STUDIES ON THE SYSTEMATICS OF CULTRINAE (*PISCES, CYPRINIDAE*) WITH DESCRIPTION OF A NEW GENUS

BY

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The author indicates the characters of the subfamily Cultrinae, lists its 21 genera and gives some information on the genera *Ischikauia, Hemiculterella* and *Rasborinus*; he synonymizes *Anabarilius, Nicholsiculter, Rohanus* and *Semiculter* with *Hemiculterella* and *Rasborichthys altior* with *Rasborinus lineatus takakii*. A new genus is described: *Pseudoxygaster* (type: *Cyprinus gora*, up to now ascribed either to *Chela* or to *Oxygaster*).

The name Cultrinae was first used by S. G. Kryzhanovski [5] for the Amur genera of whitish minnows with abdominal keel and pelagic eggs; he considered the Cultrinae as one of the four groups within the subfamily Leuciscini. G. V. Nikolski [7], [8] raised the Cultrinae to the rank of a subfamily, including all Amur genera formerly ascribed to Abramidinae (*Culter, Parabramis*, etc.), to Xenocypridinae (*Xenocypris*) and Danioinae (*Opsariichthys*, etc.) characterized by teeth on three rows, pelagic eggs, usually a smooth dorsal spine and no barbels; he pointed out that the Cultrinae are related rather to the Barbinae than to the Leuciscinae. Most students of East Asian Cyprinidae — Rendahl, Lin, Nichols, Alfred, Okada, Wu — have ascribed the genera with abdominal keel to the Abramidinae and those without keel to the Leuciscinae or to the Danioinae.

In my opinion the East Asian genera with abdominal keel belong to a distinct subfamily and are not related to the European and American so-called "Abramidinae", which actually belong to the Leuciscinae, as already shown by Nikolski [7]. The Transcaucasian *Leucalburnus* links *Leuciscus* to *Alburnus* (a typical "Abramidin"). *Leuciscus — Leucalburnus — Chalcalburnus — Alburnus — Alburnoides — Blicca — Abramis — Vimba* represent a natural orthogenetic series; *Acanthalburnus, Notemigonus* and probably *Acanthobrama* and *Capoetobrama* are lateral branches. Natural hybrids between genera of typical Leuciscinae and of "Abramidini" are frequent, while hybridization between genera of distinct carp subfamilies is quite exceptional.

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Within the Cultrinae, besides the Amur genera with abdominal keel and dorsal spine, I also include the Chinese genera with keel and last dorsal ray spinified or thin, the South-Asian genera with the same characters and the European *Pelecus* [1] which is usually ascribed to the "Abramidinae" (respectively to the Leuciscinae) but is evidently closely related to the South Asian *Oxygaster* and *Macrocheirichthys* in having a keel from below pectorals to anal (in the "Abramidinae" the keel extends only behind ventrals), very posterior dorsal with only 7 branched rays, head oblique comparatively to the trunk, scales extending between eyes. The pectoral girdles of *Oxygaster* and *Pelecus* are very similar (Mrs. C. Sorescu, personal communication).

Weber and De Beaufort [11] include also *Nematabramis* in the "Abramidinae", because of its keel. The presence of two pairs of barbels and large coloured stripes show that *Nematabramis* is evidently related to the Danioinae, especially to *Esomus*. The South-Asian *Rohtee* resembles the Cultrinae as regards its long anal fin and abdominal keel, but is quite dissimilar to any Indian genus of Cultrinae; in its serrated dorsal spine and some osteological characters it resembles several Indian genera of Barbinae and must be ascribed to this subfamily. The Chinese *Xenocypris* (including *Plagiognathops* and *Distoechodon*) and *Pseudobrama* (= *Culticola*), with inferior transverse mouth, smooth dorsal spine and compressed teeth provided with a long grinding surface must be ascribed to a distinct subfamily, Xenocypridinae, related to the Cultrinae.

It is quite difficult to give a clear-cut distinctive diagnosis of the Cultrinae. Osteology has failed so far to be of real help in the delimitation of the subfamilies of Cyprinidae.

All Cultrinae — except some *Chela* — have 7 divided dorsal rays; the same number occurs in Xenocypridinae, most Danioinae (except *Danio*, *Nematabramis* a.o.), most Gobioinae and many Barbinae. The Leuciscinae have usually more rays; within the "Abramidini", which include the Leuciscinae genera most similar to the Cultrinae, number 7 occurs quite exceptionally. The last simple dorsal ray is thin in *Pelecus*, in all South Asian and some Chinese genera, strongly ossified and smooth in most Chinese genera (slightly serrated in *Hemiculter serratus*, strongly serrated in *Toxabramis*). The anal has at least 9 divided rays. In all Chinese genera, in *Paralaubuca* and *Rasborichthys* the anal is inserted slightly behind the dorsal, while in *Pelecus* and in most South-East Asian genera it is opposite to the dorsal.

An abdominal keel is present in all Cultrinae, being restricted to the post-ventral part of the abdomen in *Rasborichthys*, in 4 Chinese genera and some *Hemiculter* species, while in *Pelecus* and in the remaining 4 Chinese and 8 South Asian genera and 5 *Hemiculter* species it extends from below pectorals to the anal. A post-ventral keel occurs also in the so-called Abramidini within Leuciscinae, in *Rohtee* within Barbinae, in *Zacco spilurus* (including *Z. asperus*) within the Danioinae, in *Pseudobrama* and the subgenus *Plagiognathops* within the Xenocypridinae. In *Nematabramis* the keel extends from below the pectorals to the anal.

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[1] The author is grateful to T. Nalbant who first suggested the relationship between *Pelecus* and the Cultrinae.

None of the Cultrinae has barbels. The number of gill rakers ranges from 9 to 106. The pharyngeal teeth are three-rowed in most genera, two-rowed in *Toxabramis*, *Longiculter*, *Macrocheirichthys*, *Pelecus*, *Chela maassi* as well as in rare specimens of *Hemiculter bleekeri* (*Toxabramis argentifer* was based on such a specimen) and of *Hemiculterella sauvagei*. The teeth are pointed and usually hooked, with reduced grinding surface (*dentes raptatorii*); the grinding surface is rather well-developed in *Hemiculter bleekeri*.

The lateral line is complete (except in *Chela dadiburjori*) and usually curved downwards, but almost straight in *Culter*, *Erythroculter*, *Ancherithroculter*, *Parabramis*, *Megalobrama* and *Macrocheirichthys*. In some genera (*Hemiculter*, *Pseudolaubuca*) some species have abruptly-bent, others only gently-bent lateral line. The lateral line is curved also in most Danioinae and in *Leptobarbus* within the Barbinae.

The suborbital bones are either broad or narrow. The air-bladder is bipartite or tripartite. All Cultrinae have a brilliant silvery colour; stripes and spots occur only in *Rasborinus*, in some *Chela* and on the fins of *Oxygaster* and some *Paralaubuca*.

I consider all genera here included in the Cultrinae as related, although the monophylly of this subfamily is less evident than that of Gobioinae and Acheilognathinae. The closest relatives of the Cultrinae are apparently the Danioinae.

Most species of Cultrinae are quite well delimited and many of them, including wide-range ones such as *Hemiculter leucisculus*, *Parabramis pekinensis* a.o. show only slight geographic variation; but the delimitation of the genera is in many cases difficult and rather arbitrary. For example *Toxabramis* is considered a distinct genus, differing from *Hemiculter* by its two-rowed teeth and strongly serrated dorsal spine; but there are also rarer specimens of *H. bleekeri* with two-rowed teeth and in *H. serratus* the dorsal spine is slightly serrated; on the other hand, *Toxabramis* resembles *H. leucisculus* since its keel extends from pectorals to anal and the lateral line is abruptly bent, while in *H. dispar* the keel extends only from ventrals to anal and in *H. bleekeri* the lateral line is only gently curved. The length of the keel is considered of generic value in separating *Culter* from *Erythroculter*, *Parabramis* from *Megalobrama* and *Pseudolaubuca* from *Hemiculterella* but not in the case of *Hemiculter*. The bipartite versus tripartite air bladder permits the separation of *Ancherythroculter* from *Erythroculter*, because these genera differ also in the length of the anal and shape of scales, but this character does not seem satisfactory in separating *Sinibrama* from *Megalobrama* or *Cultrops* from *Paralaubuca*.

I recognize the following genera of Cultrinae:

1. *Erythroculter* Berg, 1909 (= *Leptocephalus* Basilewski 1855, prae ocup.; *Chanodichthys* Bleeker, 1860, nomen delendum).

2. *Culter* Basilewski, 1855 (= *Cultrichthys* Smith, 1938).

3. *Ancherythroculter* Wu, 1964.

4. *Megalobrama* Dybowski, 1872 (= *Parostcobrama* Tchang, 1930, *Sinibrama* Wu, 1939).

5. *Parabramis* Bleeker, 1864.

6. *Hemiculter* Bleeker, 1859 (= *Cultriculus* Oshima, 1919, *Kendahlia* Evermann & Shaw, 1927, *Hainania* Koller, 1927, *Pseudohemiculter* Nichols & Pope, 1927).

7. *Toxabramis* Günther, 1873.

8. *Ischikauia* Jordan & Snyder, 1900.

9. *Hemiculterella* Warpachowski, 1887 (= *Anabarilius* Cockerell, 1923, *Rohanus* Chu, 1935, *Nicholsiculter* Rendahl, 1928, *Semiculter* Chu, 1935.)

10. *Pseudolaubuca* Bleeker, 1864 (= *Parapelecus* Günther, 1889).

11. *Rasborinus* Oshima, 1919.

12. *Rasborichthys* Bleeker, 1859.

13. *Salmostoma* Swainson, 1839 (= *Salmophasia* Swainson, 1839, *Securicula* Günther, 1868).

14. *Chela* Hamilton, 1822 (= *Laubuca* Bleeker, 1860, *Cachius* Günther, 1868) with the subgenera *Allochela* Silas, 1958 and *Neochela* Silas, 1958).

15. *Paralaubuca* Bleeker, 1860 (= *Cultrops* Smith, 1938).

16. *Parachela* Steindachner, 1881.

17. *Longiculter* Fowler, 1937.

18. *Oxygaster* van Hasselt, 1823.

19. *Pseudoxygaster* nov. gen.

20. *Macrochirichthys* Bleeker, 1860.

21. *Pelecus* Agassiz, 1835.

The relations between these genera are obscure. One can recognize some pairs and groups of related genera : *Erythroculter* and *Culter*, *Megalobrama* and *Parabramis*, *Hemiculter* and *Toxabramis*, *Chela* and *Salmostoma*, then the four last-named genera ; on the other hand, *Ancherythroculter* seems related at the same time to *Erythroculter*, to *Megalobrama* and to *Hemiculter*, while *Hemiculterella* approaches *Hemiculter* in some characters, *Ischikauia* and *Pseudolaubuca* in others.

The genera of Cultrinae belong to three zoogeographical groups :

1. The Chinese group : the 11 first-named genera, of which 8 range from Amur drainage or at least from North China to South China or even to Vietnam ; *Ischikauia* is restricted to Japan, Taiwan and Hainan islands, *Ancherythroculter* to the upper Yangtze, *Rasborinus* to the Yangtze, South China and adjacent islands.

2. The South-East Asian group : genera 12—20 ; the only widely spread is *Chela*, ranging in the whole South-East Asia, *Salmostoma* is restricted to India and Burma, *Pseudoxygaster* to India, *Paralaubuca* and *Longiculter* to Thailand and adjacent countries, *Rasborichthys* to Indonesia, while the remaining 3 general live in Indochina and Indonesia.

3. *Pelecus*, the only European representative of the Cultrinae.

Here are some remarks on a few genera of the subfamily.

Genus Ischikauia

Two species : the well-known Japanese *I. steenackeri* (Sauv.) and *I. macrolepis* (Regan) with two subspecies : *macrolepis* in Taiwan and *hainanensis* Nichols & Pope in Hainan (Pl. I, Figs. 1 and 2). The second

PLATE I

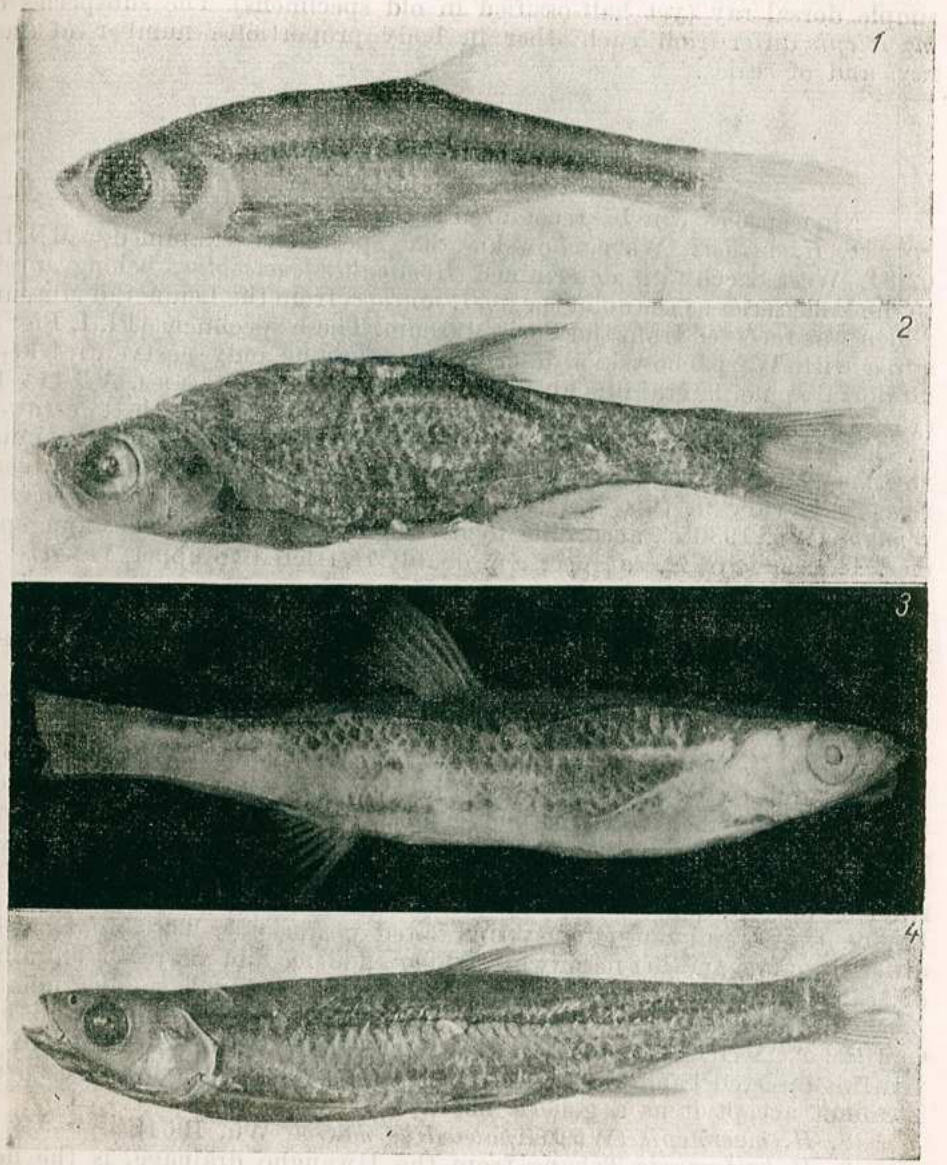

Fig. 1. — *Ischikauia macr. macrolepis* (Regan). Chung-li, Taiwan. IBTS 1339.
Fig. 2. — *Ischikauia macr. hainanensis* Nichols & Pope. Nodoa, Hainan. AMNH 10986.
Fig. 3. — *Hemiculterella sauvagei* Warpach. West Szechwan. MNHN 62.84
Fig. 4. — *Hemiculterella wui* (Wang). Funghwa R., Chekiang. SU 32501.

species agrees with *steenackeri* in its general habitus and almost vertical mouth, differing from it in number of scales and gill rakers, more decurved lateral line (yet not so abruptly as in *Hemiculterella*) and rather thin last simple dorsal ray (yet half-ossified in old specimens). The subspecies of *macrolepis* differ from each other in body proportions, number of anal rays and of scales.

Genus **Hemiculterella**

Nine species can be recognized :

1. *H.sauvagei* Warpachowski. Six specimens examined, MNHN 62.84, West Szechwan, determined *Hemiculter leucisculus*, belong surely to the same series as the holotype of *H. sauvagei* from the Leningrad Museum which was received from the Paris Museum. These specimens (Pl. I, Fig. 3) agree with Warpachowski's description in having only postventral keel, no dorsal spine, lateral line abruptly bent, with 49 —53 scales, A 3/11 —13 (15 in one specimen), Sp. br. 9 —13, but three-rowed teeth (two-rowed in the type, according to Warpachowski). The small teeth of the inner row may have been lost in the type or overlooked, or the number of teeth rows may vary in this species, as in *Hemiculter bleekeri*. *Nicholsiculter rendahli* Wu, 1930 is, according to its original description, the same species. The range of *H. sauvagei* is probably restricted to upper Yangtze in Szechwan.

2. *H. wui* (Wang, 1935). The single specimen examined, SU 32501, from Funghwa R. at Ningpo, Chekiang, determined *Toxabramis swinhonis* (Pl. I, Fig. 4) is characterized by : A 3/12, L. lat. 53 —54, Sp. br. 8, postventral keel, etc. and mouth slightly smaller than in *H. sauvagei*. *H. wui* may be only a subspecies of *sauvagei*.

3 —6. *H. polylepis* (Regan), *H. andersoni* (Regan), *H. alburnops* (Regan) and *H. grahami* (Regan) (Pl. II, Figs. 5—8), all from Yunnan, are usually ascribed to a distinct genus, *Anabarilius* (= *Nicholsiculter*), or to *Ischikauia*. Yet they agree with *Hemiculterella* in all main characters (no dorsal spine, keel only postventral, lateral line abruptly bent), differing from it only in number of scales and gill rakers, body proportions and in having the lateral line slightly undulated posteriorly. These four species differ from one another mainly in number and length of gill rakers, number of scales and rays, proportions ; *H. grahami* has a much smaller mouth.

7. *H. transmontana* (Nichols) from Yunnan. No specimen available. Chu [2] ascribed this species to a distinct genus, *Rohanus*, because of its ventrals inserted behind dorsal origin, as against before it in *Anabarilius*. I cannot accept it as a generic character.

8. *H. macrolepis* (Wu) (*Anabarilius macrol.* Wu, 1964).

9. *H. kaifenensis* Tchang, from the Hwangho drainage, is the northernmost representative of the genus. It approaches *Paralaubuca jouyi engraulis* in its general habitus, but is closer to *Hemiculterella* in having a keel only between ventrals and anal (although "traces of it, crossed by scales, continue forward to the thoracic part" : Tchang [10]. In the number of anal rays it is intermediate between *Hemiculterella* and *Pseudolaubuca*, but closer to the first.

PLATE II

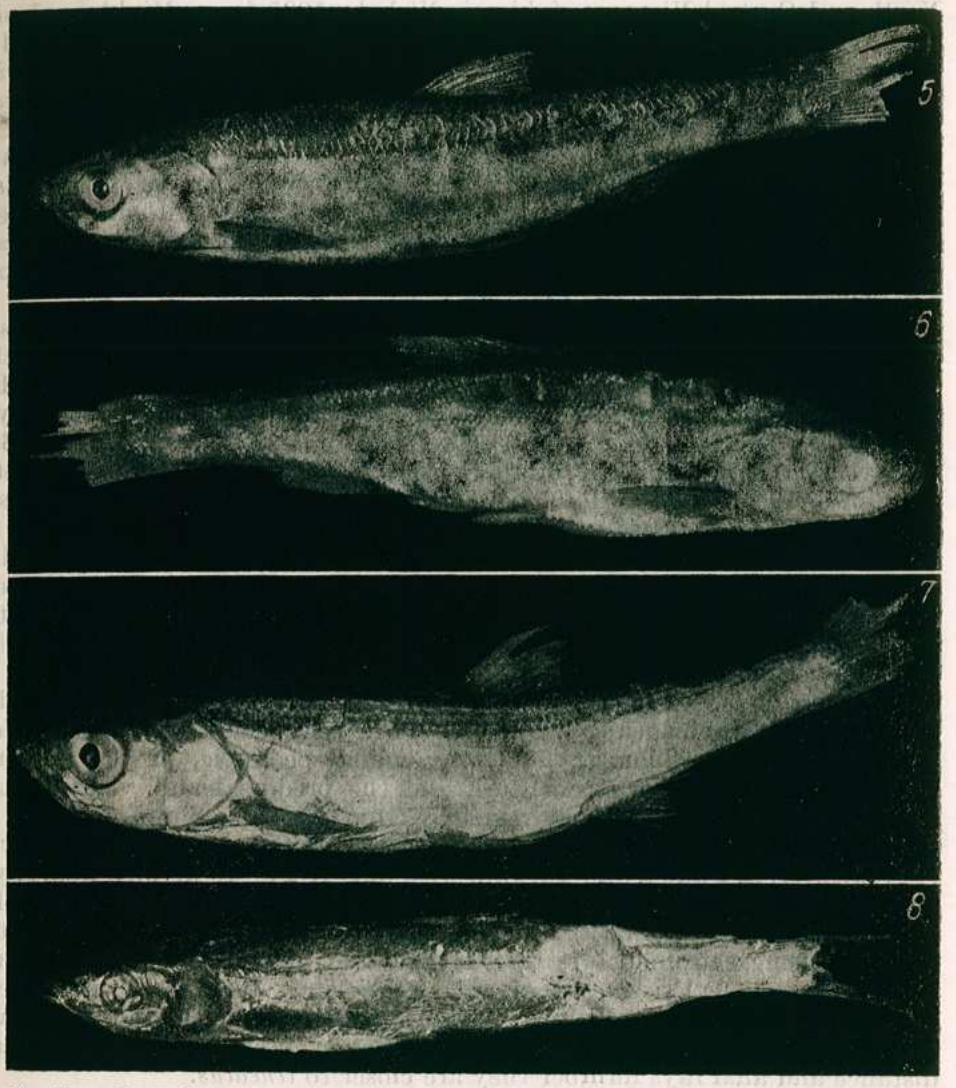

Fig. 5. — *Hemiculterella polylepis* (Regan). Lake Kumming, Yunnan. MNHN 4945.
Fig. 6. — *Hemiculterella andersoni* (Regan). Yunnan-fu, Yunnan. BMNH 1907.5.4.67.
Fig. 7. — *Hemiculterella alburnops* (Regan). Lake Kumming, Yunnan. MNHN 4945.
Fig. 8. — *Hemiculterella grahami* (Regan). Lake Kumming, Yunnan. MNHN 4943.

Genus **Rasborinus**

Six species of *Rasborinus* were described : *formosae* Oshima, 1920 and *takakii* Oshima, 1920 from Taiwan, *lineatus* (Pellegrin, 1907) from North and Central Vietnam, *fukiensis* Nichols, 1925 from Minkiang drainage, *hainanensis* Nichols & Pope from Hainan, *taeniatus* Nichols, 1941 from upper Yangtze. S. Y. Lin [6] synonymized *fukiensis* and *hainanensis* with *takakii*, while H. W. Wu [12] synonymized all three with *lineatus*, recognizing *formosae* as distinct ; he did not mention *taeniatus*.

The examination of larger series from Vietnam (*lineatus*), Hainan (*hainanensis*), Fukien (*fukiensis*) and Kwantung (determined *fukiensis*) proved the conspecificity of these three nominal species with one another and with *takakii* ; but this unique species, whose right name is *lineatus*, shows a rather strong geographical variation and two subspecies can be recognized.

The most variable character is the number of divided anal rays : I found 14 rays in the single two available Fukien specimens and Nichols gives the same number, while the Taiwan *takakii* was described with 15 rays. In the Kwantung specimens there are 14 to 16 divided anal rays ($M = 15.1$), in Hainan 15 to 17, seldom 14 or 18 ($M = 15.95 \pm 0.13$), in North Vietnam specimens, 16 to 17 ($M = 16.75 \pm 0.22$), in Central Vietnam ones, 16 to 18 ($M = 17.05 \pm 0.17$). There is thus a regular increase of the number of rays from North to South. The number of gill rakers is about the same in all populations : 9 to 12 ; that of scales shows only little variation : 38 —39 in Fukien specimens, about 36 in Taiwan ones (according to M. Oshima, [9]), 37 to 40 ($M = 38.4$) in Kwantung, 37 to 40 ($M=38.8$) in Hainan, 37 —38 in North Vietnam, 37 to 39 ($M = 37.8$) in Central Vietnam specimens.

There is a variation also in body proportions (Table 1). The body depth, head, snout length, eye diameter are rather constant, the small differences being due to allometry, but the caudal peduncle, preventral and pectoral-ventral distances decrease, and the predorsal and ventral-anal distances increase more or less regularly from North to South.

These differences allow the recognition of two subspecies : *takakii* (= *fukiensis*) in Fukien and Taiwan, with mostly 14 —15 divided anal rays and *lineatus* (= *hainanensis*) in Vietnam and Hainan, with 15 to 18 (mostly about 16) rays (Pl. III, Fig. 9). In number of rays and caudal peduncle length the Kwantung specimens are intermediate but closer to *takakii* while in other body proportions they are similar to *lineatus*. Also the Hainan specimens are, in predorsal distance, caudal peduncle length and pectoral-ventral distance somewhat intermediate, yet in preventral, ventral-anal distance and anal rays number they are closer to *lineatus*.

Quite surprising is the fact that the Singapore fish known as *Rasborichthys altior* Regan proved identical with *Rasborinus lineatus*. The four available specimens (USNM 101249 Pl. III, Fig. 10) have 15 —16 divided anal rays ($M = 15.25$) ; in body proportions they agree with *R. l. takakii*, only in preventral distance they are nearer to *R. l. lineatus*. As shown by E. Alfred [1], *Rasborichthys altior* is restricted to Singapore Island, being absent in the adjacent Malayan Peninsula ; neither it nor *Rasborinus* were recorded in Thailand, Cambodia or South Vietnam. Because of its

Table 1

Body proportions in *Rasborinus lineatus*

		Rasborinus lineatus lineatus			*R. lineatus takakii*		
		Central Vietnam	North Vietnam	Hainan	Kwantung	Fukien	Singapore ("altior")
	Standard length mm	40.0—80.0	42.0—72.0	73.0—83.0	39.0—67.0	70.0—82.2	35.0—87.0
In % of standard length	Depth	27.9—32.8 (30.8)	28.2—30.6 (29.4)	29.4—32.7 (31.23)	25.8—30.7 (29.2)	26.2—29.2	27.8—34.4 (30.85)
	Caudal peduncle	14.1—16.5 (14.88)	14.6—15.9 (15.28)	13.7—19.2 (16.25)	14.3—17.2 (16.0)	17.0—18.2	16.5—17.5 (17.03)
	Least depth	10.3—12.1 (11.04)	10.2—11.8	10.0—11.9 (10.85)	10.4—11.6 (10.76)	9.7—11.5	10.5—11.4 (10.90)
	Predorsal distance	55.4—61.0 (57.8)	56.0—59.5 (57.48)	54.0—58.5 (55.65)	54.0—57.0 (55.63)	53.5	53.3—57.1 (55.05)
	Preventral distance	40.5—45.8 (42.45)	41.1—42.5 (41.9)	41.0—43.5 (42.33)	44.0—46.5 (44.65)	46.5—47.7	42.5—44.3 (43.08)
	Pectoral-ventral distance	15.4—22.0 (18.8)	16.8—19.0 (17.75)	18.9—23.2 (20.61)	18.3—25.0 (20.39)	20.8—21.1	19.8—21.2 (20.8)
	Ventral-anal distance	23.1—25.8 (24.2)	23.4—27.0 (25.52)	21.3—27.0 (24.94)	19.6—25.6 (23.08)	23.0—23.1	20.6—25.4 (23.32)
	Anal base	21.0—25.5 (22.0)	19.5—21.8 (20.3)	19.4—22.0 (20.65)	17.6—20.0 (18.9)	17.4—18.1	18.1—20.4 (19.5)
	Head	23.8—27.0 (25.7)	24.9—27.8 (26.22)	24.6—27.1 (25.99)	25.8—28.5 (27.10)	25.3—25.6	26.2—29.0 (27.49)
	Snout	5.3—8.3 (6.20)	5.95—6.65 (6.4)	5.1—6.35 (5.85)	6.01—6.95 (6.5)	5.7—5.85	6.3—7.1 (6.58)
	Eye	6.9—8.9 (7.85)	6.95—8.3 (7.65)	6.3—7.55 (7.05)	7.1—9.2 (8.15)	6.1—7.1	6.8—8.4 (7.38)
	Eye % Interorbital	73.0—95.0 (84.4)	6.95—89.5 (82.7)	71.5—85.5 (78.05)	77.5—9.55 (85.5)	73.5—82.0	72.5—100.0 (82.0)

identity with *R. l. takakii* from South China (and not with *R. l. lineatus* from Central Vietnam), as well as of its absence in Malaya, Thailand, etc. I think *R. altior* is not autochthonous in Singapore, but was introduced long ago, as aquarium or forage fish.

The Taiwan *R. formosae* with about 47 scales is a distinct species, occurring sympatrically with *R. l. takakii*. Also *R. taeniatus* from the upper Yangtze, described after a single specimen, with 15 divided anal rays, about 51 scales, may be specifically distinct.

As shown by Oshima [9], *Rasborinus* is closer to the monotypic *Rasborichthys*, differing from it in its decurved lateral line, nearer ventral than dorsal side of caudal peduncle, and much deeper body. The general habitus of both genera is quite different and their range is quite distant.

Genus **Pseudoxygaster** nov. gen.

Type species : *Cyprinus gora* Hamilton-Buchanan.

Middle sized Cyprinidae with elongated, strongly compressed body ; a sharp keel, not covered by scales, extends from below opercle to anal origin ; the keel is supported anteriorly by an expansion of the pectoral girdle. Mouth oblique, almost vertical ; a strong symphyseal knob on lower jaw and a corresponding notch on upper. Axis of head somewhat oblique comparatively to body axis, as in *Oxygaster* and *Macrocheirichthys*. A muscular mass, covered by skin and scales, extends on the dorsal face of head to above nostrils. Suborbital bones very broad, covering most of the sides of head and extending almost to preopercle. Lateral line only gently bent downwards, continuous ; scales very small, more than 120 in lateral line. Pectorals low, pointed ; a well developed elongated and rather pointed scally flap above and on inner side of pectoral ; a broad flap, with three rows of scales covers the base of the outer side of pectoral. Dorsal short and very posterior, opposite to anal. Anal with 13 to 15 divided rays. Caudal deeply forked. Pharyngeal teeth three-rowed, short and distant, those of main row hooked, the outer one with a well-developed grinding surface ; those of second and third row conical, pointed. Gill rakers few, short and distant.

This new genus approaches *Macrocheirichthys*, *Oxygaster* and *Pelecus* in having the head axis oblique, scales extending to above nostrils and a postopercular keel supported by expansions of the pectoral girdle. The symphyseal knob is slighter than in *Macrocheirichthys*, stronger than in *Oxygaster*. The lateral line is slightly curved in *Pseudoxygaster*, almost straight in *Macrocheirichthys*, strongly curved in *Oxygaster*. The suborbital bones are much broader in *Pseudoxygaster* than in the three related genera ; in this character, *Pseudoxygaster* approaches the genus *Salmostoma*. The teeth are three-rowed, as in *Oxygaster* (in *Macrocheirichthys* and *Pelecus* they are two-rowed). The teeth of the main row are similar to those of *Oxygaster*, while those of the second and third row are conical in *Pseudoxygaster*, hooked in *Oxygaster*. The extension of the pectoral girdle, which supports the keel is short in the new genus, extending from hind margin of preopercle to hind margin of opercle, as in *Pelecus*, while in *Oxygaster* and *Macrocheirichthys* it extends to below pectoral origin. *Pelecus* and

PLATE III

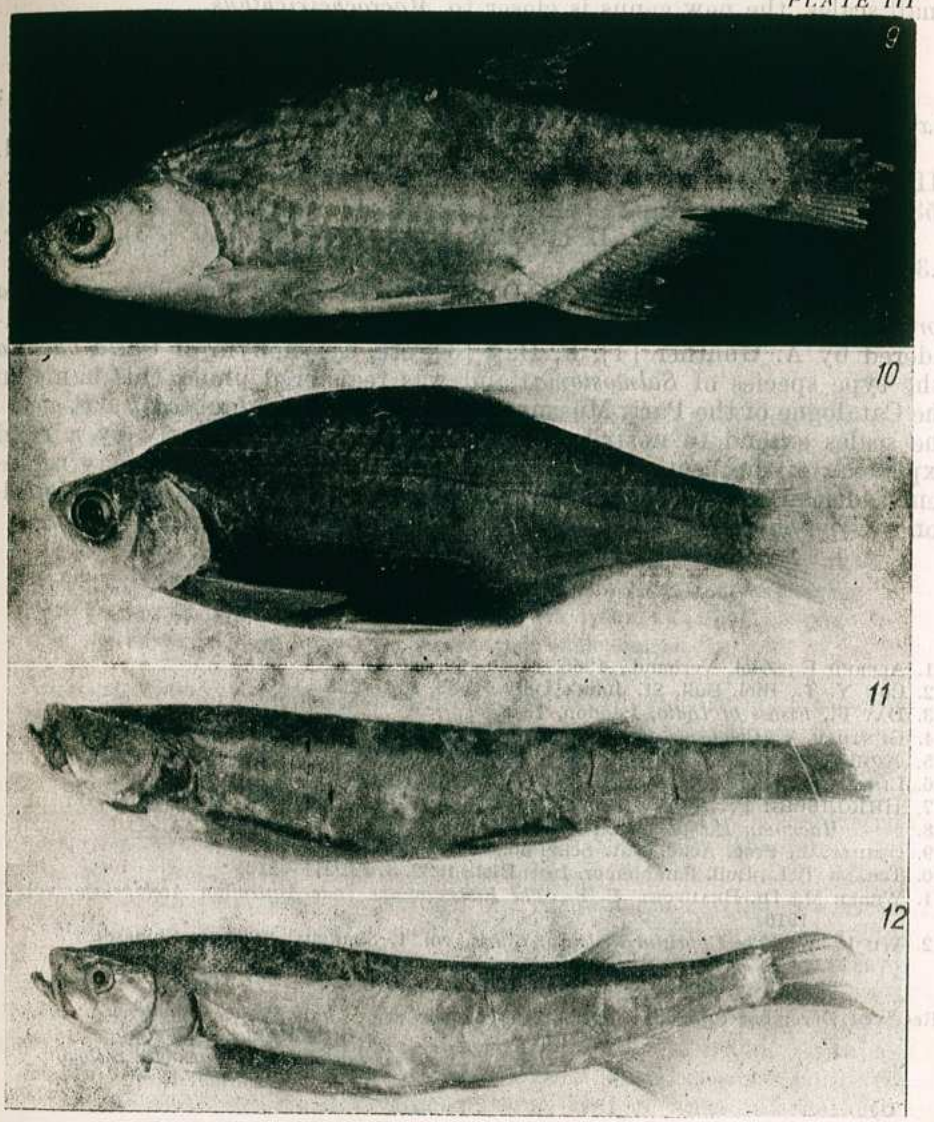

Fig. 9. — *Rasborinus lineatus lineatus* (Pellegrin). Hanoi. MNHN 36.180
Fig. 10. — *Rasborinus lineatus takakii* Oshima "Rasborichthys altior". Singapore. USNM 101 249.
Fig. 11. — *Pseudoxygaster gora* (Ham.-Buch.). "India" MNHN B. 92.
Fig. 12. — *Pseudoxygaster gora* (Ham.-Buch). Type of *Leuciscus cultellus* Valenciennes. Coromandel Coast. MNHN 3859.

Macrocheirichthys have no pectoral flap; *Oxygaster* has an outer and an inner pectoral flap, but much slighter than in *Pseudoxygaster*. In its quite small scales, the new genus is closer to *Macrocheirichthys*.

A single species.

Pseudoxygaster gora (Hamilton-Buchanan, 1822).

Synonyms: *Cyprinus gora* Hamilton-Buch., 1822; *Chela gora* auct.; *Oxygaster gora* auct.; *Leuciscus cultellus* Valenciennes, 1844.

Specimens examined: MNHN B 92, "India". 1 spec., 210 mm (Pl. III, Fig. 11); MNHN 3859, type of *Leuc. cultellus*, Coromandel Coast, 153 mm (Pl. III, Fig. 12).

D 3/7; A 3/14–15, L. lat. 120–153. Sp. br. 13 (10 + 3), D. phar. 5.3.1–1.3.5.

Both specimens agree with Day's [3] description and figure of *Chela gora*, but the type of *L. cultellus* has only 120 scales. *L.cultellus* was considered by A. Günther [4], F. Day [3], etc. a synonym of *Chela bacaila* (the type species of *Salmostoma*) and was registered under this name in the Catalogue of the Paris Museum. But the type is undoubtedly a *P. gora*: the scales extend to nostrils, the keel is supported anteriorly by a rigid expansion of the pectoral girdle, etc. Having fewer scales, it may represent a distinct subspecies, living in Coromandel (Eastern Ghats); Hamilton's *Cyprinus gora* was described from the Ganges.

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