REVISION OF THE GENUS *PARALAUBUCA* BLEEKER (Pisces, Cyprinidae)

PETRU BĂNĂRESCU

A large number of specimens, including the types of all but one nominal species of *Paralaubuca* were examined. Five species are recognized. *P. stigmabrachium* is very close to *P. typus*; *Culter siamensis* HORA and *C. wolfi* FOWLER are synonyms of *Paralaubuca harmandi*. The character on which the genus *Cultrops* was based (the presumed tripartite air bladder) proved to be wrong; *Cultrops* is a synonym of *Paralaubuca*. The formulae indicatdd by FOWLER and SMITH for some species do not apply to the specimens.

The range of the genus *Paralaubuca* is restricted to the Mekong and Menam Chao Phya drainages in Thailand and adjacent countries (including the Chinese Province Yunnan) and to smaller rivers in Thailand and Malay Peninsula. The genus was established by BLEEKER in 1863 for *P. typus*; two other species were described by SAUVAGE in 1876 and 1883. HORA (1923) described a closely related species as *Culter siamensis*; FOWLER (1934 to 1937) described four other species from Thailand, ascribing them initially (1934) to the South-Asian genus *Chela*, later (1935, 1937) to the Chinese genus *Culter*; he records also BLEEKER's species as *C. typus*, considering thus *Paralaubuca* a synonym of *Culter*. SMITH (1938, 1945) recognizes *Paralaubuca* as a distinct genus and describes a new genus, *Cultrops*, for *Culter siamensis*, which was said to have a tripartite air-bladder; he recognizes (1945) all species described by previous authors as valid, except *P. lateralis* SAUVAGE, 1876, (which was already synonymized with *P. typus* by SAUVAGE himself in 1881), and *Culter wolfi* FOWLER, 1937, which he synonymizes with *Cultrops siamensis*. But SMITH had no specimens from most species; his 1945 book does not represent a revision of the genus. I considered therefore usefull to revise its species.

Material.

Some 340 specimens were examined, including the types of all nominal species, except *Culter siamensis*; they belong to the following collections: American Museum of Natural History, New York (A.M.N.H.), Academy of Natural Sciences, Philadelphia (A.N.S.P.), British Museum, Natural History, London (B.M.N.H.), Field Museum of Natural History, Chicago (F.M.N.H.),

Institutul de Biologie Tr. Săvulescu, Bucureşti (I.B.T.S.), Muséum National d'Histoire Naturelle, Paris (M.N.H.N.), Museum of Zoology, University of Michigan, Ann Arbor (U.M.M.Z.) United States National Museum, Washington (U.S.N.M.), Zoologisches Staatssammlung, München (Z.S.S.M.).

Systematic Account.

1. *Paralaubuca typus*, BLEEKER, 1863.

Synonyms: *P. typus* BLEEKER, 1863: 133 (Thailand); SAUVAGE, 1881: 189; HORA 1923: 148, pl. 10, fig. 2 (Bangkok: Notaburi); SMITH, 1945: 84; *Chela paralaubuca* GÜNTHER 1868: 337 (Bangkok; new name for *P. typus*); *Pseudolaubuca lateralis* SAUVAGE, 1878: 98 (Mekong); *Culter typus*, FOWLER, 1935: 109 (Bangkok); FOWLER, 1937: 164, fig. 102 (Bangkok; Pitsanuluk).

Specimens examined:

Syntypes of *Paralaubuca typus:* M.N.H.N. 1865—1867, Menam R. at Bangkok, 4 spec., 92.0—96.0 mm; Nr. 1867, 92.1 mm is chosen as lectotype.

Syntypes of *Pseudolaubuca lateralis:* M.N.H.N. 3932, Mekong R., Cochinchina, 112 spec.; the lectotype retained this number, the 111 paralectotypes received the number B. 2538.

Further syntypes of *Ps. lateralis:* M.N.H.N. 3933, waterfalls of Mekong R., 37 spec., 87.0—133.0 mm.

M.N.H.N. A-2406, Mekong R., 1 spec., 148.2 mm.
M.N.H.N. 5057, Thailand, 2 spec., 84.5—94.0 mm.
M.N.H.N. 5058, Thailand, 1 spec., 93.0 mm.
U.S.N.M. 103290, Pasak R., Thailand, 2 spec., 95.5 and 105.5 mm.
U.S.N.M. 108124, Menam R., 4 spec., 86.5—97.0 mm.
U.S.N.M. 108125, Menam R. at Bangkok, 2 spec., 95.0 and 104.0 mm.
U.S.N.M. 103297, same locality, 2 spec., 148.0 and 154.2 mm.
I.B.T.S. 1081, same locality, 2 spec., 110.5 and 148.2 mm.
U.M.M.Z. 181 245, Great Lake (Tonlé Sap), Cambodia, 1 sp., 126.0 mm.
U.M.M.Z. 181126, Mekong R., Cambodia, 3 spec., 60.0—71.3 mm.

D 3/7; A 2/(22—) 24—29 (30); Sp. br. 33—42 (—46); L. lat. 56—64

The mean number of branched anal rays is 26.25 ± 0.11 in the 111 specimens of the series M.N.H.N. 3932, 26.30 ± 0.19 in the 37 of the series M.N.H.N. 3933 (both series from Mekong), 27.30 ± 0.40 in ten specimens from Menam R.; the mean number of gill rakers varies between 36.0 and 37.1. The lateral line is, as in most *Paralaubuca* species, discontinuous, consisting in two or even three parallel branches which overlap on a long distance; the scale number mentioned in the formula (56—64) indicates the total number of transversal series, the scales in the overlaping portions counted only once. The scale number mentioned by SMITH (1945) in the species-key — 50—60 — is wrong. The mean values of the scales number are: 60.35 ± 0.28 in M.N.H.N. 3932, 60.83 ± 0.54 in M.N.H.N. 3933 (both series from the Mekong) and 59.10 ± 0.42 in specimens from the Menam R.; in the only two available Passak R. specimens I found 65 and 66 scales.

The value of body depth varies between 25 and 35% of standard length, the mean values between 28.4 and 31.9%, being higher in the populations from the Menam than in those from the Mekong drainage. The other proportions are shown in Table I. The species is characterized by the fact that the dorsal and ventral profiles are equally arched (almost parallel) and the mouth moderately oblique.

The difference in number of scales, anal rays, gill rakers and body depth between the specimens from Menam (terra typ.) and Mekong Rivers are too small as to ascribe the last ones to a distinct subspecies, *P. t. lateralis*; the Pasak R. specimens, from which I had only 2 available specimens, may represent a distinct subspecies, characterized by a higher number of scales.

2. *Paralaubuca stigmabrachium* (FOWLER, 1934)

Synonyms: *Chela stigmabrachium* FOWLER, 1934: 109, fig. 62 (Mekong R. at Chiengsieo); *Culter sr.*, FOWLER, 1937: 166 (Bangkok; Mepoon; Tachim; Kemarat); *Paralaubuca sr.*, SMITH, 1945: 83 (refer.)

Specimens examined: syntypes of *Chela stigmabrachium*: A.N.S.P. 57458—57464, Mekong R. at Chiengsieo, E. Thailand, 7 spec., 114.7—127.5 mm; according to the original description, the largest specimen is the holotype, but it is not segregate in a distinct bottle.
A.N.S.P. 87239, Kemarat, Mekong dr., 6 spec., 84.0—116.0 mm.
I.B.T.S. 1082, same locality, 1 spec., 99.0 mm.
A.N.S.P. 60939, Menam R. at Bangkok, 1 spec., 64.9 mm.
A.N.S.P. 87356, same locality, 2 spec., 60.0 and 81.7 mm.
A.N.S.P. 87264, Tachim R. (a drainage close to that of the Menam), 1 spec., 35.5 mm.
A.N.S.P. 89541, Me Poon, Menam dr., some 16 spec.

D. 3/7; A 2/ (23) 24—27 (28); Sp. br. 33—38 (—40); L. lat. 56—63.

Mean number of anal rays: 25.6 ± 0.45 in Kemarat, 25.2 ± 0.49 in Chieng Sen specimens; mean number of gill rakers in the same two localities: 36.71 ± 0.63 and 35.57 ± 0.52. The body proportions (measured in 7 specimens) are shown in Table I, comparatively to the values in *P. typus* and *P. riveroi*.

With regard to the number of anal rays, gill rakers, scales, as well as body proportions, this species doesn't differ from *P. typus*; the mean number of anal rays is somewhat lower in *stigmabrachium*, but the difference is small and the overlap of extreme values is large. The only morphological difference between both species is the constant presence, in *stigmabrachium*, of a large and intensive blackish spot in the middle of the pectoral fin. This character is so constant that I accept *stigmabrachium* as a distinct species. Field and genetical studies are necessary in order to verify its reproductive isolation.

3. *Paralaubuca riveroi* (FOWLER, 1935).

Synonyms: *Culter riveroi* FOWLER, 1935: 108, fig. 34 (Bangkok); FOWLER, 1937: 166 (Pitsanulok and Mepoon, Menam R. drainage); *Culter barroni* (not FOWLER, 1934), FOWLER, 1937: 164 (Pitsanulok, Menam R., drainage and Kemarat, Mekong R. drainage); *Paralaubuca riveroi*, SMITH, 1945: 84 (refer.); *Par. barroni* (not FOWLER, 1934), SMITH, 1945: 83 (refer.; partim: Pitsanulok and Kemarat).

Specimens examined:

Holotype of *C. riveroi*: A.N.S.P. 60303, Bangkok, 125.7 mm.
A.N.S.P. 87398, Me Poon, Menam R. drainage, 5 spec., 53.3—116.0 mm.
A.N.S.P. 89374, Pitsanulok, 10 spec., labelled *C. typus*.
I.B.T.S. 1083 (formerly A.N.S.P. 89373), Pitsanulok, 1 spec., 123.0 mm.
A.N.S.P. 89410, Kemarat, 65 spec., 44.0—77.0 mm, labelled *C. barroni*.
A.N.S.P. 89373, 8 spec., 103.0—127.0 mm.
A.N.S.P. 89378, Pitsanulok 13 spec., 103.0—122.0 mm, labeled *C. barroni*.

D 3/7; A 2/ (22) 23—27; Sp. br. (36—) 41—50 (51); L. lat. 58—65.

The body proportions, in two series of *P. riveroi*, are shown in Table I, comparatively with the values in *P. typus* and *P. stigmabrachium*.

This species approach *P. typus* in general habitus, number of anal rays and of scales, but differs from it in having more gill rakers (41—50 as against 33—42), a lower body, longer pelvic-anal distance (see Table I; the extreme values overlap for both characters but the averages are quite different), the ventral profile evidently more arched than the dorsal, the mouth cleft almost vertical and the lateral line usually continuous.

4. *Paralaubuca barroni* (FOWLER, 1934).

Synonyms: *Chela barroni* FOWLER, 1934: 109, fig. 61 (Mekong R. at Chiengsen); *Paralaubuca barroni*, SMITH, 1945: 83 (refer.; partim); *P. barroni*, YIH in WU & al.; 1964: 76, fig. 2-10 (Mekong drainage in Yunnan, China)

Specimen examined: holotype of *Ch. barroni*, A.N.S.P. 54435, Mekong R. at Chieng Sen, North Thailand, 84.7 mm.

D 3/7; A 2/28; Sp. br. 24; L. lat. 55—53; D. phar. 5.4 2—2.4.4.

In % of standard length: body depth 25.4; caudal peduncle length 19.3; least depth 8.85; predorsal distance 58.0; preanal. 64.0; preventral 47.3; P—V distance 24.5; V—A distance 18.3; pectoral lenght 24.2; ventral lenght 10.2; anal fin base 25.1; head 22.4; snout 6.15; eye 6.5; eye 94.5% of interorbital width. Lateral line discontinuous, consisting in two overlapping sections. Air bladder bipartite. Both profiles parallel, equally arched.

The scales number indicated in FOWLER's original description ("43 to caudal base and 3 more on later") is wrong; YIH (1964) gives correct figures: L. lat. 53 $\frac{10}{5}$ 56; A 2/23—28; Sp. br. 19—24, but a deeper body: depth 28.6—29.6% of standard length.

In general shape, body proportions and anal rays number, *P. barroni* is similar to the three already mentioned species; the body depth is in the holotype about the same as in *P. riveroi*. *P. barroni* differs sharply from all other species within the genus in having fewer scales and gill rakers.

The holotype is the only specimen hitherto recorded from Thailand and apparently the single one represented in American and European collections. I examined the specimens from Pitsanulok (A.N.S.P. 89378 & 89374) and the very many from Kemarat (A.N.S.P. 89410) recorded by FOWLER (1937) as "*Culter*" *barroni* and all proved to be *P. riveroi*. The only correct record of *P. barroni* in the ichthyological literature, besides the original description, is that by YIH (in WU & al., 1964) who mentions and briefly describes 21 specimens, 75.0—115.0 mm, from the Mekong drainage in Yunnan. The species range is restricted to the upper and middle Mekong.

5. *Paralaubuca harmandi* SAUVAGE, 1883.

Synonyms: *Paralaubuca harmandi* SAUVAGE, 1883: 153 (Menam R.); SMITH, 1945: 85 (refer.); *Culter siamensis* HORA, 1923: 149, pl. 10, fig. 1 (Menam R. at Bangkok); FOWLER, 1935: 109 (Bangkok); FOWLER, 1937: 163 (Bangkok); *Culter woolfi* FOWLER, 1937: 163 (Pitsanulok; also Me Poon); *Coltrops siamensis*, SMITH, 1938: 410 (Thailand); SMITH, 1945: 86 (Menam and Mekong drainages in Thailand.

Specimens examined:

Holotype of *P. harmandi*: M.N.H.N. A-6427, Menam R., 147.0 mm.
Holotype of *Culter woolfi*: A.N.S.P. 68016, Pitsanulok, 180.0 mm.
Paratypes of *C. woolfi*: A.N.S.P. 68017—20, same locality, 4 spec., 98.0—160.0 mm.

A.N.S.P. 88043, 1 spec., 57.0 mm, labelled *C. wolfi* (two larger specimens from the same series were *P. typus*).

A.N.S.P. 89441, Bangkok, 6 spec., 86.0—142.0 mm, labelled *C. siamensis*; A.N.S.P. 60800—60802, Bangok, 4 spec., 116—190, labelled *C. siamensis*.

I.B.T.S. 1079 (formerly A.N.S.P. 89441), Bangkok, 1 spec., 133.2 mm (originally labelled *C. siamensis*).

B.M.N.H. 1949. 9. 16. 235.

F.M.N.H. 50788, Kam Peng, Pet Province, Wnog Pratart Farm, Thailand, 5 spec., 165.0—201.0 mm, labelled *Cultrops siamensis*.

F.M.N.H. 50787, same locality, 6 spec., 155.0—219.0 mm, labelled *Paralaubuca riveroi*.

A.M.N.H. 14595, Nakon R., north Thailand, 1 spec., 128.0 mm.

U.S.N.M. 108123, Bangkok, 1 spec., 123.0 mm, labelled *C. siam.*

U.S.N.M. 108135, Menam R., 1 spec., 169.0 mm, labelled *C. siam.*

Z.S.S.M., no Catal. Nr., no locality, 1 spec., 153.0 mm.

D 3/7; A 2/ (21) 22—24 (25); Sp. br. (26) 27—33; L. lat. (70) 75—85 (86).

The comparison of the holotypes of *P. harmandi* (Fig. 6) and *C. wolfi* (Fig. 7) and of all specimens mentioned above clearly demonstrated their conspecificity. I couldn't see HORA's type material of *C. siamensis*, but the original illustration of this nominal species shows that it is the same as *P. harmandi*. In describing *C. wolfi*, FOWLER (1937) points out its similarity with *siamensis*, mentioning as difference the pectoral longer than the head. This is a quite minor difference; among the A.N.S.P. specimens determined *wolfi*, most have the pectoral longer than the head, but in one it was shorter; also among the A.N.S.P. specimens determined *siamensis* I found three in which the pectoral was equal to or slightly longer than the head. SMITH (1945) has already synonymized *wolfi* with *siamensis*.

SMITH (1938, 1945) proposed the new genus *Cultrops* for *C. siamensis* because of its supposed tripartite air-bladder (as against bipartite in *Paralaubuca*). In describing *siamensis*, HORA (1923) actually mentions that the air bladder is tripartite. I examined the air bladder in most available specimens, inclusively the types of *P. harmandi* and of *C. wolfi* and in all specimens determined as *siamensis* by FOWLER (in A.N.S.P.) and by SMITH (in U.S.N.M.); the air bladder was bipartite. I suppose HORA considered as third chamber of the air bladder the short and narrow posterior prolongation of the second chamber, which is present in *P. harmandi*, as well as in *P. typus*, *riveroi* and *stigmabrachium*.

The lateral line is, as in most *Paralaubuca*, discontinuous, with a large overlap between the two sections.

The number of branched anal rays and of gill rakers is rather constant in the examined populations (the mean number of branched anal rays varies between 22.5 and 23.0); that of lateral line scales ranges between wide limits — 74 and 87 — one specimen (B.M.N.H. 1898. 4. 2. 244) had but 70 scales. Yet the mean number of scales is similar in most populations: 78.5 ± 1.61 in Pitsanulok, 79.5 ± 0.77 in Bangkok, 81.3 ± 0.89 in Kam Peng Pet specimens.

P. harmandi differs from all other species within the genus in having, besides a higher number of scales, the lower jaw very projecting.

The body proportions in the holotype and in specimens belonging to 3 other populations are shown in Table II. One remarks that the body depth

TABLE 2

% of std. length		type	Wang Prahat n = 11	Bangkok n = 7	Pitsanulok n = 5
	Body depth	23.2	21.4—29.4 (26.06)	22.6—27.5 (25.45)	22.2—28.8 (24.95)
	Caudal ped.	16.7	13.9—17.3 (16.30)	14.6—17.9 (16.04)	13.3—15.8 (14.45)
	Least depth	9.4	8.7—9.6 (9.10)	8.7—9.3 (9.15)	8.0—9.2 (8.4)
	predors. dist.	56.5	53.7—56.0 (54.60)	54.0—58.0 (55.55)	50.0—57.7 (54.8)
	preanal dist.	66.7	66.3—69.0 (67.6)	64.0—69.5 (66.43)	62.5—68.5 (65.95)
	preventral dist.	48.0	46.9—49.5 (48.37)	45.8—53.5 (48.90)	45.2—50.4 (48.4)
	P-V distance	23.2	24.4—28.8 (26.07)	24.5—29.6 (25.84)	22.0—26.1 (24.00)
	V-A distance	19.0	19.9—21.8 (20.95)	16.9—20.9 (18.5)	16.3—19.0 (17.65)
	pectoral	24.0	23.1—26.1 (24.6)	23.8—26.0 (24.65)	24.7—27.4 (25.45)
	anal base	18.2	18.4—21.0 (19.50)	19.0—22.6 (21.0)	17.2—21.5 (19.8)
	head	23.0	22.0—24.5 (23.38)	23.8—27.0 (25.00)	22.8—25.4 (24.23)
	snout	6.25	6.0—7.2 (6.54)	6.6—7.0 (6.86)	6.1—7.2 (6.65)
	eye diam.	5.65	4.6—6.0 (5.33)	5.3—6.7 (5.89)	4.9—6.2 (5.75)
	eye diam. % interorbital	100.0	71.0—95.0 (82.5)	72.5—106.0 (87.0)	74.0—88.0 (81.5)

Body proportions in *Paralaubuca harmandi*.

varies between wide limits — 21.4 —29.4%, but the averages are more or less constant: 24.95—26.06%. Some deep-bodied specimens (Fig. 8) have a peculiar shape, with the upper profile almost horizontal. The Pitsanulok specimens are characterized by shorter caudal peduncle, pectoral-ventral and ventral-anal distances.

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From the 5 species of the genus, *P. harmandi* is the most diffrentiated, while *P. typus* and *P. stigmabrachium* are very close one to another and can be considered as sibling species. *Paralaubuca* is one of the few genera of freshwater fishes living in the central part of the Indochinese Peninsula and not occuring in the Indonesian Archipelago.

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Revizuirea genului Paralaubuca BLEEKER (Pisces, Cyprinidae)

REZUMAT

PETRU BĂNĂRESCU

Pe baza examinării a circa 340 de exemplare, între cari toate exemplarele tip cu excepția tipului lui *Culter siamensis*, autorul conchide că genul *Paralaubuca* cuprinde 5 specii: *P. typus* (= *lateralis*) caracterizată prin A2/(22-) 24—29 (30), Sp. br. 33—42 (-46), L. lat. 56—64; *P. stigmabrachium* cu aceiași formulă dar având o pată neagră foarte evidentă pe pectorală; *P. riveroi* cu A2/(22) 23—27, Sp. br. (36-) 41—50 (-51); L. lat. 58—65, în genere neîntreruptă; *P. barroni* caracterizat prin A2/28, Sp. br. 24, L. lat. 53—55; *P. harmandi* (= *Culter siamensis*, = *wolfi*) carracterizat prin: A2/(21) 22—24 (27); Sp. br. (26) 27—33; L. la (70) 75—85 (86). Genul *Cultrops* este sinonimul lui *Paralaubuca*, criteriul pe baza căruia a fost separat acest gen (vezica cu aer presupus tri-partită) fiind eronat. Formulele indicate de FOWLER și SMITH pentru unele din aceste specii nu sînt corecte; o parte dintre exemplarele menționate de FOWLER drept *P. barroni* aparțin în realitate lui *P. riveroi*. *P. stigmabrachium* este probabil izolat reproductiv de *P. typus*, deci specie distinctă.

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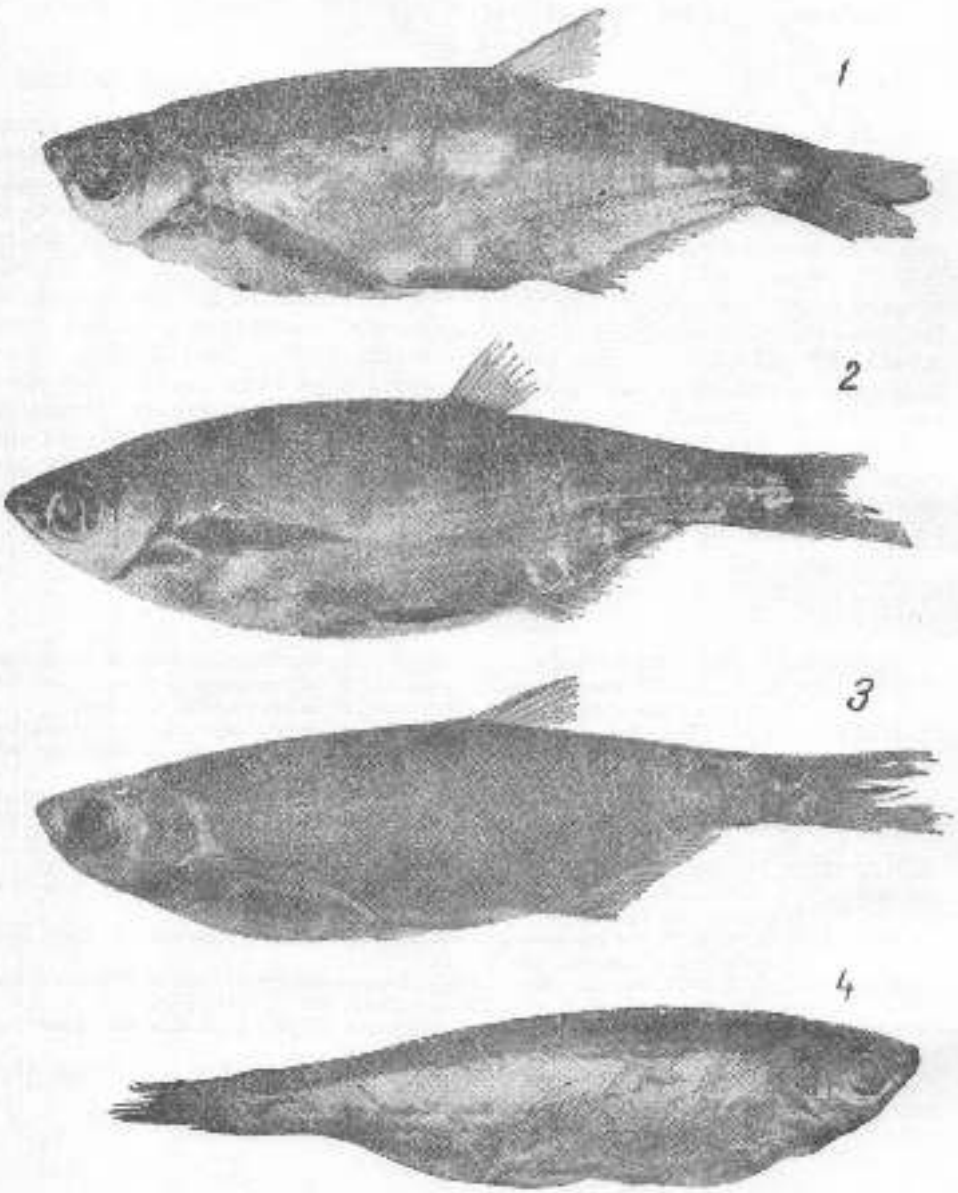

Fig. 1. *Paralaubuca typus*, YBLEEKER Lectotype. M.N.H.N. 1867; Bangkok.
Fig. 2. *Paralaubuca typus* BLEEKER; one paralectotype of *Pseudolaubuca lateralis* SAUVAGE. M.N.H.N. B-2530; Mekong R.
Fig. 3. *Paralaubuca stigmatorachium* (FOWLER). A.N.S.P. 87239; Kemarat.
Fig. 4. *Paralaubuca barroni* (FOWLER), Holotype. A.N.S.P. 57455; Mekong R. at Chieng Sen.

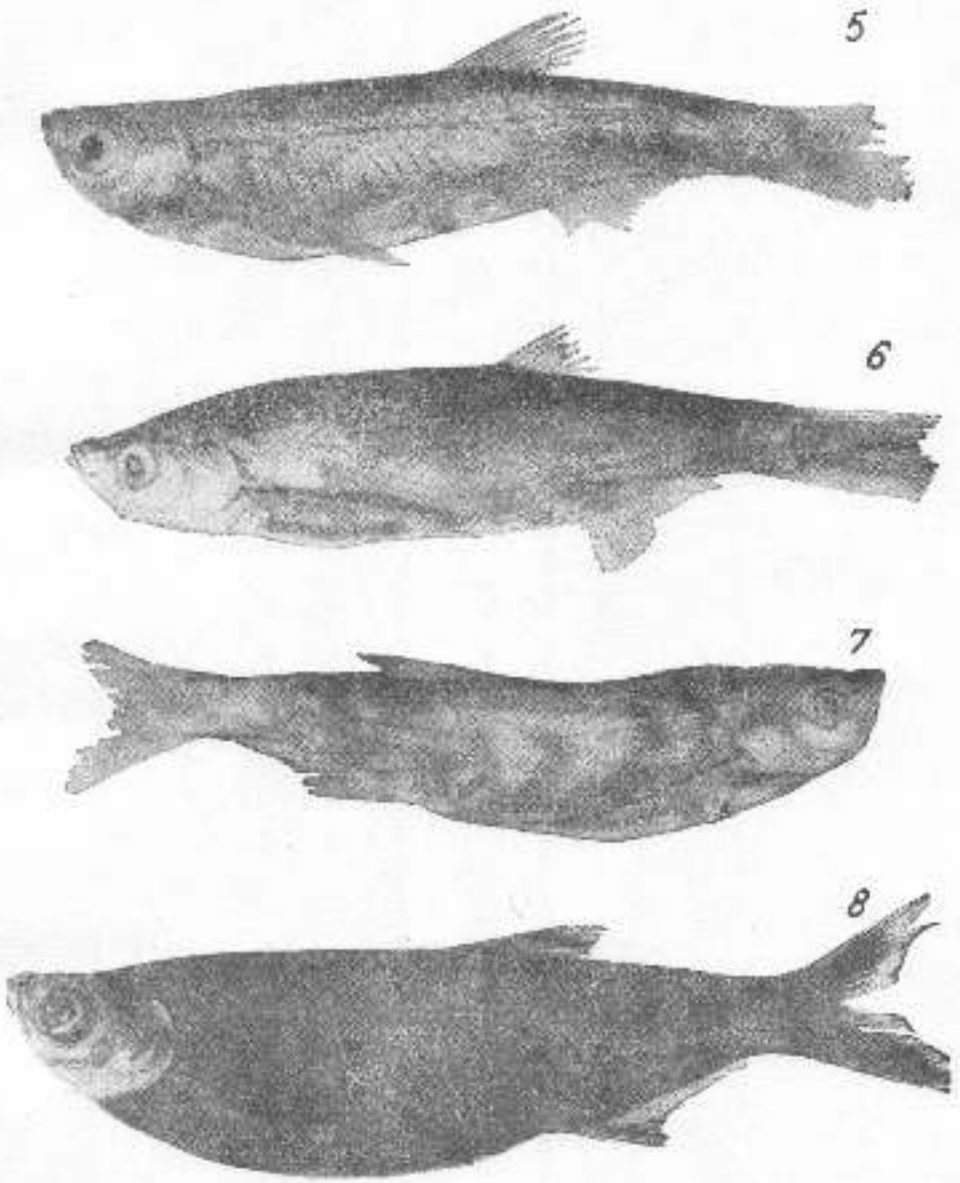

Fig. 5. *Paralaubuca riveroi* (FOWLER). A.N.S.P. 89378. Pitsanulok; specimen determined by FOWLER as *P. barroni*.
Fig. 6. *Paralaubuca harmandi* SAUVAGE. Holotype. M.N.H.N. A-6427; Menam Chao Phya R.
Fig. 7. *Paralaubuca harmandi* SAUVAGE; Holotype of *Cultur wolfi* FOWLER; A.N.S.P. 60016; Pitsanulok.
Fig. 8. *Paralaubuca harmandi* SAUVAGE. Z.S.M., no. Nr.; Thailand.

Table 1

	Locality, series	depth	caudal peduncle	least depth	predors.	presnal	prevenral	P—V	V—A	pectoral	A-base	head	snout	eye	eye % interorb
P. typus	Syntypes M.N.H.N.	27.3—30.6 (29.4)	11.7—13.1 (12.1)	9.4—9.8 (9.66)	56.8—58.5 (57.7)	64.0—66.3 (65.65)	47.5—50.5 (48.91)	24.4—27.0 (25.90)	17.0—18.4 (17.80)	24.4—2.66 (25.19)	23.0—27.1 (24.9)	21.8—22.6 (22.25)	5.3—5.7 (5.57)	6.5—7.6 (7.15)	92.5—97.0 (95.3)
	Mekong, M.N.H.N. 3932	27.2—30.4 (28.96)	13.2—14.9 (14.12)	9.3—9.8 ((9.50)	54.0—57.0 (55.5)	63.5—66.6 (65.2)	47.5—49.5 (48.6)	25.4—27.2 (26.53)	16.7—18.7 (17.39)	23.4—25.7 (24.57)	22.7—24.4 (23.74)	21.9—23.9 (22.8)	4.95—5.6 (5.35)	7.1—8.2 (7.49)	91.0—117.0 (101.2)
	Mekong M.N.H.N. 3933	27.1—30.2 (28.76)	13.4—16.0 (14.55)	9.4—9.9 (9.63)	53.6—56.2 (55.27)	63.0—67.5 (65.31)	47.7—50.4 (48.62)	25.2—28.3 (26.46)	17.3—18.6 (18.16)	23.2—24.8 (24.30)	21.2—25.2 (23.57)	21.0—23.8 (22.67)	4.8—5.9 (5.53)	6.2—8.4 (7.58)	85.0—111.0 (102.9)
	Low. Mekong Cambodia	25.9—31.9 (28.4)	12.5—15.0 (13.92)	9.1—9.7 (9.49)	54.7—59.0 (55.97)	61.0—68.5 (64.75)	46.8—50.6 (48.8)	21.0—27.0 (25.10)	16.8—20.6 (17.80)	24.2—28.6 (25.04)	22.0—26.6 (24.6)	23.0—25.0 (24.22)	5.3—5.95 (5.67)	5.7—8.3 (7.39)	72.0—106.0 (100.0)
	Menam R.	29.4—34.4 (31.20)	11.7—13.7 (12.83)	8.0—10.0 (9.43)	54.0—59.5 (55.75)	62.0—69.3 (65.67)	47.0—49.5 (47.67)	25.0—29.3 (27.04)	17.8—21.2 (19.05)	24.6—26.1 (25.65)	23.4—28.0 (25.42)	21.0—24.3 (22.09)	4.8—5.6 (5.19)	6.6—7.5 (7.10)	88.0—111.0 (99.3)
	Pa-sak R.	29.4—30.6	14.4—15.5	9.4—10.5	54.0—57.0	65.5—67.5	48.3—50.0	27.5—27.8	18.9—20.4	27.3—28.2	23.0—23.2	22.6—23.0	4.75—5.25	6.2—6.8	90.5—102.0
P. stigmabrachium		25.8—30.6 (28.1)	12.5—13.7 (13.4)	8.4—9.5 (9.14)	52.0—55.0 (54.31)	63.5—66.0 (64.95)	47.3—50.5 (49.4)	25.0—27.2 (26.0)	17.2—20.1 (18.4)	24.6—25.8 (25.1)	23.4—26.2 (24.78)	21.4—24.2 (22.98)	5.1—6.1 (5.70)	6.4—7.9 (7.2)	90.0—115.0 (98.65)
P. riveroi	Holotype	30.4	14.0	9.5	57.5	63.0	45.5	25.8	17.7	28.4	26.6	21.1	4.85	5.80	89.0
	Mc Poon	23.6—28.0 (26.75)	14.0—16.6 (15.13)	9.1—9.8 (9.36)	51.2—57.5 (55.2)	62.0—68.0 (66.0)	45.0—50.5 (48.06)	23.2—28.0 (25.51)	17.3—21.4 (19.60)	26.2—29.2 (27.5)	20.6—23.6 (22.6)	22.6—26.6 (23.44)	4.9—7.1 (5.59)	6.4—7.5 (6.91)	81.0—109.0 (97.0)
	Pitsanulok	24.2—27.8 (25.71)	11.3—14.0 (13.92)	8.7—10.0 (9.29)	52.5—58.0 (55.71)	64.0—69.5 (66.95)	47.0—55.0 (48.99)	26.0—28.6 (27.40)	17.0—23.0 (20.72)	27.0—30.3 (28.75)	21.2—25.0 (22.9) 0	21.4—23.4 (22.18)	4.6—5.6 (5.14)	6.2—7.5 (6.85)	83.0—97.0 (90.0)

Body proportions in *Puralaubuca typus*, *P. stigmabrachium* and *P. riveroi*