

Corica perakensis n.sp. (Length of type 28.5 mm).

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Eleven New Fishes from the Malay Peninsula

By ALBERT W. C. T. HERRE,
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(Plates I-XI)

The fishes of Singapore and adjacent waters are of great interest to the student of geographical distribution. Singapore may rightly be considered a half-way point between the Red Sea and east coast of Africa, and the far-flung isles of Polynesia. Here the marine fishes of China and India commingle, and my recent collections show that many fishes hitherto known only from my discoveries in the Philippines likewise occur on the reefs and in the creeks of Singapore and Johore. The migratory fishes of the Indo-Pacific realm pass Singapore and its reefs swarm with a rich and extraordinarily varied fish fauna. Then too, its creeks and those of the neighbouring states of Malaya abound with a vast and imperfectly known fish fauna. Both the hill streams and the largest rivers of the Malay States will amply repay the careful collector. My own brief visit to Malaya has shown that the fish fauna of that interesting region is one that needs careful and extended investigation. Fish are of such fundamental importance in Malayan economics that any labour or expense incurred in their study will be amply repaid.

In this paper is presented a preliminary report upon some of the new fishes discovered in collections made in April, 1934, with the invaluable assistance of Mr. W. Birtwistle, Officer-in-Charge of the Fisheries Department in the Straits Settlements and Federated Malay States. Without his co-operation little would have been accomplished in a brief stay. The fishes here presented are, with two exceptions, marine. Fresh-water cat-fishes, carps, and loaches, as well as some doubtful Bettas, are being held for further study. It is hoped that a little later a report may be presented giving a complete list of all fresh water and marine fishes obtained, together with descriptions of the new fresh-water species. This would add very materially to our knowledge of the distribution of Malayan fishes.

FAMILY CLUPEIDÆ

Corica perakensis n. sp. (Plate I).

Dorsal 14 to 15; anal 15-2; the scales are very deciduous, apparently 38; there are 7 or 8 keeled scales or scutes between the pectoral and ventral origins; rarely 6 of them have spines, but usually only the last two bear spines; there are 4 to 6

postventral scutes with larger and more prominent spines; gill rakers 6-16, the terminal ones small, the longest less than the pupil and much shorter than the gill filaments.

The depth of the much compressed body is 4.4 to 4.5 times, the head 3.8 to 3.95 times, the deeply forked caudal 3.6 to 3.8 times, in the length. The ventral profile is more convex than the dorsal. The eye is 3 times in the head, longer than the snout which is 3.3 to 3.6 times in the head, and shorter than the postorbital which is 2.6 to 2.6 in the head. The maxillary extends to the front margin of the pupil, 2.16 to 2.6 times in the head. The origin of the dorsal is nearer the tip of the snout than to the base of the caudal. The pectoral is a little less than the head without the snout, 6 to 6.33 times in the length; the origin of the ventrals is beneath the fifth dorsal ray, the ventral length 2.2 to 2.4 times in the head. The dorsal base is 5.7 times, its height 7.1 times, (5.5 times in some specimens) the anal base 6.33 times, the height of the anal 8.14 times in the length. The second anal is far from the first, the distance between them equal to the snout.

The color of formalin specimens is yellowish, with a broad white band from the shoulder to the middle of the tail. The nape is stippled with black dots. Similar black dots are along the bases of the dorsal and anal and may extend on to the caudal; some specimens have a lateral row of black dots on the middle of the caudal peduncle. The fins are all colorless except the caudal, which may be speckled with black dots.

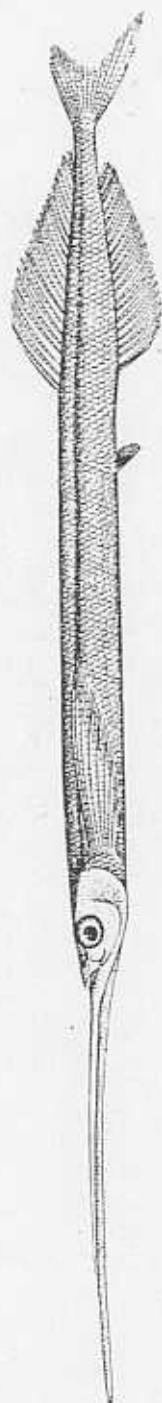
Described from the type, 28.5 mm. long, and 11 paratypes 22 to 27 mm. in length, from the Perak River, Perak, Federated Malay States.

FAMILY HEMIRAMPHIDÆ

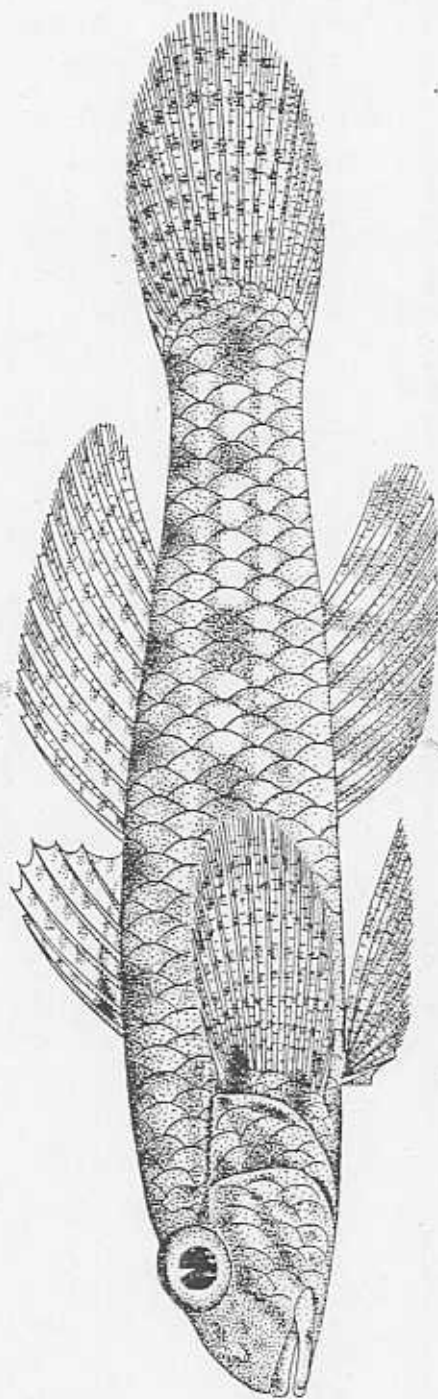
Hemiramphus tweediei n. sp. (Plate II).

Dorsal 22; anal 22; pectoral 1-7; ventral, 1-5; scales in lateral line about 120+: predorsal scales 46.

The elongate body is much compressed, with an exceedingly elongate lower jaw and very long pectorals. The depth is 15 times in the length, 22 times including the lower jaw; the breadth is 1.7 times in the depth. The deeply forked caudal equals the head, 6.9 times in the length, 3.8 in the trunk. The entire head is 1.6 times in the standard length. The lower jaw beyond the tip of the upper jaw is 3.27 times the head and is contained 2.11 times in the standard length; the pectoral is 1.5 times the head and is 4.5 times in the length. The eye is 3.7, the snout 2.9, the concave interorbital 4, the postorbital 2.6 times in the head. The triangular part of the upper jaw is a fourth broader than long. The minute teeth are in uniform bands in both jaws.



Hemirhamphus tweedlei n.sp. (Length of type 180 mm).



Gnatholepis hendersoni n.sp. (Length of type 45 mm).

ELEVEN NEW FISHES FROM THE MALAY PENINSULA

The origin of the anal is opposite the base of the fourth dorsal ray, both fins concave, their anterior rays highest, the dorsal base a little longer than that of the anal; the longest dorsal rays 1.73, the anal 1.85 times in the head; the ventrals are very far back, nearer the caudal base than the gill opening, $4\frac{1}{3}$ times in the head or $6\frac{2}{3}$ times in the pectoral.

The color in alcohol is uniform brown, with a paler stripe from the opercular angle to the caudal base, evidently silver in life, with a blackish stripe above it, and a dusky brown stripe along the back from the head to the dorsal. Nearly all the scales have been lost, so that the scale count of the lateral line is only approximate.

Described from the type and sole specimen 180 mm. long, secured near Singapore. This species is markedly separated from others of its genus by its very short head, extraordinary beak, and greatly elongated pectorals.

I take pleasure in naming it for Mr. M. W. F. Tweedie, of Raffles Museum, who has collaborated enthusiastically in studies of the Malayan fishes.

FAMILY GOBIIDÆ

Gnatholepis hendersoni n. sp. (Plate III).

Dorsal VI-I-10; anal I-9; there are 26 scales in a longitudinal series plus 3 or 4 on the caudal base, 8 transverse and 6 or 7 predorsal scales.

The depth is 4.7, the head 3.6, the caudal 3.2, the pectoral 3.75, and the ventral 4 times in the length; the eye is 3.3, the snout 2.75, the least depth of the caudal peduncle 2.25 times in the head.

The body is elongate, moderately robust, compressed posteriorly, wedge-shaped viewed from above, the back slightly arched, the prominent eyes projecting above the dorsal profile, the blunt snout strongly convex; the mouth is very low, horizontal, the gape scarcely reaching below the eye but the maxillary angle beneath the pupil; the minute teeth are in bands, the upper jaw with an outer row of enlarged teeth; males have a very small lateral canine in the lower jaw; the opercles and preopercles are entirely covered with very finely ctenoid scales; the lower margin of the preopercle is fringed with very small papillæ; the entire body is covered with ctenoid scales which extend to the eyes; the interorbital space is very narrow, the eyes almost touching along their inner margins.

The low fins are of about equal height, the longest spines and rays 5.6 times in the length; the first dorsal barely extends beyond the second dorsal origin when depressed, and the second

dorsal and anal do not reach the caudal; the broadly rounded pectoral extends beneath the second or third second dorsal ray; the broad ventrals reach the anal origin or beyond; the anal papilla is very small, pointed in males, very short and rounded in females.

The color in alcohol is very pale tan, spotted and freckled with dusky or brown everywhere except beneath; along the side is a row of 5 large blackish spots, the last one on the caudal base, alternating with white spots, the whole bounded above and below by brown lines; pearl white spots are scattered over the lower half of the head and body; a large dusky brown spot on the cheek and another on the opercle; the under side of the head with alternating brown and white spots; on the base of the dorsal membranes between the first three spines are two deep blue spots; both dorsals, the caudal, and pectoral are cross-barred by numerous rows of brown spots; the anal is dusky, the ventrals dusky with cross bars of white spots.

Described from the type, 45 mm. long, and 4 paratypes 35 to 45 mm. long, taken by me on a reef in Singapore Harbor.

This species belongs to the section of *Gnatholepis* represented by *Gnatholepis deltoides* (Seale) and *Gnatholepis davaoensis* Seale, but is very distinct from either. In life it must be a very handsome goby.

I take pleasure in naming this species in honor of Mr. M. R. Henderson of the Singapore Botanic Garden, to whose co-operation I am indebted.

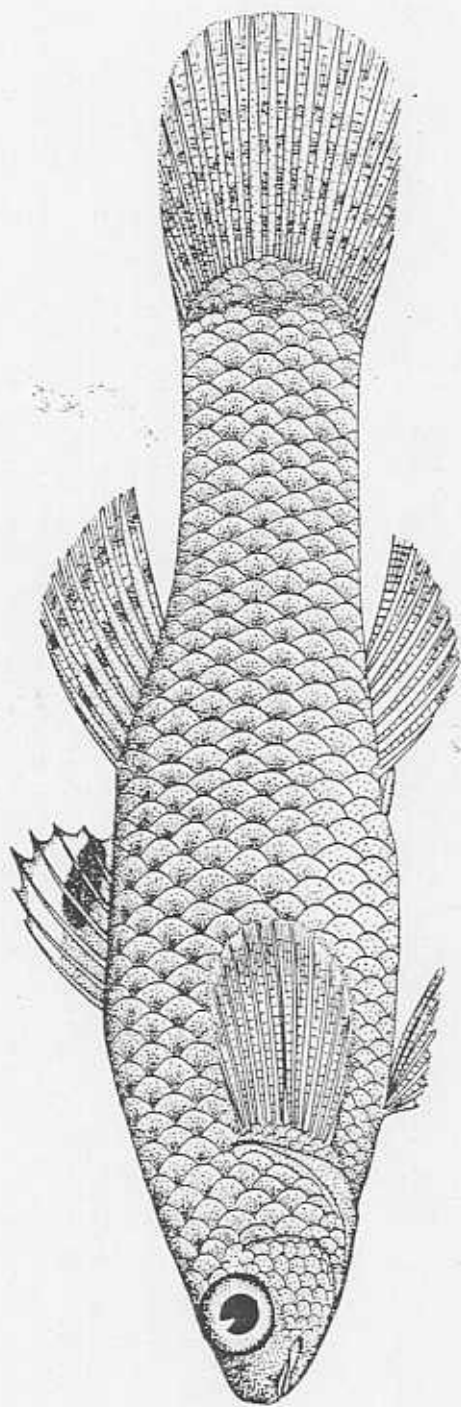
Gnatholepis mingi n. sp. (Plate IV).

Dorsal VI-I-7; anal I-7; there are 32 scales in a longitudinal, 9 in a transverse series, and 8 or 9 predorsal.

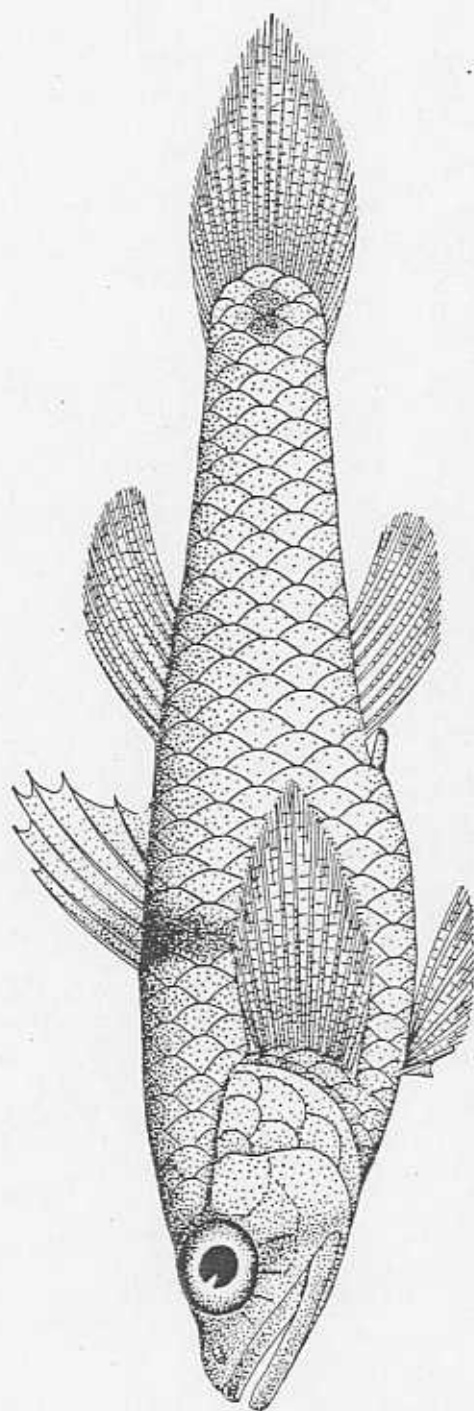
The body is laterally compressed, with an elevated dorsal profile, the head and nape noticeably broad and flattened, forming a straight line from the first dorsal to the tip of the broadly rounded blunt snout.

The depth is 3.65, the head 4, the caudal 3.5, the pectoral 5.25, the ventral 7 times in the length. The snout is 6 times, the eye 3 times, and the broad flat interorbital 1.9 times in the head; the rounded caudal is very broad, its depth 4.2 times in the length; the depth of the large caudal peduncle is 6 times in the length and 1.57 times in its own length. The snout projects beyond the small inferior horizontal mouth; the teeth are minute. The entire body, except the snout and jaws, is scaled.

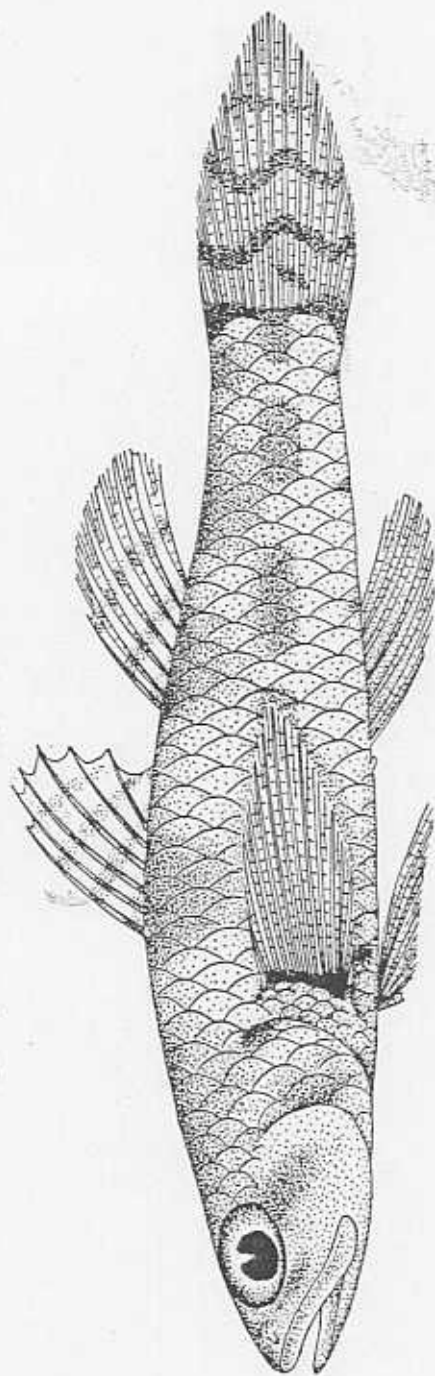
The third dorsal spine is longest, equal to the second dorsal rays, 7 times in the length; the longest anal rays are 8 times in the length; both second dorsal and anal fall far short of



Gnatholepis mingi n.sp. (Length of type 42 mm.).



Vaimosa brocki n.sp. (Length of type 28 mm).



Vaimosa mawala n.sp. (Length of type 24 mm).

ELEVEN NEW FISHES FROM THE MALAY PENINSULA

reaching the caudal. The pectorals barely extend beyond the ventrals, which do not reach the anus by the breadth of 6 scales; the anal papilla is long and slender.

The color in alcohol is brown with a dark brown spot on each scale except on the belly, these spots forming longitudinal rows; the first dorsal has a large black spot on the basal half posteriorly, with a white band above this and a black upper margin; the second dorsal and caudal are cross-barred by rows of black spots; the remaining fins are colorless or nearly so.

Here described from the type and only specimen, a male 42 mm. long, collected on Pulau Ubin, a small island near Singapore

I take pleasure in naming this for Mr. Ming, chemist in the Department of Fisheries, S. S. and F. M. S., who was of much assistance to me during my stay in Singapore.

Vaimosa brocki n. sp. (Plate V).

Dorsal VI-I-7; anal I-8; there are 8 predorsal scales, 7 in transverse series, and 22 or 23 in longitudinal series, plus 2 or 3 on the caudal base.

The depth is 3.8, the caudal 3, the head 3.1, the pectoral 4 times in the length; the eye is 3.45, the snout 3.75, the maxillary 1.66, the least depth of the caudal peduncle 3 times in the head.

The body is elongate, the back moderately convex, the belly greatly distended with eggs in the type, a female ready to spawn. The eyes are lateral, the interorbital space equal to the eye. The very large mouth is oblique, with projecting lower jaw, the maxillary extending just beyond the hind margin of the eye. The large thin scales are very deciduous.

The dorsals, anal, and ventrals are all small; the ventral equals the height of the first dorsal, 1.8 in the head; the second dorsal and anal are of equal height, twice in the head.

The color in alcohol is very pale brown with a dusky spot on the caudal base and a brown bar over the base of the first three dorsal spines and down the side to beneath the pectoral; minute brown specks are dusted over the top and sides of the head and trunk, the dorsals, anal and caudal; the other fins are colorless.

The type and sole specimen, 28 mm. long, was taken on a reef in Singapore Harbor.

I am pleased to name this very distinct species for Mr. Vernon Brock, a Stanford student who has been of much assistance in working over my Singapore collections.

Vaimosa mawaia n. sp. (Plate VI).

Dorsal VI-I-6; anal I-6; there are 25 scales in a longitudinal, 7 in a transverse series and 6 before the first dorsal; there are 5 large opercular scales.

The depth is 4.8 times, the head 3, the caudal 3.4, the pectoral 3.85, the ventral 4.8, the height of the first dorsal 6 and the longest dorsal and anal rays 5.33 times in the length. The eye is 3.12 times, the snout 5.2, the breadth of the head 1.7, the least depth of the caudal peduncle 3.1, the longest dorsal spine 1.95, the longest rays of the second dorsal and anal 1.73 times in the head.

The body is wedge shaped when viewed from above, with pointed head, the dorsal profile little elevated and the ventral outline horizontal; the head is pointed, with sub-equal jaws, large oblique mouth, the posterior angle of the maxillary beneath the hind margin of the eye; the teeth are in 3 rows in each jaw, those of the outer row in the upper jaw widely spaced and enlarged; the large eyes are very close together, the width of the interorbital space 5 times in the eye; the third and fourth dorsal spines are highest; the second dorsal and anal are of equal height; the dorsals are well separated, with 4 scales between them, the origin of the anal behind that of the second dorsal; the anal and second dorsal fall far short of reaching the round-pointed caudal when depressed; the pectoral reaches to beneath the second dorsal; the long pointed ventrals extend almost to the anal origin.

The color in alcohol is yellowish gray, with 4 broad dusky cross-bands over the back and a row of 5 elongated black spots along the middle of the side; a black vertical bar extends from the first spot to the abdomen; a black bar extends from the eye diagonally across the cheek and opercle; there is a black spot at the upper angle of the opercle and at the upper end of the pectoral base; most of the scales on the head and along the side are more or less covered by or marginally outlined by black specks; the first and second dorsals are cross barred by rows of black spots; there is a black cross-band on the caudal base and 3 cross-bars of black on the fin; the anal and ventrals are dusky; the pectoral is nearly colorless.

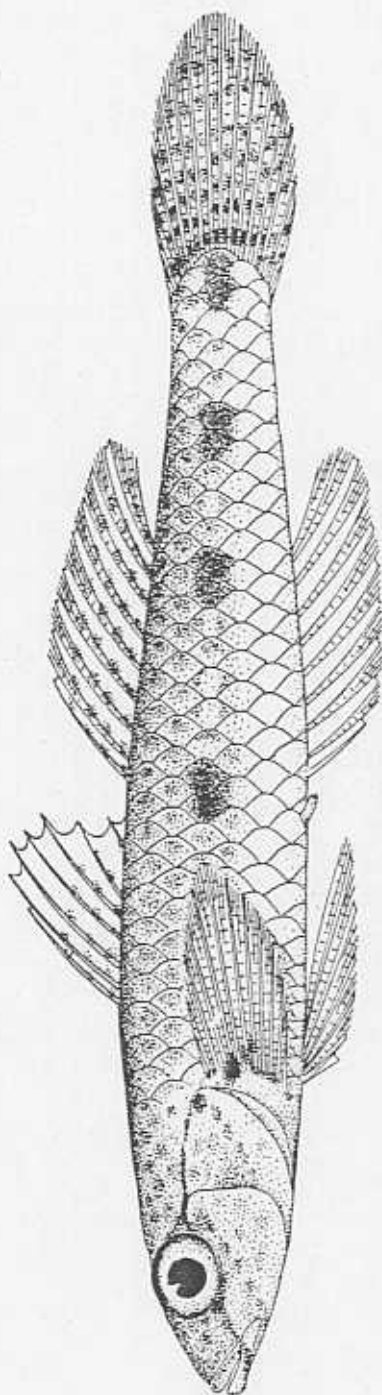
Here described from the type and only specimen, 24 mm. long, which I took from a ditch in the Mawai district, Johore, 55 miles north of Singapore.

Aboma aliciae n. sp. (Plate VII).

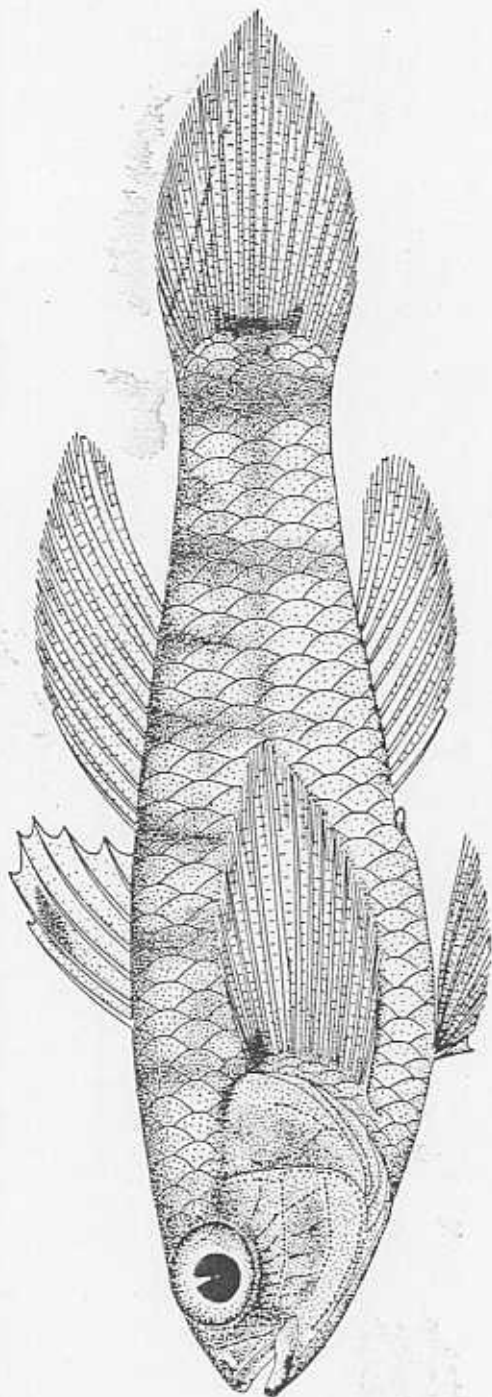
Dorsal VII-I-8; anal I-8; there are 8 scales in a transverse, 27 in a longitudinal series, plus one on the caudal base, and 3 predorsal.

The depth is 6, the head 3.5, the pectoral 5.25, the caudal and ventral each 4.2 times in the length; the eye is 3.25, the snout 4, the maxillary 3.16, the least depth of the caudal peduncle 3 times in the head.

The body is elongate, rounded anteriorly, the anterior profile gently convex, the snout bluntly rounded, eyes latero-dorsal, their inner margins touching; the mouth is oblique, with projecting



Aboma aliciae n.sp. (Length of type 42 mm).



Quisquilius malayanus n.sp. (Length of type 31 mm.).

lower jaw, the angle of the maxillary beneath the anterior margin of the eye. The head and almost the entire predorsal region are naked, the rest of the body covered with ctenoid scales; dorsals 10, the first not reaching the second when depressed, the second spine 6 times in the length or 1.71 in the head; second dorsal and anal far short of reaching the caudal, longest second dorsal rays 7 in length, 2 in head; anal rays 8.4 in length, 2.4 in head; anal papilla small, cylindrical, pointed.

The color in alcohol is whitish, the back and sides flecked with dusky dots and patches and with 5 large black double spots, the last on the caudal base; a black bar from the eye to lower lip and black stripes on cheeks and opercle and a black spot on the pectoral base.

The type and only specimen, 42 mm. long, was caught on a reef in Singapore Harbor.

I take pleasure in naming this species in honor of Mrs. Alice Birtwistle, who, with her husband, Mr. W. Birtwistle, Officer-in-Charge of the Fisheries Department, S.S. and F.M.S., was most hospitable during my stay in Singapore.

Quisquilius malayanus n. sp. (Plate VIII).

Dorsal VI-I-9; anal I-9; there are 7 scales in a transverse, 28 in a longitudinal series, plus 2 smaller ones on the caudal base; predorsal scales 8.

The depth equals the head, 3.44 times, the caudal 2.5 to 3 times in the length; the eye is 2.57 times, the snout 4.5 times the maxillary 3.6 times, the least depth of the caudal peduncle 2.25 times in the head.

The body is thick, robust, the ventral profile more arched than the dorsal. The large eyes are high up, their upper margin projecting above the convex dorsal profile, the very narrow interorbital space 7 times in the eye; the cleft of the small oblique mouth is below the eye, the angle of the maxillary beneath the front margin of the eye. The teeth are minute, except an enlarged anterior tooth on each side above and below.

The body is covered with large ctenoid scales as far as the origin of the first dorsal; the predorsal, breast, and pectoral base scales are cycloid; the predorsal scales extend above the opercles to the eyes, but the rest of the head is entirely naked; as shown in the figure two rows of sensory papillae cross the preoperculum longitudinally; several short vertical rows connect them and also extend downward from the eye; another runs from the point of the lower jaw and angle of the mouth along the margin of the preoperculum; on the opercle is one vertical and two or three transverse rows.

The dorsal fins are separated, the third dorsal spine longest, 1.8 times in the head; the penultimate dorsal ray is 1.7 times, the same anal ray 1.6 times in the head. The large pectoral extends to a point above the anal origin, 3.1 times in the head; the ventrals have a well developed frenum; the ventrals fall short of the anus, 4.4 times in the head.

The color is nearly uniform brown, with 5 prominent darker cross-bands, the first over the nape to the pectoral, the second below the spinous dorsal, the third and fourth between the second dorsal and anal, and the last across the caudal peduncle; between the first four are 3 more narrow cross-bands; on the basal part of the caudal is a dark brown spot; close examination shows a pale center on each scale; in life they were probably longitudinal rows of blue spots. The first dorsal has a blackish brown elongate spot above between the first and third spines; the caudal has a blackish brown diagonal stripe across its upper portion, with a white bar above and below it; the ventrals are dusky in the central portion; the fins otherwise are all very pale clear brown.

Described from the type, 31 mm. long, and 3 paratypes, 26 to 28 mm. long, from Pulau Ubin near Singapore.

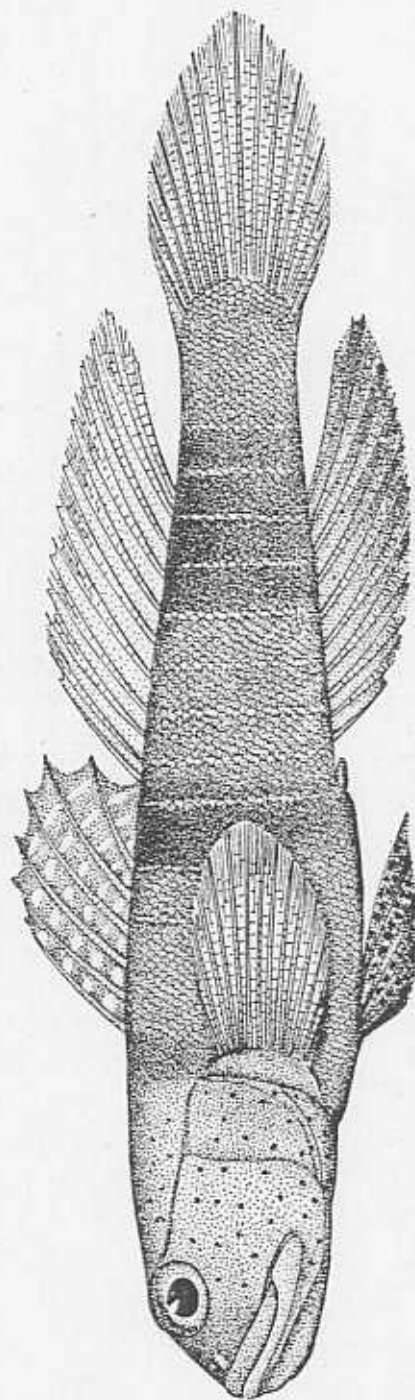
Smilogobius cinctus n. sp. (Plate IX).

Dorsal VI-I-10; anal I-9; there are 75 scales in a longitudinal and 30 in a transverse series.

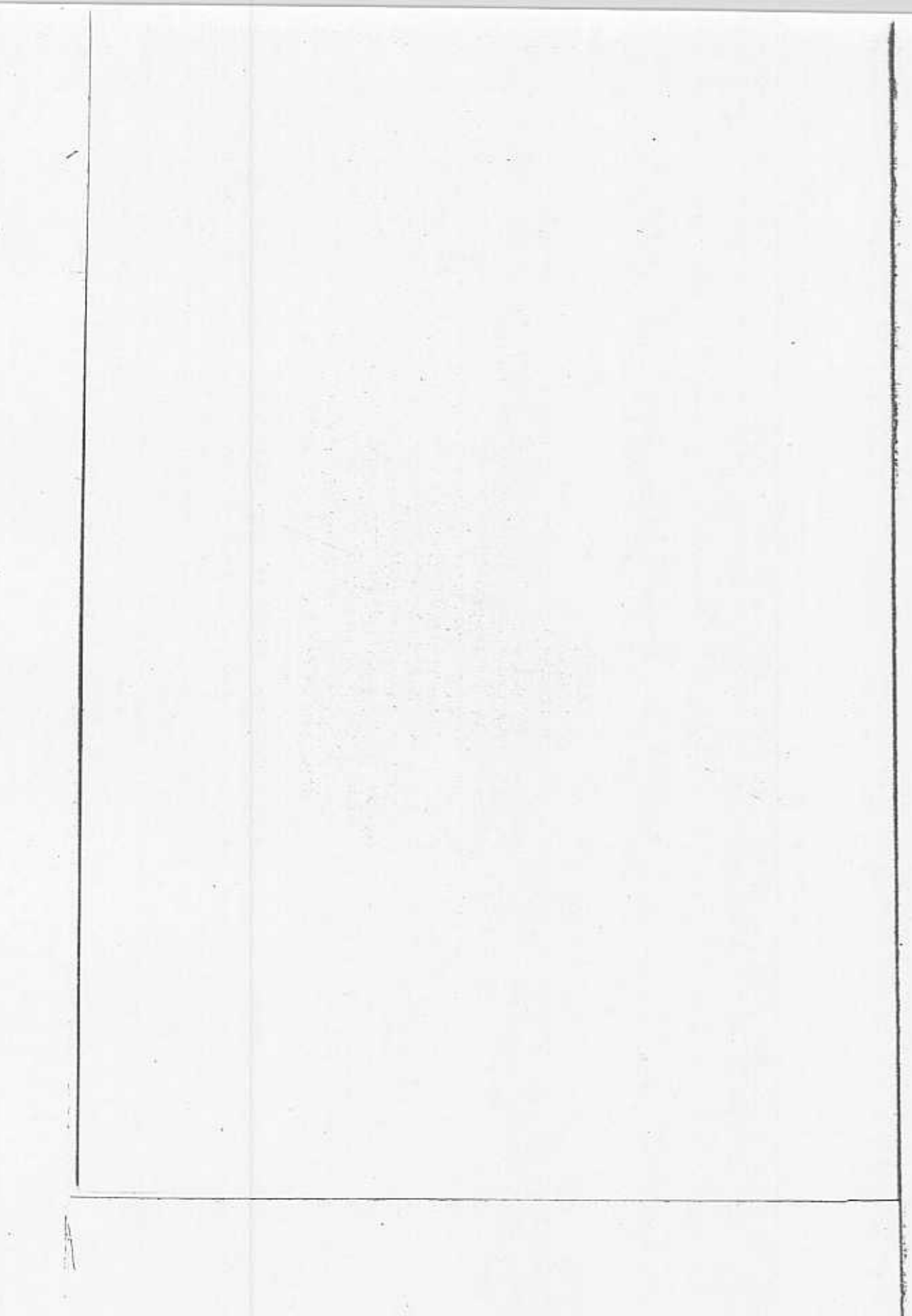
The depth is 4.6 times, the head 3.33 times, the caudal 3.4 times, the pectoral 4.28 times, the ventral 4.6 times in the length. The eye and snout are equal, 4.28 times in the head; the maxillary extends far beyond the eye, 1.9 times in the head.

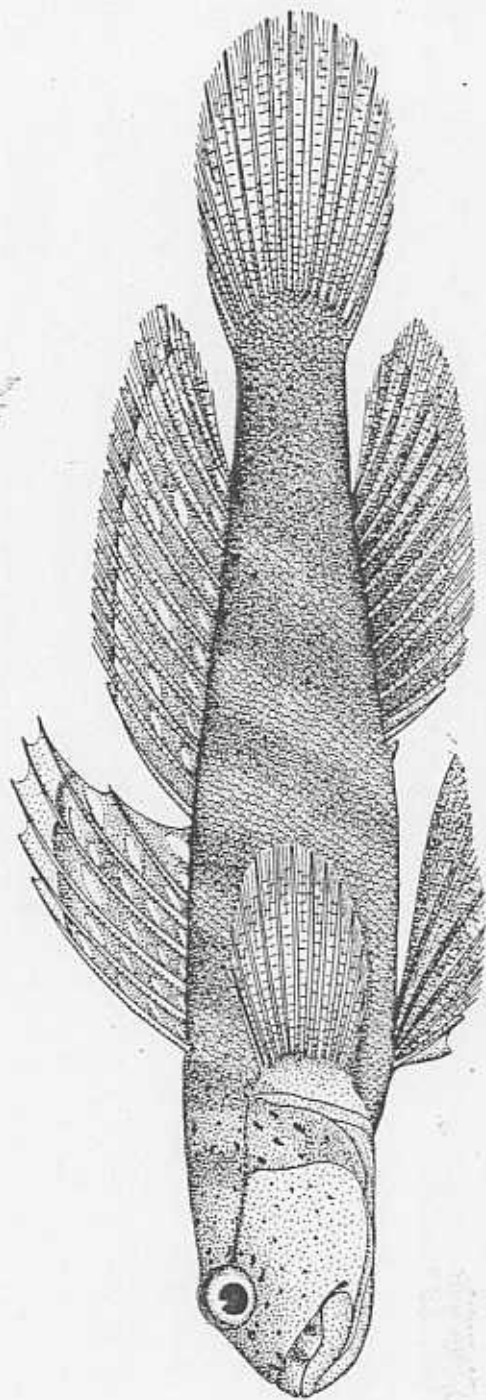
The form is wedge-like, the depth greatest below the first dorsal, the head much broader than the trunk; the breadth of the head is more than its own depth, and 1.56 times in its own length. The eyes are large, latero-dorsal and very close together, the interorbital space 4.5 times in the eye. The snout is very steep, the large mouth only moderately oblique. The teeth are as described for the genus, but the canines are very small above and lacking below in the female specimen. The vomerine teeth are much smaller than in some other species, and are coalesced along their inner edges into a single notched tooth.

The dorsal spines all have elongated tips, the fourth spine 1.8 times in the head, 6 times in the length; the two dorsals are very close together, the membrane of the last spine being attached to the origin of the second dorsal. The penultimate dorsal ray is 4.8 times in the length, 1.44 times in the head; the penultimate anal ray is 5 times in the length, or 1.5 times in the head. The least depth of the caudal peduncle is 3 times in



Smillogobius cinctus n.sp. (Length of type 60 mm).





Smilogobius singapurensis n.sp. (Length of type 74 mm).

the head, 1.4 times in its own length. The caudal is pointed; the second dorsal and anal extend upon the caudal when depressed. The pectoral extends to a line perpendicular to the anus, and the ventral falls a little short of it.

The color in alcohol is dusky brown with 3 blackish cross-bands; the first is narrow, just before the dorsal and extends to the angle of the opercle; the second extends from the base of the 6th dorsal spine to the origin of the second dorsal downward to the anus; the third is broad, its width extending over the base of the last five dorsal rays and on the caudal peduncle, downward to the anal base. Extending from the dorsals to the abdomen or anal are 11 or 12 obscure white lines, the first below the fourth dorsal spine, the last at the caudal base; between each pair of lines along the middle of the side are two circular white dots, all of them together forming a white streak on the posterior half of the body; they were probably blue in life. The snout and opercles are dark brown; the head is sprinkled with dark brown circular spots, largest and most numerous on the under side; these spots were ocelli, probably blue-black, in life, and extend upon the pectoral and ventral bases.

The first dorsal is dusky with 6 transverse white bars, the two uppermost continuous, the others formed of circular spots. The anal is the same color as the dark cross-bands; the second dorsal, pectoral and caudal are clear to somewhat dusky, without markings. The ventrals are dark brown, thickly sprinkled with circular black spots.

Here described from the type and only specimen, a female 60 mm. long. I collected this on a reef in Singapore harbor, March 13, 1934. This beautiful species is markedly different from the others I have thus far discovered. We now have two species from the Philippines, where the genus was first discovered, and two from Singapore.

Smilogobius singaporensis n. sp. (Plate X).

Dorsal VI-I-10; and I-10 or 9; there are about 75 (80 in some ?) scales in a longitudinal and 32 in a transverse series.

The type has the depth 4.9 times, the head 3.5 times, the caudal 3.7 times, the pectoral 4.1 times, the ventral 4.35 times in the length. The eye is 5 times, the snout 3.1 times, the maxillary 2.6 times, the least depth of the caudal peduncle 2.8 times in the head. The fourth dorsal spine is highest, 4.6 times in the length; the penultimate dorsal and anal ray longest, the dorsal ray 5.7, the anal 6.16 times in the length.

In other specimens there is considerable variation, due mainly to age or sex. In small specimens the eye is larger, the

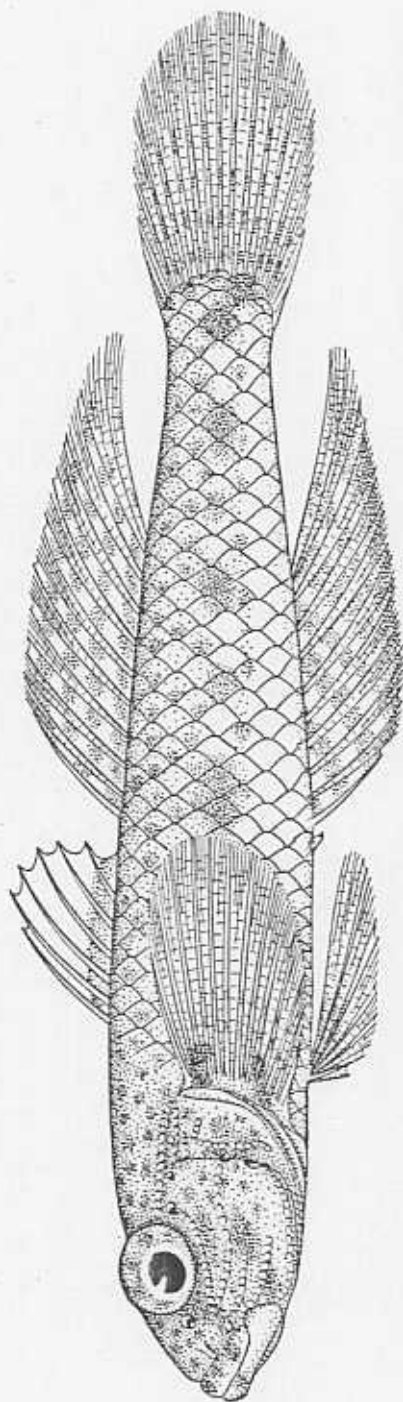
fins longer and usually the depth is less in proportion. The depth is from 4.8 to 5.75 times, the head 3.28 to 3.5, the caudal from 2.8 to 4 times, the pectoral 4.3 to 4.9, the ventral 3.85 to 4.9, the fourth dorsal spine 3.7 to 5.85, the penultimate dorsal ray 4.4 to 6.25, the penultimate anal ray 4 to 6.9 times in the length. The eye is 3.6 to 4.8 times in the head, the snout 3.2 to 3.5 times, the maxillary 2.44 to 2.5 times, the least depth of the caudal peduncle 2.6 to 3.1.

The form is elongate, moderately compressed laterally, the ventral profile nearly horizontal, the dorsal profile little curved and descending in a nearly straight line from the nape to the caudal peduncles. In all except the largest specimens the head is deeper and broader than the trunk. The eyes are prominent, dorso-lateral in position and very close together, the interorbital space 4.5 to 5.5 times in the eye. The length of the broad caudal peduncle is a little more than its depth. The mouth is oblique, the maxillary extending beneath the middle or posterior part of the eye. The teeth are typical of the genus, with one or two pairs of anterior canines in the upper jaw and a pair of larger posterior canines in the lower jaw. The enormous vomerine teeth coalesce into a unit by their inner edges. The fourth dorsal spine is more or less elongate, reaching to the base of the second, third, or fourth dorsal ray when depressed. The second dorsal and anal, when depressed, reach the caudal base or may extend upon it. The pectoral does not usually extend as far as above the anus but sometimes does so. The large broad ventrals usually extend to the anus and may reach the anal fin, but occasionally fall short of the anus. The caudal is broadly rounded.

In life the ground color is creamy with 7 or 8 bluish plum colored cross bands over the back and extending diagonally forward and downward to the under side. Large males may have the posterior half of the body entirely dark bluish plum color. The nape and sides of the head are sprinkled with small dark blue ocelli, which extend back along the dorsal region and all over the sides between the second dorsal and anal to the caudal base. In males the dorsals are spotted with large elongate blue ocelli, the posterior part of the second dorsal, the anal and ventrals very dark blue. In females the fins are all nearly colorless or the ventrals are more or less dusky blue.

In alcohol the color is paler and much duller, the cross bands partially disappearing, but the spots on the posterior part of the body often more distinct.

Here described from the type, 74 mm. long, and 33 paratypes, 33 to 84 mm. in length. I obtained them from a reef in Singapore harbor, March 14, 1934.



Ctenogobius opalescens n.sp. (Length of type 39 mm.)

Ctenogobius opalescens n. sp. (Plate XI).

Dorsal VI-I-9; anal I-9; there are 25 or 26 scales in a longitudinal series plus 2 or 3 small ones on the caudal base; transverse scales 9; predorsal scales none.

The depth is 5.8 to 5.9, the head 3.55 to 3.7, the caudal 3.9, the pectoral and ventral each 4.5 to 4.85 times in the length; the snout is 3.33, the eye 3.6 to 4, the least depth of the caudal peduncle 3, the maxillary 2.94 times in the head. The first dorsal is twice in the head, the longest second dorsal and anal rays 1.4 to 1.8.

The slender elongate body is highest anteriorly, the back descending in a straight line from the nape to the caudal peduncle, the ventral profile very slightly curved. The head is broad, blunt, the snout prominent with thick lips; the eyes are latero-dorsal, their inner margins touching, the hind margin of the eye at the middle or a little behind the middle of the head; the maxillary extends beneath the anterior margin of the eye or a trifle beyond; the upper jaw has a band made up of 3 rows of fine teeth with a short outer row of enlarged teeth; the lower jaw has a similar band of 4 rows of teeth with a short outer row of larger teeth ending in a very small canine; the head and nape back to the first dorsal are entirely naked; the body is covered with large scales, very finely ctenoid, becoming cycloid on the breast; there is a row of sensory papillæ beneath the eye, one along the anterior and lower margin of the preopercle with 3 branches from it running across the cheek, and another row along the front margin of the opercle; the nostrils are prominent, the anterior one tubulate, the posterior one directly in front of the middle of the eye. The dorsals are low, the second dorsal and anal highest posteriorly but not extending to the caudal when depressed. The rounded caudal is a little shorter than the head; the ventrals extend to or beyond the anal papilla, which is slender, elongate, and pointed in males, and apparently slender and pointed but much shorter in females.

The color in alcohol is old ivory, with 4 small but conspicuous dusky spots between the pectoral and the caudal and brown or dusky freckles over the upper half; at the caudal base are two blackish spots, one on the extremity of the caudal peduncle, the other a little behind and below on the fin, or the two are often fused into a large angulated or curved spot; along the sides are many more or less evident white spots; evidently in life there was a pearly spot on each scale; there is a characteristic short linear black spot on the vertex; some specimens have the cheeks more or less spotted.

The dorsals are cross-banded by 4 rows of brown spots, the anal is banded by alternate rows of blackish and white spots; the caudal is banded by 5 or 6 rows of dusky spots; the pectorals and ventrals are clear or cross-banded by dark spots. In life the second dorsal and caudal are probably banded by alternate rows of black and white spots.

Described from the type, 39 mm. long, and 34 paratypes, 23 to 36 mm. in length, taken from a reef at Singapore.

Easily distinguished by its characteristic caudal spot and anal markings.

A List of the Fishes in the Collection of the Raffles Museum

By M. W. F. TWEEDIE, M.A.

By far the greater part of the named collection of fishes in the Raffles Museum has been identified by Prof. Dr. L. F. de Beaufort and Prof. Dr. Max Weber of the University of Amsterdam, their work on the collection having proceeded to some extent concomitantly with the publication of the later volumes of their monographic work on the Fishes of the Indo-Australian Archipelago.

Other specialists who have studied material from the collection are Dr. F. P. Koumans of the Leiden Museum, who identified the gobies in the collection sent to Amsterdam, Mr. J. R. Norman of the British Museum who dealt with the flatfishes, and Mr. A. Fraser-Brunner of the British Museum who identified a small collection of Balistidae and Pomacanthinae, and is at present engaged on the Monacanthidae and Syngnathidae. The collection also includes paratypes of *Gobiella birtwistlei* Herre¹, and Dr. Herre is at present working in collaboration with Dr. G. S. Myers of the U. S. National Museum on freshwater fishes collected recently by the staff of the Raffles Museum.

Finally the list includes a number of species identified by members of the museum staff. In the absence of comparative material these identifications are strictly confined to species whose characters are so well defined as to render mistakes in their determination highly improbable.

The species identified by Weber and de Beaufort are listed without comment, those determined by other specialists are

1. A.W.C.T. Herre, Bull. Raffles Mus., 9, 1934, p. 85.