T.H. Cheng LSJ. 1937. 16. 422: CNH p. 726:

- (4) The mountainous areas of the Chinghai are so far away that this is obviously just a fable, recalling the kind of statement seen in "Ancient accounts of India and China by two Mohammedan Travelers" in the 9th century, translated by E. Renaudot, London 1732, which in the commentary p. 18 reads, "Flying fish. It is called *hoangcioqu* according to Father Martini, who says it is a yellow fish, or rather a bird; for in Summer time it flies upon the mountains; and, Autumn over, plunges into the sea again, and becomes a very excellent fish. He speaks of another sort of animal in the sea of Canton, which has a head of a bird, and the tail of a fish."

- (5) Percentage composition (Saiki):—

Protein	Fat.	Ash.	P ₂ O ₅	Ca. O.	Fe ₂ O ₃	Na Cl.
20.30	0.33	1.27	0.691	0.100	0.010	0.220

- (1) This name is also applied to the kingfisher bird, No. 266.
 (2) The Zoological Nomenclature identifies this as *Diodon holocanthus*, L. the porcupine fish, closely allied to the puffers (No. 175).
 (3) Y. T. Chu lists this species with the synonyms:—
Diodon maculatus, Bleeker 1872 and *Paradiodon maculatus*, Blkr. It is given by Gunther in his Catalogue of Fishes 1870. 8. 308. Chu also gives *Diodon hystrix*, L. reported from China by Bleeker in 1872.
 (4) Sowerby says the porcupine fish have spines all over the body, and when the fish is blown out like the puffers, these spines stick out and form a serious obstacle to any larger fish that might prey upon it. In the puffer, the spines though present are very small.

Synonyms. 土奴魚 *t'u nu yü* PT : 針鮓 *chen t'ui* ZN. 1359 : 針千木 *chen ch'ien pen* ZN. 1359 :

Explanatory Notes. *Ch'en T'sang-ch'i* states that it is found in the South Sea. A fish with a head like a tiger, the skin on the back is like a hedgehog, with spines which stick into people like a snakebite. There also are those which can metamorphose into tigers. *Li Shih-chu* states that according to the *Chuan Yu Lu* (6) there is a kind of marine fish, 鮑魚 *pao yü*, as big as a peck measure with spines on its body like a hedgehog, which can metamorphose into a porcupine, this is the porcupine-fish *yü lu*. The *Shu Yi Chi* says that when they get old they can change into sharks.

Qualities. It is poisonous. CNH.

186. 魚師 *YÜ SHIH*(1) **YELLOW-TAIL**(2)(3).

Pen-t'sao Kang-mu : ZN. 2457 : Sowerby NM. 4. 198 : Y. T. Chu Index 894 : Saiki p. 176 : Fowler H K N 1936. 7. 200 : CNH p. 677 :

Synonyms. 鱒 *shih* PT : 海鮠 *hai lien* ZN. 2457 : Japanese *Buri* :

Explanatory Notes. *Li Shih-chu* states that in the *Chu yü chu* written by *Ch'en T'sang-ch'i* it says the yellow-tail is a large poisonous fish fatally toxic to man ; but now it is never seen(4). But in the *T'ang Yü* it says that the term *shih* 鱒 refers to fish when they have grown old. The *Shau Hai Ching* says that in the waters of the *Li Kuo* there are 師魚 *shih yü* which when eaten are fatally poisonous ; can it be this same fish(5)?

187. 海蛇 *HAI CH'A* **JELLY-FISH**(1)(2)(3).

Pen-t'sao Shih-yi : ZN. 194, 982 : Sowerby NM. 5. 83 ; NNB. 169 : W. 14 : G. 221 :

- (5) Written in the Sung dynasty by *Chang Shih-cheng*. 張師正.
- (1) This name is also applied to the Kingfisher, No. 266.
 - (2) The Zoological Nomenclature identifies this as *Seriola aureovittata*, Schlegel, yellow-tail or amberjack, one of the horse mackerel.
 - (3) Y. T. chu gives the synonym, *S. quinqueradiata* Rich. (1846) cited by Gunther from Chefoo 1874, and by Bleeker from Canton 1872. He also lists two other species. This is also Saiki's identification. It is described and illustrated by Fowler under the synonym *Seriola dumerili* (Risso).
 - (4) This is listed in the "Food of Japan". Percentage composition (Saiki) Protein 22.2, fat 2.16, ash 1.45.
 - (5) The commentator 汪 *Yuan* of the *Shan Hai Ching* says that this is probably the 海魚 *p'ei yü* or 鮑 *p'ei* the poisonous puffer fish.
 - (1) This in the Zoological Nomenclature and by Saiki is identified as *Rhopilema esculenta*, Kish. The name is used generically for the *Rhopilema* and for the order *Pilemidae*. The name *Shui mu* applies to the whole group of jelly-fish.
 - (2) A smaller form as well as the large is found in the Pechili Gulf, Sowerby says it is much like the British *Aurelia aurita*. ZN. quotes *Aurelia sp.* under *shui mu*. Sowerby quotes the report on jelly-fish of the North Pacific in the Memoires of the Museum of Comp. Zoology 1897. 23. 1 by O. Mass. Sowerby also refers to and gives a drawing of a new species *Aeromitus tankakkeeni* described from Amoy by Light, China Journal 1924. 2. 449.
 - (3) Herklots describes the jelly-fish of the South in the Hongkong Naturalist 1930. 1. 72. Wallace reports from *Cheung Chau* numerous *Cyanea capillata* local name *pack ch'a*. Fully illustrated and discussed by A. G. Mayer in, "Medusae of the World" Carnegie Inst. Washington, Pub. No. 109, 1910, 3. pp. 575-602.

Saiki p. 192: Watson 525: Wallace H K N 1936. 7. 89: Tschirch 1932. 2. 813:

Synonyms. 水母 *shui mu* PT. W. 14. G. 221: 栲蒲魚 *shu p'u yu* PT: 石鏡 *shih ching* PT: 海蜇 *hai che* W. 38: Korean name *Hai sa* SC: Japanese *Kwage*:

Interpretation of Names. *Li Shih-chun* states that the *ch'a* 蛇 is also pronounced *tso*⁽⁴⁾ like 宅. Southerners incorrectly call it *hai che* 海折, or 蜡 *cha*¹ or 鮓 *cha*² but these are wrong. *Liu Hsue* says that the Fukienese call them 蛇 *ch'a*, the Cantonese call them *shui mu*. The name in the *Yi Yuan* is *shih ching*, stone mirrors.



No. 187. *Rhopilema* sp. Jelly-fish.
Shanghai market. June 30, 1938.

Explanatory Notes. *Ch'en T'sang-ch'i* states that jelly-fish are found in the Eastern Sea shaped like a blood-clot, the large ones as big as a bed, the small ones the size of a peck measure. It has no eyes, no stomach and no belly. It uses the prawn as eyes, when the prawn moves it sinks in the water; hence the saying, the prawn is the eye of the jelly-fish, which is like the relationship of the jerboa to the onager and the mule⁽⁴⁾. It is commonly fried and eaten with ginger and vinegar by fishermen. *Li Shih-chun* states that the jelly-fish is an irregularly congealed mass coloured reddish purple⁽⁵⁾. It has no mouth, no eyes and no belly. Underneath it has hanging tentacles on which are attached colonies of crabs which

(4) These animals are said to help the jerboa to escape the hunters, by carrying it off on their backs.

(5) Watson states that it is yellowish white and very soft and flabby. The outside, the skin is *hai che* *p'i*, and the fleshy lumps *hai che*. There is a plentiful supply in the Southern ports and Hongkong, particularly in Ningpo, hence the name *Ning che p'i*.

suck the mucus. It floats and sails along as though it flew. When driven in by the tide the crabs leave it and it cannot get back into the deep water, and people catch it and cut it up. It is soaked in lime and alum water and the blood drained off and then it is colourless. The thickest part is called the head, the taste of which is excellent⁽⁶⁾. It can be eaten fresh or cooked. It is good when salted down with salt and lotus stalk ash⁽⁶⁾⁽⁹⁾.

Qualities. Saline, warming and nonpoisonous.

Uses. *Ch'en T'sang-ch'i*, for weak emaciated women, retained blood and leucorrhoea. For humeral diseases in children, erysipelas, and for scalds and burns⁽⁷⁾. *Li Shih-chen*, for bellyache⁽⁸⁾.

188. 鰕 *Hsia* RIVER SHRIMPS⁽¹⁾⁽²⁾⁽³⁾.

Pieh Lu, 3rd. Group: ZN. 1960: W. 304: G. 4203: Sowerby NM. 5. 104; NNB. 133: Hsu No. 89 & 90: Saiki p. 192: EBL No. 5: Annamite Med. p. 53:

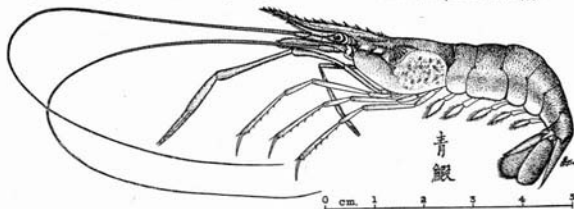
Korean name *ha* SC:

(6) Analysis of the jelly-fish shows the following percentage composition:—

	Protein	Fat.	Cbhyd.	Ash.	Ca.	P.	Fe.	K.	Na Cl
Shanghai (Read et al)	4.95	0.05	1.25	5.51	0.019	0.013	0.009	0.085	—
Japan (Saiki)	1.30	0.03	—	1.72	0.002	0.008	0.001	—	1.578
Japan Salted (Grey)	6.4	0.05	—	26.57	0.017	0.156	0.006	—	25.15

- (7) Watson says it is considered by the Chinese to be expectorant.
- (8) Dioscorides recommended it for frostbite and gout.
- (9) Many people are engaged in the salting trade in Kiangsu at Nanhui, Sungkiang and Lishui. The jelly-fish are placed in bags and washed in fresh water. They are then cut in two parts and soaked in a solution of salt and alum. After a few days they are taken out with the black covering removed before being soaked the second time. There is also a big trade in jelly-fish in Chekiang. BFT 1933 p. 259; 1935 p. 359.
- (1) The Zoological Nomenclature only gives the term 鰕 *hsia* which refers to the suborder *Macrura*. To this belong the lobsters, crayfish, prawns and shrimps. The text however clearly indicates that this refers only to fresh water shrimps and prawns.
- (2) Hsü lists two types like those mentioned. (1) 白米蝦 *pei mi hsia*, *Leander annandalei*, Remp, the white river shrimp about 5 cms. long in the body. (2) 青蝦 *ch'ing hsia*, *Macrobrachium nipponensis* (de Haan) the green shrimp, syn. 青水蝦 *ch'ing shui hsia* 8 to 9 cms. long found in the river and lakes. In 1933, 28,612 piculs were sold on the Shanghai market at \$6.70 to \$60 a picul.
- (3) The *Macrobrachium* given by Hsü is a long-clawed prawn common in the Yangtse Delta, *M. asperulus* von Martens is found in the Amoy rivers and southward. Sowerby says that *Palaemon modestus*, Heller and *P. paucidens* de Haan are two small prawns found in the rivers and streams of the south and east. ZN. quotes this genus under 長臂蝦 *ch'ang pei hsia* and says there are many species found in the tidal waters, it cites the species *P. longines*. Sowerby further mentions *Caridina davidi* de Haan, common in Fukien streams; and *C. denticulata sinensis* Kemp, very numerous in the creeks round Shanghai, ZN. 1441 lists several species of *Penaeus* under 斑節蝦 *pan chieh hsia* some of which are found in Chinese rivers, generically the name applies to the *Carididae*. The term 青蝦 is given as *Penaeus joyneri* Miers, ZN. 1442, also by Saiki.

Interpretation of Names. *Li Shih-chen* states that 蝦 is pronounced *hsia* 霞, and is commonly written 蝦. Boiled in soup they turn red like a sunset, or red clouds 霞.



No. 188. *Macrobrachium nipponensis*, De Haan.
Shanghai market.

Explanatory Notes. *Li Shih-chen* states that large species are found in the big rivers and lakes, white in colour; a small green species is found in the rivulets and brooks, it has wide sweeping whiskers and a nasal appendage like an ax. The back is segmented and the tail is covered in hard scales. It has many legs so that it can jump well. Its gut reaches up to the head. The eggs are on the outside of the belly. There are several species of each kind; the fine and coarse types are the 米蝦 *mi hsia* and 糠蝦 *k'ang hsia*; according to colour there are the white 白蝦 *pai hsia*, and green species 青蝦 *ch'ing hsia*; the 梅蝦 *mei hsia* plum shrimps, occur at the time of the early summer rains⁽⁴⁾; according to the habitat there are the mud shrimps 泥蝦 *ni hsia* and the marine species 海蝦 *hai hsia*. In Kwangtung there is the 天蝦 *t'ien hsia*; the young of which are the size of ants; after the 5th day of autumn, August 13, they drop into the water in flocks and turn into shrimps⁽⁵⁾. People gather and make them into a condiment for food. All kinds of big shrimps are steamed, and after cooling they are shelled and called 蝦米 *hsia mi*. They are highly valued as a food eaten with ginger and vinegar⁽⁶⁾⁽⁷⁾.

Qualities. Sweet, warming and slightly poisonous.

Meng Hsien states that those found in muddy fields and ditches, and those used in condiments are very poisonous. *Ch'en T'sang-ch'i* states that condiment made with hot rice in a closed vessel is fatally poisonous to man. *T'ao Hsiang-ching* states those without whiskers, those black in colour along the belly and those which when boiled are white should not be

(4) The early summer rains are called 梅雨 *mei yu* which come in the second day of summer, May 7, and last about 34 days.

(5) *The Kwei Hai Yu Feng Chih* 桂海虞衡志 by *Fan Ch'ang-ta* in the Sung dynasty, states that the *t'ien hsia* are insects like flying ants with wings.

(6) Analysis shows the following percentage composition:—

	Protein	Fat	Cbhyd.	Ash	Ca.	P.	Fe.	K.
Shanghai	15.02	1.15	0.11	1.10	0.099	0.205	0.001	0.232
Japan	17.00	1.25	—	1.05	0.032	0.259	0.005	—

(7) The *Leander serratus* contains nearly 30 inter. units of vitamin B per 100 grams. A. Z. Baker and M. D. Wright, *Biochem. J.* 1935. 29. 1802.

eaten. Children, chickens or dogs that eat them develop weak crooked feet. *Chang Ting* states that they disturb the body humors, causing boils, scabies and cold sores. *Ning Yuan* states they disturb the body humors and cause fever, sick people should not eat them.

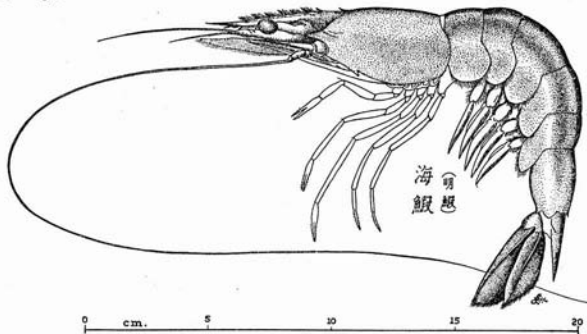
Uses. *Meng Hsien*; for pityriasis versicolor of children, it is mashed and applied to the affected area⁽⁸⁾.

Li Shih-chen, made in a soup it is given for *pieh chia*⁽⁸⁾, to help the proper development of the pustules in smallpox, galactagogue and as an adjuvant to aphrodisiac medicines. As a broth it is used as an expectorant; pounded into an ointment it is applied to festering wormy sores⁽⁹⁾.

189. 海蝦 *HAI HSIA* CRAYFISH⁽¹⁾⁽²⁾⁽³⁾⁽⁴⁾.

Pen-t'sao Shih-yi: ZN. 1442, 733; 2122: Sowerby NM. 5. 104; NNB. 132: Hsu No. 87 & 88: SC: Saiki p. 190: London Pharmacopoeia A. D. 1677: Greek medicine, Hippocrates: Annamite med. p. 53:

Synonyms. 紅蝦 *hong hsia* PT: 鱧 *hao* PT; W. 435, G. 5038⁽⁴⁾: Korean name *hai ha* SC: Japanese *ise-bi*:



No. 189. *Penaeus carinatus*, Dana.
Shanghai market.

- (8) A female complaint with asthmatic symptoms, amenorrhea, and a movable growth in the abdomen as big as a cup.
- (9) In Annamite Medicine it is applied to malignant pustules in children, and to various skin maladies. Annamese, *Lai ma*. Perrot et Hurrier, p. 93.
- (1) This refers to the larger marine prawns and crayfish, the *Palinuridae* 龍蝦科 ZN. 2122.
- (2) Hsu describes two kinds on the Shanghai market. (1) the big prawn 明蝦 *ming hsia*, *Penaeus carinatus* Dana about 20 cms. long in the body, (2) the crayfish 龍蝦 *Panolirus (Palinurus) japonicus* (de Haan) about 30 cms. long.
- (3) Sowerby also mentions the Chefoo prawn *Penaeus japonicus*, and *Palaemon japonicus* and *P. carinatus* Ortmann.
- (4) Williams and Giles say the *hao* is a large crayfish or *Palinurus*.
- (5) Saiki lists this as *Palinurus japonicus*, Gray.

Explanatory Notes. *Ch'en T'sang-ch'i* states that in the sea there are red prawns one foot long, the whiskers of which can be used as hairpins. The *Ku Chin Chu* by *T'sui Pao* says, in the Liaotung Bay there are flying insects like dragon-flies called 蠭緝 *fan kau*. In the seventh month they fly in swarms and darken the heavens, they are eaten by foreigners; it is said they are metamorphosed from shrimps⁽⁶⁾. *Li Shih-chen* states that according to the *Pei Hu Lu* written by *Tuan Kwang-lu*, in the sea one finds big prawns over two feet long, the heads of which can be made into cups, and the whiskers can be made into hairpins or walking sticks, the meat made into fish salad is excellent. According to the *Ling Piao Lu* by *Liu Hsui* marine prawns have a soft red shelly covering; the front feet have pincers vermilion red in colour; the large ones are seven to ten feet long. In Fukien there is a variegated type 五色蝦 *wu se hsia* over one foot long, the natives dry them in pairs called 對蝦 *tai hsia* classed as superior food⁽⁸⁾.

Qualities. Sweet, bland and slightly poisonous⁽⁷⁾.

Li Shih-chen states that eaten with pork it causes excessive salivation.

189 a. 鮓 CHA CRAYFISH CONDIMENT.

Uses. *Ch'en T'sang-ch'i*, for infectious disease, for tapeworm, dental caries, and infected teeth, head sores, scabies and eczema, for an irritant cold rash; it is a cure for the poisonous bite of hill mosquitoes, when eaten it brings the poison to a head and the patient recovers.

190. 海馬 HAI MA SEA-HORSES⁽¹⁾(²)(³)(⁴)(⁵).

Pen-t'sao Shih-yi: ZN. 2118: S. Y. 253: Sowerby NM. 4. 155; NNB. 124: Y. T. Chu Index 799 to 803: SC: CMM 236: Fowler H K N 1935. 6. 65 illus.; Annamite medicine p. 61: Tschirsh 1932. 2. 810: CNH p. 635:

(6) This description corresponds to the locust, commonly known as *huang ch'ung*.

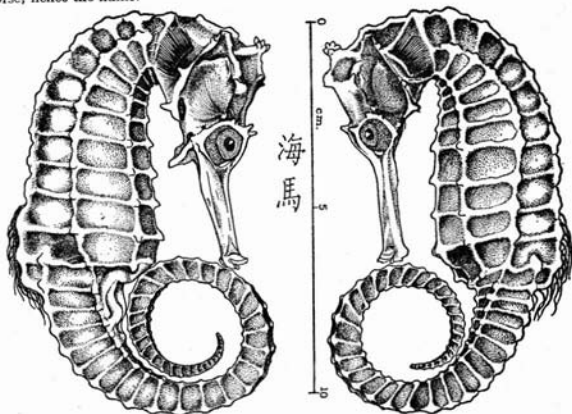
(8) Analysis shows the following percentage composition:—

	Protein	Fat	Cbhyd.	Ash
Shanghai prawn	13.38	1.56	1.05	1.00
Japanese crayfish	18.10	1.75	—	1.36

- (7) Indian prawns *Palaemon curcinus* are said to be difficult of digestion, constipating, cardiac stimulant, phlegm., beneficial in obesity, bile and vitiated blood. Chopra q.v. p. 548. Sanskrit, *Chingati*.
- (1) The Zoological Nomenclature identifies this as *Hippocampus coronatus*, T & S., a species not given in Chu's Index. The description clearly applies generically to the *Hippocampus*. It cites 5 other species.
- (2) A larger species 3 inches long in the body is the *H. kelloggi*, J. & S., S. Y. 253, ZN. 2119 大海馬 *ta hai ma*. Sowerby gives the synonym *H. longirostris* Schlegel, and says it occurs along the S. China coast. A smaller species 2 1/2 inches long inhabiting the northern seas is *H. japonicus*, Kaup 北海馬 *pei hai ma* ZN. 2119, S. Y. 254. Kaup, Catal. Lophobr. Fish. Brit. Mus. 1856 p. 7. Jordan & Snyder, Proc. U. S. Nat. Mus. 1902. 24. 16. Schmidt, Pisc. Mar. Or. Imp. Ross. 1904. p. 214.
- (3) Sowerby points out the interesting fact that the eggs of the female are transferred to a broad-pouch in the male, where they are incubated. They are to be found where beds of "sea-grass (*Zostera*) occur. Sowerby lists Bleeker's Sea-horse *Hippocampus kuda*, Blkr. from Manchuria and Peitailou. It was originally described from Singapore.
- (4) Y. T. Chu also cites *H. trimaculatus* Leach, of which Gunther in 1870 obtained numerous adult and half grown examples from China. It occurs in the Andamans, Tenasserim to Penang and the Seas of China (Day 1878).
- (5) Hubotter lists them in his Mongolian Materia Medica as *chamaeleon* Berlin 1913 p. 133.

Synonyms. 水馬 *shui ma* PT: Korean name *hai ma* SC:

Interpretation of Name. *T'ao Hsing-ching* states that it is a kind of prawn shaped like a horse, hence the name.



No. 190. *Hippocampus* sp. 1 pair, male and female.
Shanghai drug store, \$5.50 a pair.

Explanatory Notes. *Ch'en T'sang-ch'i* states that sea horses are found in the Southern Sea, shaped like horses five to six inches long, a kind of prawn. The *Yi Wu Chih* of *Nan Chou* says there are large and small kinds like geckoes, grayish-yellow in colour. Women with difficult childbirth causing tearing and cutting before delivery, if they hold the Sea-horse in the hand they will have as easy a delivery as a lamb from its mother.

K'ou Tsung-shih states that it has a head like a horse and a body like a prawn, its back is bent over and jointed like bamboo, two to three inches in length. *Su Sung* states that the *Yi Yu Tu* says the fishermen spread their nets and baskets and this fish becomes hooked on to them and are pulled in, and are sun dried. A male and a female make a pair. *Li Shih-ch'en* states that according to the *Sheng Chi Tsung Lu* the females are yellow, and the males are azure green in colour. Further, the *Nan Fang Yi Wu Chih* by *Hsü Piao* (T'ang) says that in the sea there are fishes shaped like a horse's head with the nose drooping downward; they are either yellow or black; they are caught by fishermen who do not use them for food; they are dried and roasted and used as a medicine for difficult child-birth; this refers to the sea-horse. Also *Pao P'u Tzu* says that sea-horses, with red speckled spiders and *P'ing Yi's* water-fairy pills when eaten will enable one to live under water. At the present time the water-fairy pills are without potency.

Qualities. Sweet, warming, bland and nonpoisonous.

Uses. *Ch'en Tsang-ch'i*, very efficacious when carried on the body for a woman with difficult childbirth. At the time of delivery the powdered ash may be administered, or the drug held in the hand will give easy delivery, *Su Suang*, for difficult delivery and uterine pain. *Li Shih-chen*, warming to the kidneys, increasing erection of the penis, causing resorption of tumors, boils and toxic swellings.⁽⁶⁾(?)

Comments. *Li Shih-chen* states that a male and a female make a pair of sea-horses, having a warm character benefitting coitus; hence like lizards and top-shell opercula they are greatly used for dystosia, impotence and as magical aphrodisiacs. Shrimps are also used to increase erection, so they must have similar qualities.

191. 鮑魚 PAO YÜ.⁽¹⁾ DRIED FISH⁽²⁾(³).

Pien-lu, 1st. group: W. 622: G. 8706: CMM 462: Hsu 72 supp: BFT 1935 p. 365:

Synonyms. 藪魚 *K'ao yü* PT: 藪折魚 *hsiao che yü* PT. 乾魚 *kau yü* PT: Korean name *P'o uh* SC:

Interpretation of Names. *Li Shih-chen* states that *pao yü* is the present day dried fish, it can be wrapped up so the name comes from 包, to wrap. The name *k'ao yü* comes from the *Li Chi*. The *Wei Wu Shih Chih* calls it the *hsiao che* solely because in the making it is spread out on artemesia, *hsiao hao*, to dry. When it is simply pressed as dried meat it is called *tan yü* 淡魚 or *so yü* 鱈魚. When hung up and dried in the wind it is called *fa yü* 法魚, or *ch'ueh yü* 鰕魚⁽⁴⁾. When salted it is called *yen yü* 醃魚, or *hsien yü* 鹹魚, or *yeh yü* 鮓魚, or *ch'ien yü* 鱈魚. To-day the common general name is *kau yü* 乾魚. The old records are very confused, which I will now sort out and make clear.

Explanatory Notes. The *Pieh Lu* states that *pao yü* is putrid fish to which no salt has been added. *T'ao Hung-ching* states that ordinary people call salted fish *yeh yü*, the *yeh* character 鮓 is similar to *pao* 鮑. In his time *pao yü* was the plain dried "Big-head" *Aristichthys* (No. 130.) which was positively not stinking. He did not know what kind of dried fish was used as a medicine, for it was prescribed very seldom. *Su K'ung* quotes *Li Tang's* statement that the good kind are those which have been strung up to dry and retain the moisture inside them. The fish ought to be gutted, strung up and simply dried in the sun, and the taste is pungent and not salty. When the fish are fat the interior remains wet and they are very putrid and smell like a corpse, because there is no salt present. The salted

(6) The ash mixed with pitch and oil was used in ancient Greece for alopecia, and the ash with bean meal was given for cancer. Dioskurides Pedacius, *De Medica Materia*,

(7) Used in early European medicine as a remedy for Pleurodynia and incontinence of urine. Gessner, *Tierbuch*, Frankfurt, 1669.

(1) This name also applies to Abalone, *Haliotis* No. 222.

(2) Giles rendered this dried or salted fish, Williams says, "Dried oysters; pickled fish, putrid or salted fish; frozen fish."

(3) The text clearly indicates this is dried fish, but Wu lists it *Acalephae*.

(4) Hsu describes the wind dried material. After scaling a hole is made below the gills to gut the fish. The inside is then filled with salt, a little lard, anise and Chinese pepper.

fish *ch'ien yü* is made at *Mienchou* (Shensi) and *Fuchou* (Fengtien) by salting and producing a saline taste, not pungent or stinking, this is not the same thing as dried fish *pao yü*. They are wet not only inside, but because the salt makes them deliquescent. Both kinds dried and salted can be made from any kind of fish, *Su Seng* states that the plain dried fish then made at Hanchung and Mienchou is pungent and stinking. It is also said that there is a kind of marine fish the *pao yü* shaped like a small "bighead," which has a very putrid smell. The stench in the Emperor Ch'ien Shih Huang's carriage, which caused such confusion⁽⁸⁾ was due to this fish, though there is no evidence it was this particular one. *Li Shih-chen* states that there is no doubt that though the *Pien Lu* says one should not add salt, this is just the plain fish. The other statements are all unnecessarily confusing for according to the *Chou Li* dried fish is made by placing the fish in dry grain in a mud hut to dry. The *Ming Tao Chih* by *Chang Lei* says that fish are plentiful at Hanyang and Wuchang, the natives slit them open and do not use salt to make the dried fish 淡魚 *tan yü* which is transported for sale in Kiangsi. The people of *Jaouchou* and *Hsinchou* (Kiangsi) if they do not have them for food or for sacrifices do not consider they have fulfilled the proper etiquette. Although they are disagreeably stinking and putrid, they consider them fine. So from this we have undoubted evidence that *pao yü* is simply dried fish, though the old and new methods of making it is not the same. *Su Seng's* statement about the marine *pao yü*, is this not the marine *mo yü* 鮓魚 which resembles the *pao yü* which was recorded by *Ku Yeh Wang*. If it is not that, then it is the *pai hsiang* 白鯊 dried maigre of to-day. The name 鯊 *hsiang* applies in a general way to all dried fish⁽⁹⁾. To-day the people of the *Huai* river use the golden carp for making dried fish which is excellent. For making medicine the best kind is from the "bighead" and the golden carp. If the quality of the fish made at Hanchou and Mienchou is not the same one fears that something is incorrect. Salted fish are also used to-day, so the notes about them have been added.

Corrections. *Han Pao-sheng* states that the small mouthed, yellow backed sheatfish is the *Pao yü*. *Li Shih-chen* states that according to the explanations under *yi yü* the sheatfish (No. 171) this description applies to the catfish *wei yü* (No. 170) but it is not dried fish. This is probably because the *wei* and *pao* characters have been confused.

191 a. 鮓 JOU DRIED FISH MEAT⁽⁸⁾.

Qualities. Pungent, stinking, warming and nonpoisonous.

Li Shih-chen says that according to *Li Chiu-hua* if dried fish meat be eaten by a pregnant woman the child will have much sickness.

Uses. *Pieh-lu*; for fractures of the ankle and twisting of the legs resulting from a fall from a high place. To remove stagnant bloodclots, for stasis of the circulation in the four extremities, prolonged uterine hemorrhage.

(8) When this emperor died *Li Ssu* placed a hundredweight of this dried fish in his carriage to cover up the smell of the corpse and make people believe the emperor had not died, whilst he took the corpse from Shantung to Shensi and there placed the younger claimant on the throne.

(6) Saiki lists 93 Fish-products chiefly dried, smoked, and salted fish, with their analyses.

(9) *Pao Yü* is referred to under fish culture, \$400 for 10,000 fish fry, in Chekiang. BFT 1935 p. 365.

Li Shih-chen; made into a soup it is given for anemia of women associated with deficiency disease of the liver⁽⁷⁾, it is laxative⁽⁸⁾. It is given as a galactagogue with hemp seed, onions and bean relish.

191 b. 頭 T'OU DRIED FISH HEADS.

Uses. *Li Shih-chen*, it is made into a soup and dropped into the eye to remove foreign bodies. The ash is given for carbuncles and plague.

191 c. 鮓魚 YEH YÜ SALTED FISH

Qualities. Saline, warming and nonpoisonous.

Uses. *Li Shih-chen*, well fried in sesame oil, the oil is applied frequently to suppurating head boils on small children.

191 d. 穿鮑繩 CH'UAN PAO SHENG. THE ROPE-LINE.

Used for hanging up fish to dry.

Uses. *Su Kung*, boiled in water, the extract is dropped into the eye to remove foreign bodies which are stuck there.

192. 鱧鱓 CHU YI FISH-MAWS⁽¹⁾(²)(³)(⁴).

(AIR-BLADDERS) (FISH-SOUNDS) (SWIM-BLADDERS)

Pen-t'sao Shih-yi: ZN. 1389, 1376: Watson 477; 397: F. Porter Smith p. 123: Watt 1890. 3. 368: CNH chapter XI:

(7) Herring and eel showed no change from the fresh product after smoking or canning in the vitamin D content, there was some loss in vitamin A. G. Lunde et al. *Indust. Chem. Eng.* 1937. 29. 1171.

(8) In Ayurvedic medicine sun dried fish is said to be constipating, difficult of digestion and not strengthening. K. M. Nadkarni, q. v.

(1) This name applies generally to the air-bladders of fish, also called the swim-bladder or sound. The sun-dried material from sharks, carp and other large fishes is used extensively as a food and particularly in making soups. It is exported from Ningpo, Watson p. 434. Couling in citing Williams says that isinglass is said to be made from the noses and sounds of a species of carp.

(2) The bleached material is known as isinglass *Ichthyocolla*. Fish glue 魚膠 *yü chiao* is made from the maws by treating with vinegar. The glue is used in the water colours for porcelain painting, in giving a lustre and surface to silks and in the manufacture of Chinese ink, EBL p. 253.

(3) Porter Smith in 1861 says that strips of thin isinglass were the old adhesive plaster of Chinese surgical practice, but never met now. This is similar to court-plaster in the West.

(4) *Ichthyocolla* (Isinglass) 鱧 dates in European medicine to early days. It is cited in the Dispensatorium Valerii Cordi, Nuremberg, 1546. In the present British Pharmaceutical Codex it is described as the dried prepared swimming bladder from the sturgeon found in the Caspian and Black Seas. The bladders are removed and cut open; they are then soaked in water, spread out on boards, and the outer silvery membrane removed by rubbing. A solution in boiling water, 1 in 50, forms on cooling an opalescent jelly. Insoluble in alcohol. Soluble in most dilute acids and alkalis.

It contains about 80 percent of collagen, 3 percent insoluble membrane, and 15 to 20 percent of moisture. Traces of arsenic, about 0.5 to 1 part per million. Ash not more than 1 percent. Substitutes made from the swimming-bladders of cod, ling, hake, & c. give a higher yield of ash and of substances insoluble in water.

It has been used as a nutrient in place of gelatin, and as a clarifier for wines and beers. B.P.C. p. 544: U.S.D. p. 1418: U.S. 1890: Colla Piscium P.G.: Colle de Poisson Fr. The formula for Emplastrum Ichthyocollae or Court plaster is given in the United States Pharmacopoeia 1890.

Official in the Pharmacopoeias of Austria, Belgium, France, Japan, Norway and Russia; Italian (Colla de Pesce), Mexican (Cola de Pescada), Portuguese (Gelatina de Peixe), Spanish (Ictiocolla). The swim-bladder of fishes contains guanine, to which it gives the peculiar pearly-white appearance. Mathews, *Physiological Chemistry*, New York, 1920 p. 165.

Synonyms. 鱈 *piao* PT. W. 645. G. 9099 :⁽⁵⁾

魚肚 *yü tu* ZN: Korean name *Ch'oo* I SC:

Explanation of Names. *Ch'eu T'sang-ch'i* states that 鱈 is pronounced *chu t'i*, and it applies to fish roe. *Li Shih-chen* states that it is pronounced *chu yi*, the name *t'i* refers to the sheatfish. According to the *Ch'i Min Yao Shu* by *Chia Ssu-hsieh* (Hou Wei dyn.) the emperor *Wu Ti* of the Han dynasty drove the Japanese forces to the seashore, when he saw the fishermen preparing fish-guts in a pit, which they took out and ate. It was called this name it was said because when he drove the foreigners away he obtained it. *Shen K'ou's Pi T'an* says that the *chu yi* is the guts of the cuttle-fish. In the *T'ang Yui* by *Sun Mien* it says it is salted fish guts. The *Nan Shih* states that the Emperor *Ch'i Ming Ti* liked to eat *chu yi* soaked in honey of which he would make a meal of several pints at a time. From the above statements one concludes that the name *chu yi* applies to either fish-guts or fish-maws. Now people take fish-maws and boil them up to make a jelly, which is cut into slices and eaten with ginger and vinegar, and is called *yü kao* 魚膏. Hence in the *Hua Shu* by *Sung Ch'i-ch'iu* it says, there is no difference between *chu yi* and the dirt on ones feet, but *piao* 鱈 is composed of the white bladders from numerous fish, the inside of which are like bubbles, hence the name *piao*. It can be used to make glue which is called *hsüan chiao* 鱈膠. The air-bladders from various sources can be used to make glue but fishermen chiefly use those from the maigre, which is called *chiang piao* 江鱈, which is the isinglass made from river fish. It is an exceedingly strong adhesive. This is the stuff in daily use by artisans, but the records omit to say much about it⁽⁶⁾.

192 a. 鱈 *PIAO* ISINGLASS⁽⁴⁾⁽⁷⁾⁽¹²⁾ Watson 434: Kubota 101: India Chopra 544: London Pharmacopoeia A.D. 1618: Porter Smith p. 123: Annamite med: Tschirch 1932. 2.831:

Qualities. Sweet, bland and nonpoisonous.

Uses. *Ch'eu T'sang ch'i*, for removing bamboo splinters which have remained in the flesh for a long time, strap up the four sides of the wound with isinglass and the flesh will break open and the bamboo will come out.

Li Shih-chen, for application to fractures which will not stop bleeding.

(5) The earlier confusion about the identity of *chu yi* could hardly have applied to the term *piao* which was recorded as one of the products of Hainan by *Chou Ju-kua* in the 12th century. *Chu-Fan-Chi* p. 177 by Hirth and Rockhill, 1911, St. Petersburg.

(6) This undoubtedly refers to fish-glue and not the white isinglass, both are excellent adhesives.

(4) See Footnote Page 110

(7) Our analysis of 魚肚 *yü piao* gave the following percentage composition:—Protein 78.22, fat 0.5, ash 0.08, water 21.2; showing that it is almost entirely pure protein.

(12) Analyses and descriptions of European isinglass are given in Allen's Commercial Organic Analysis, London 1933, 5th edit. vol. X, p. 180. Interesting information on the origin, preparation and applications of this substance were given in the *J. Soc. Chem. Indus.* 1887. 6. 764.

Li Hsün, the ash is applied to genital sores, and fistula, and progressive ulcers⁽⁸⁾(9)(10) (11).

192 b. 鰓膠 PIAO CHIAO FISH GLUE Watson 434 : FPS 130: (12)

Qualities. Sweet, saline, bland and nonpoisonous

Uses. *Li Shih-chen*, it is charred and given for dystocia, tetanus in the puerperium, hematemesis, blood stasis, to reduce swollen toxic boils, and as a corrective to sal ammoniac. Special prescriptions for buboes, leucorrhoea, convulsions, tetanus, amenorrhoea with epistaxis, fainting after childbirth.

193. 魚鱠 YÜ KUEI FISH HASH⁽¹⁾.

Pen-t'sao Shih-yi : W. 476 : G. 6476 :

Synonyms. 魚生 *yü sheng* PT : (2)

Interpretation of Names. *Li Shih-chen* states that it is prepared by slicing or cutting up 劑 *kuei* hence it is called *kuei*. All kinds of fish, fresh and alive, are sliced up fine, and the blood and smell washed away. It is treated and eaten with the five condiments, garlic, salted vegetable, ginger and vinegar.

Qualities. Sweet, warming and nonpoisonous.

Ch'en T'sang-ch'i states that it should not be eaten at nightfall at such times it will not digest. One should not drink cold water when eating this, such will cause worms to develop. Eaten after seasonal diseases it causes weakness of the stomach. It causes cholera if eaten with milk-curd. It must not be eaten with the cucurbits.

Li Shih-chen states that according to the *Shih Chih* people who kill living things are lacking in compassion; also when meat is used before it has cooled off, retains its power of movement; so if immediately chopped up and eaten undercooked it will injure people. How much more will fish-hash made from the raw meat harm people, causing obstruction of the bowels, incurable complaints, or some strange sickness. It does not do not to know that

(8) 月蝕瘡 *yueh shih chuang* is said to be a round ulcer which develops behind the ears in children in which there is regression and progression according to the phases of the moon. This suggests ordinary ringworm.

(9) Porter-Smith refers to a substance called 煙膠 *yen chiao* or smoked glue, which is some empyreumatic product or a compound of soot and glue, which must be exceedingly like Chinese ink. It is used as a daub for lepra or psoriasis, and to quicken the expulsion of the placenta.

(10) It is used in Indian medicine, nutritive, emollient, demulcent and in chronic diarrhoea. Chopra. Indigenous drugs of India, Calcutta 1933 p. 544. Hindu, *Machhika-siras*.

(11) Dioscorides lists isinglass as a remedy for leprosy, also Serapion 11th century, and Ebn Baithar 13th century.

Mansur Miuvaffak (10th century) used it for hemoptysis, hernia and favus. Achundow, Hist. Studien, Halle 1893. It was cited in the Pharmacopoeia Wirtenbergica; 1750 on.

(12) Also see Allen.

(1) Williams and Giles both translate this, fish hash or minced fish.

(2) 魚生粥 *yü sheng chow* is a special Cantonese dish.

ancient peoples ate fish-hash and became diseased. When purged the hash appears in the stool changed into wormlike shapes with the tissue-fibres of the hash attached. When people eat turtle meat it is not digested, when purged out of the system it appears as animals which can move around; this can all be tested.

Uses. *Ch'en T'sang-ch'i*, a warm tonic expelling cold, good for rheumatism; for urinary retention; spasms of the abdominal muscles, indigestion following a bad temper, a cold in the stomach or carcinoma; for hernia, asthma, heartburn; an appetiser, a laxative to the large and small bowels, a stimulant to the loins and feet; it stimulates erection of the penis.⁽³⁾

Ssu Ssu-mao, of value to sufferers from beri-beri and humoral diseases, a cure for asthma.

193 a. 鯽魚 CHI KUEI GOLDEN CARP HASH

Uses. *Meng Hsien*, for chronic dysentery, diarrhoea, piles, erysipelas in adults and children, and vertigo.

COMMENTS. *Wang Ying* states that fish hash is pungent and hot with power to drive away disease. When at Kwangsi he saw a woman with heartburn which no medicine could cure, she happened to eat fish hash and she became quite well. Which is what he meant by the above statement.

194. 魚鮓 YÜ CHA FISH CONDIMENT⁽¹⁾.

Pen-t'sao Shih-yi: W. 11: G. 153:

Korean name *Uh cha* SC:

Interpretation of Name. *Li Shih-chen* states that according to the *Shih Ming* by *Liu Hsi* (Han dynasty) fish condiment is a fermented preparation. It is mixed with salt and rice porridge and allowed to ferment. Any fish can be used for the purpose. The large kind is called *cha*, the small one is *l'sen* 鱒. There is a saying that southerners call fish condiment *l'sen* and northerners call it *cha*.

Qualities. Sweet, saline, bland and nonpoisonous.

Ch'en T'sang-ch'i states that all kinds of fish condiment cause boils and scabies. The hairs in fish condiment are harmful to people. *Wu Jui* states that if uncooked it damages the spleen and stomach and causes disease.

Li Shih-chen states that fish condiment of any kind should not be eaten with fresh coriander, mallow, bean leaves, wheat, soybean sauce or honey; such will cause diabetes and cholera. All condiments made from scaleless fishes are particularly unbeneficial to people.

Uses. *Ch'en T'sang-ch'i*, for eczema, the material mashed with willow leaves and well cooked is applied. The old putrid acid material is mixed with rich porridge and mud

(3) In India certain forms of dried fish are considered powerfully aphrodisiac. Watt p. 368.

(1) Williams and Giles say this is fish condiment, prepared by hashing it with rice and salt, and setting it aside until fermented.

from the roof and applied to boils and Hongkong foot. *Li Shih-chen*, for suppurating ears, piles and fistula, all kinds of infectious boils, pityriasis alba, whitlows, and for hemorrhagic dysentery.

195. 魚脂 YÜ CHIH FISH OIL⁽¹⁾(²)

Pen-t'sao Shih-yi: Porter Smith p. 159; Watson p. 130, 135; ZN. 974; Tschirch 1932. 2. 843; Watt 1890. 3. 368:

Synonyms. 魚油 *yü yü* PT: Korean name *uh chi* SC:

Interpretation of Names. *Li Shih-chen* states that 脂 comes from 旨 *chih*, meaning the taste is luscious and fine.

Qualities. Sweet, warming and slightly poisonous.

Li Shih-chen states that used as a luminant it causes blindness.

Uses. *Ch'en T'sang-ch'i*, for obstruction of the bowels, take two catties of the rancid fish oil and lime mixture used for caulking boats and set it alight and burn it in a copper vessel, then spread a piece of paper over the affected part and rub the hot vessel over it for a day and a night without letting the flame go out. The oil is a cure for scabies on cows or dogs⁽⁴⁾.

Li Shih-chen states that neighbouring countries in the South use fish oil and lime for caulking boats; others particularly use oil from the dolphin⁽⁵⁾(⁶)(⁷)(⁸)(⁹)(¹⁰).

(1) Porter Smith says this is made from the Yangtse River porpoise, up as far as Hankow.

(2) The Zoological Nomenclature says that fish oil is made from the common porpoise *Phocaena communis*, Less; and from the neomeris, *N. phocaenoides* Gray.

(3) Watson says that the porpoise oil comes from *P. brachycium*. It is inodorous and gives a brilliant light. Saponification value 188 to 193, iodine value 125.9, S.G. 0.920 to 0.930, solidifying point—16°C. Iodine values for other fish-oils are given by Mathews, *Physiological Chemistry*. New York, 1920 p. 71.

(4) Fish liver oils and many fish in the body fat have a high content of vitamin A and D. The collected data in this field is best summarized by M. Fixsen and M. Roscoe, *Nutrition Abstracts* 1938, 7. 823.

(5) Cod liver oil was not introduced into the London Pharmacopoeia until the tenth edition in A. D. 1851.

(6) Fish oil was listed in the Papyrus Ebers (Egypt, 16th century B.C.) as a remedy for eczema on the head. Dioscorides recommended it mixed with honey for clarifying the vision.

(7) The manufacture of fish oil is carried on all along the Western Coast of India, and also in other parts. It is obtained chiefly from the livers of sharks, skates, saw-fishes, cat-fishes, oil sardines and other kinds, also from the heads, intestines and even the whole body of some species. At Rangoon (Burma) a large amount is manufactured, said to exceed 77 tons a month. Used for cooking, lighting, tanning leather and as a medicine. Watt.

(8) Allen has many facts and figures regarding fish oils from the dolphin, porpoise &c. *Commercial Organic Analysis* 1933. 2. 319. He has a good summary of the work upon Japanese fish oil.

(9) Japanese fish oils have been worked upon by M. Tsujimoto, *Chemical Review* 1913, pp. 8 & 72; J. Coll. Eng. Tokyo Imper. Univ. 1908. 7. 177; and by R. Najima and T. Okada, *Science Rep. Tonoku Imp. Univ. Japan* 1914. 3. 1.

(10) See also Lewkowitsch and Warburton's *Analysis of Oils, Fats and Waxes*, vol. 2, fish oils pp. 419 to 484. They classify the marine animal oils into 3 groups:—Fish oils, liver oils and blubber oils. Beside these there are the liquid waxes, such as sperm oil, which are not glycerides.

196. 魚鮓 YÜ CHEN FISH-HEAD BONES⁽¹⁾,

Pen-t'sao Kang-mu: W. 46: G. 651:

Interpretation of Name. *Li Shih-chen* states that there are the head bones from all kinds of fish, and are called *ting* 丁. The tails of fish called *mo* 魴 are also called *ping* 丙. Fish guts known as *ku* 鱈 are called *yi* 乙. Fish bones known as *keng* 鯁 are called *tsu* 刺. Fish maws known as *piao* 鰓 are called *pai* 白. The fins known as *ch'i* 鱗 are called *lieh* 鬣. Fish spawn known as *mi* 鱻 is called *yi* 鱻.

Uses. *Ch'en T'sang-ch'i*, it can counteract poisons. *Li Shih-chen*, an antidote to the *ku* poison, made into drinking vessels as soon as the *ku* poison touches them they crack and break.

197. 魚鱗 YÜ LIN FISH SCALES⁽¹⁾⁽²⁾⁽⁴⁾.

Pen-t'sao Kang-mu: W. 527: G. 7185: Watt 1890. 3. 368: CNH. p. 186:

Korean name *Uh rin* SC:

Interpretation of Name. *Li Shih-chen* states that *lin* refers to ripples on water. Fish are water-born hence the scales are like ripples⁽²⁾. Birds are born in the forest hence their feathers are like leaves. The beasts are born on the hills hence their fur is like grass. Fish like to swim against the tide and birds against the wind for fear that their scales or feathers become disturbed.

Uses. *Li Shih-chen*, two drachms of the ash are taken in water for fish-poisoning causing nausea and dyspepsia. *Pieh Lu*, the ash of any kind of fish scales may be given to remove fish bones stuck in the throat.

198. 魚子 YÜ TZU FISH SPAWN (ROE)⁽¹⁾⁽²⁾⁽³⁾

(1) Williams and Giles both translate this "fish roe," which is incorrect, and possibly comes from the ideas expressed in the various synonyms given by *Li Shien chen* though he expressly states that it is the head bone.

(2) Translated in Giles and Williams and all common dictionaries.

(3) This appears to refer to the rows of scales on the fish's body. Fish scales have concentric rings like those of the cross-section of a tree by means of which the age of a fish can be computed. La Gorce q. v.

(4) Fish scales have a relatively high content of zinc, the grass carp has 110 p. p. m. of the dry matter. The ash of the dried scales weighs 30.8%. W. G. Eggleton, *Chin. J. Phys.* 1938.

(4) Guanine occurs in the scales and skins of the bony fishes. Mathews, *Physiological Chemistry*, New York, 1920 p. 165.

(1) Saiki lists the eggs of the black carp with the following percentage composition:—

Protein	Fat	Ash	P ₂ O ₅	CaO	Fe ₂ O ₃	NaCl
20.52	1.95	0.66	0.350	0.068	0.007	0.228

The organic bases in dried herring roe are reported by K. Yoshimura, *Bull. Agric. Chem. Soc. Tokyo* 1922. 43, 242.

The character of the fat has been studied by K. Takahashi *J. Chem. Soc. Japan* 1922. 43, 257.

(2) H. Wu lists fish roe as containing vitamin A ** and B **. *Chin. J. Phys. Report series* 1928. 1. 184.

(3) The chemistry of fish-sperm is the foundation of our knowledge upon the nucleo-proteins and nucleic acid. Miescher, Kossel, Jones, Stuedel, Levene, and others have particularly studied the sperm of the salmon and the herring. These contain the important nucleotides of the purine and pyrimidine bases, adenine, guanine, thymine and cytosine, as well as the valuable basic proteins called protamines which consist largely of arginine. The highly nutritive character of these compounds makes fish-spawn of unusual value.

Kossel isolated from the common carp *cyprinin* which contains 28 percent arginine, 6.6 lysine, and 1.5 tyrosine. From the eggs of the common sturgeon he isolated the protamin *sturin* containing the percentages 11.8 histidine, 63.5 arginine, 8.4 lysine. From the trout (*Salvelinus*) he obtained *salvelin* containing 88.9 percent of arginine. *Zeit. Phys. Chem.* 1905. 44, 347.

Pen-t'sao Kang-mu: W. 943, 569; G. 13510; Saiki 194; Nadkarni, Indian Mat. Med. p. 1131; Watt 1890, 3, 368; CNH p. 411;

Synonyms. 鮓 *mi* PT. W. 569, G. 7808; 鮓 *yi* PT. 魚鯤 *yü ni* W. 569; 魚鱗 *yü ch'ün* W. 943, G. 13510; 鮓 *mien* CP: Korean name *Uh cha* SC:

Explanatory Notes. *Meng Hsien* states that all fish have eggs which stick together on the vegetation and in the mud, which after the cold winter streams have passed are not destroyed or spoilt. During the summer decades of the fifth lunar month they change in the rainwater into fish. *Li Shih-chen* states that all fish conceive during the winter and at the end of spring and the beginning of summer eggs are laid on the vegetation on the banks of running streams. The male fish follow along and shed their sperm over the eggs and in a few days they develop and come out and are called *yü miao* 魚苗, fish fry. They grow very quickly. *Meng Hsien's* statement is incorrect.

Uses. *Li Shih-chen*, for filmy growths over the eyes, pterygium.

COMMENTS. *Li Shih-chen* states that fish spawn were never used in ancient prescriptions, they were only used in a prescription for the eyes in the *Sheng Chi Tsung Lu*, called *chueh ming san* 决明散. It did not say from what fish, but probably they were from the black carp, ordinary carp, and golden carp family.

199. 諸魚有毒 CHU YÜ YU TU POISONOUS FISH⁽¹⁾⁽²⁾⁽³⁾⁽⁴⁾

Pen-t'sao Shih-yi: Hsi Yuan Lu: Macgowan Chin. Recorder 1886, 17, 45; CNH p. 176:

- (1) None of the editions of the *Pen-t'sao Kang-mu* consulted had a list of poisonous fish, although they all listed this heading in the table of contents. It certainly includes the puffers No. 175 *ho t'ün*. The poisonous principle or the roe *tetrodonin* is fully discussed under that heading. The *Hsi Yün Lu* 洩冤錄 also lists the eels 鱧 *shan* and 鮓 *ch'iu*, and those fish which have poisonous fangs like snakes, and those with poisonous fins, like the sting-ray, the poison of which is said to affect the nervous control of the heart.
- The giant salamander *ni yü* (No. 173) has a venom like the viperine snakes. There is also an alkaloidal principle, salamandrine which produces picrotoxin-like convulsions; it arrests respiration and produces bloody edemas and local necrosis. D. J. Macgowan, "Poisonous Fish in China," Chin. Recorder 1886, 17, 45, 139. Hammarsten says that like the toad this is a secretion in the skin; which would account for the method of preparing the fish as a food described in the *Pen-t'sao*. Zalaski and Faust refer to this principle as *samandarin*.
- (2) A. H. Brundage in his "Manual of Toxicology," New York; 1929, p. 146 gives a useful summary upon *poisonous fish*, such as craw-fish, yellow-billed sprat, dolphin, conger eel, grooper, rock-fish, porgie, fugu, old-wite, blower etc. Some fish are always poisonous from gland secretions, sting or bite, etc. others only in the spawning season. Poisoning may also occur from a ptomatropism from eating dried fish (such as the sturgeon etc.); or from the presence of bacteria and toxins in fish, especially in canned fish.
- (3) In Japan, between 1915 and 1923, 6136 cases of fish poisoning were recorded, of which 906 were from tetradon (globefish) with over 64 percent fatal cases. Other fish only caused about 6 percent of deaths. Sanitary Statistics, Tokyo 1925, p. 24. In China no accurate statistics are available, but one repeatedly sees reported in the newspapers cases of tetradon poisoning in Sanghai, Tientsin, Peking and elsewhere. On one occasion in Peking, about 1925, fifteen people were reported dead, the result of eating improperly prepared globefish.
- (4) E. W. Gudger is an authority on the bibliography of this subject, having prepared the section upon "Poisonous Fishes" in the Bibliography of Fishes (1923) of the American Museum of Natural History. He gives a scientific summary in the Amer. J. Trop. Med. 1930, 10, p. 43 under the three headings.

1. Fish with poisonous spines or glands; such as the sting-rays and certain cat-fishes.
2. Fish with poisonous blood serum, such as the eels and certain sharks.
3. Fish with poisonous tissues, such as the tetradon and sphyraena.

The most exhaustive work very fully illustrated with the structure of stings, glands, &c. is by Dr. Marie Phisalix, "Animaux Venimeux et Venins," Vol. 1. Poisons Toxicophores, Paris, 1922; in which are listed 65 fishes with venomous stings, 14 with poison in the blood, and 121 species which are alleged to have caused poisoning by ingestion of the flesh.

The poisonous and worthless fishes of the Philippines, the Plectognaths and Gymnodonts, are described and illustrated by A. W. Herre, Phil. J. Science 1924, 25, 415-512, and 1925, 27, 107.

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<i>Mugil cephalus</i>	135(1)	<i>Onychodactylus japonicus</i>	162(4)
<i>M. cephalotus</i>	135(4)	<i>Ophiocephalus argus</i>	162(1)
<i>M. japonicus</i>	135(4)	<i>Opsarius bambusa</i>	138(4)
<i>M. longimanus</i>	135(5)	Otoliths	139c
<i>M. macrolepidotus</i>	135(4)		
<i>M. ocur</i>	135(4)	P	
<i>M. persia</i>	135(9)	<i>Paelemon longines</i>	188(3)
Mullet	135	<i>P. modestus</i>	188(3)
Mullet flesh	135a	<i>P. paucidens</i>	188(3)
<i>Muraena alba</i>	165(1)	<i>Palinurus sp</i>	189(4)
<i>M. bengalensis</i>	163(1)	<i>Paluriniidae</i>	189(1)
<i>M. cinerea</i>	164(2)	<i>Panaeus carinatus</i>	189(2)
<i>M. mauritiana</i>	163(1)	<i>P. joyneri</i>	188(3)
<i>M. pekinensis</i>	163(3)	<i>Panolirus japonicus</i>	189(2)
<i>Muraenesox arabicus</i>	164(2)	<i>Parabramis bramala</i>	148(1)
<i>M. bagio</i>	164(2)	<i>P. pekinensis</i>	148(1)
<i>M. cinereus</i>	162(1) 164(1)	<i>P. terminalis</i>	148(2)
<i>M. singapurensis</i>	164(2)	<i>Paradiodon maculatus</i>	185(3)
<i>M. talabon</i>	164(2)	<i>Paralichthys olivaceus</i>	177(1)
<i>M. talabonoides</i>	164(2)	<i>Parapelecus argenteus</i>	147(1)
<i>M. tricuspidata</i>	164(2)	<i>Parasilurus asotus</i>	171(1)
Murrel	162	<i>Pellona elongata</i>	141(2)
<i>Myliobatis tobijei</i>	183(1)	<i>Pelor adamsi</i>	151(1)
<i>Myloleuciscus atripinnis</i>	133(5)	<i>Pelleobagrus calvarius</i>	174(2)
<i>Myloleucus aethiops</i>	133(5)	<i>P. fulvidraeo</i>	174(2)
<i>Mylopharyngodon aethiops</i>	133(1)	<i>Perca chuatsi</i>	150(4)
<i>M. atripinnis</i>	133(5)	Perch	149(1), 150(2)
		<i>Phocaena brachium</i>	195(3)
N		<i>P. communis</i>	195(2)
<i>Nasus dahuricus</i>	138(4)	<i>Pilemidae</i>	187

Plaice	177(1)	<i>Rhopilema esculenta</i>	187(1)
<i>Platysoni</i>	177(1)	<i>Rhytina gigas</i>	169(2)
<i>Plecoglossus altivelis</i>	171(3)	<i>Richardsonius hakuensis</i>	154(4)
<i>Pleuronectidae</i>	177(1)	Rock fish	151
Poisonous fish	199	Roe, fish	198
<i>Polyodon gladius</i>	168(1)		
<i>Polyopus vulgaris</i>	178, 182	S	
Pomfret	145	<i>Salagichthys m.</i>	158(3)
<i>Pompus argenteus</i>	145(1)	Salamander, giant	173
Poupl	182	<i>Salangidae</i>	158
Porcupine fish	185	<i>Salanx chinensis</i>	158(2)
Porpoise oil	176(7)	<i>S. caviari</i>	158(1)
Prawns	188	<i>S. microdon</i>	158(1)
Prickly sculpin	149	Salmon, False	138
Prickly sculpin flesh	149a	Salted fish	191
<i>Pristigaster chinensis</i>	141(4)	<i>Salus perryi</i>	132(3)
<i>Pristiophorus japonicus</i>	179(7)	<i>Salvelinus Kundscha</i>	144(1)
<i>Prodelphinus longirostris</i>	176(2)	<i>S. malma</i>	144(2)
<i>Psephurus gladius</i>	168(1)	<i>S. phavius</i>	144(1)
<i>Pseudoculler exiguus</i>	156(1)	Samli	143
<i>Pseudobagrus aurantiacus</i>	174(1)	Samli flesh	143a
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<i>Pseudoperilampus ocellatus</i>	147(1)	<i>S. schlegeli</i>	139(1)
<i>Pseudosciaena amblyceps</i>	139(3)	<i>S. teno</i>	139(2)
<i>P. crocea</i>	139(4)	Sciaenids	139
<i>P. udonvittata</i>	139(3)	<i>Scomber japonicus</i>	133(3)
<i>Pteroplatea japonica</i>	183(1)	<i>Scombrocypris styani</i>	138(4)
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Puffers roe	175a	Sculpin, Prickly	149
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		Sea-cow flesh	169a
		Sea-horses	190
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<i>Raja Kenojei</i>	183(2)	<i>Sebastes nebulosus</i>	151(4)
<i>R. meedidvoortii</i>	183(2)	<i>Selachioidei</i>	179(1)
<i>Rasbora teretiusculus</i>	131(1)	<i>Sepia esculenta</i>	180(1)
Rays	183	<i>Sepiella japonica</i>	180(2)
<i>Rhinobagrus dumerili</i>	170(1)	<i>Sepiolidae</i>	180(1)
<i>Rhinobatus schlegeli</i>	173(2), 183(1)	<i>Seriola aureovittata</i>	186(2)
<i>Rhinogobius giurinus</i>	153(2)		
<i>Rhinoplagusia japonica</i>	177(4)		

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<i>S. awo-ara</i>	154(1)	<i>Squalus mitsukurii</i>	179(2)
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<i>S. paris</i>	154(1)	" " tail	183c
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