Granting, then, that my synonymy of the above species is correct, we have the following additions to make:—


   Ceyx tridactyla, Reich. Handb. Alced. p. 8, t. ccciii", fig. 3388  
   (nee fig. 3389).

   Count Salvadori has most kindly sent over the types of this new species for my inspection; and, as far as I can see, it is sufficiently distinct. The only species with which it can be confounded is Ceyx dillwynni; and I confess there is some chance of its ultimately proving to be identical with this latter bird. It is evident, from the case of C. tridactyla, that these little Ceyces are a long time gaining their adult plumage; and at present Ceyx sharpii only differs from C. dillwynni in the scapularies and wing-coverts. In neither of the type specimens of C. sharpii are the wing-coverts entirely black washed with blue; in both a rufous feather is to be seen here and there. In C. dillwynni the wing-coverts are rufous for the most part, but here and there a black feather appears. The scapularies also have a mixture of rufous on some of the feathers; and in C. sharpii there is an admixture of black below the rufous. If, however, we merge the two species, we must admit that the rufous scapularies are the adult stage—a process exactly opposite to that exhibited by the analogous species C. tridactyla. It is evident that many more specimens are necessary to solve the riddle satisfactorily; and until we get them we must be satisfied with the evidence before us, which certainly makes C. sharpii a distinct species.


5. Ceyx tridactyla (Pall.); Sharpe, P. Z. S. 1868, p. 593.  

7. Remarks on some of the Fishes in the Calcutta Museum.  

   Having obtained leave, through Col. Strachey, F.R.S., to remain a limited period in Calcutta for the purpose of examining the fishes in the Government Museum, and having at the same time had access
to Buchanan-Hamilton's original drawings, I am enabled to lay the results of some of my investigations before the Zoological Society.

The collection of fishes is extensive and exceedingly interesting. Its nucleus was formed by the Asiatic Society of Bengal; while amongst the contributors to it were Dr. M'Clelland, and more especially Mr. Blyth, most of whose type specimens I have thus had the opportunity of examining. It is not unlikely that some few of the fishes, such as the *Barbus sophore*, may have been derived from Buchanan-Hamilton's collection—my reason for asserting this being that the specimen is evidently very old, whilst the species was never, I believe, recognized by M'Clelland or Blyth. The typical collection presented to the British Museum by Mr. Waterhouse does not appear to have possessed it. In the following paper I have described some species said to be "insufficiently known," as well as others which appear to be new.

**Serranus lanceolatus**, Bloch.

*Serranus horridus*, C. & V.

In the 'Proceedings of the Zoological Society,' 1865, p. 6, and again in my 'Fishes of Malabar,' p. 4, and plate 1. figs. 1 & 2, I gave my opinion that the adult form of this species is identical with that termed *S. horridus*, C. & V. Dr. Günther, however, in the 'Fishes of Zanzibar,' p. 4, holds a different opinion, and observes:—"Mr. Blyth was the first to refer lanceolatus as a synonym to another species, namely *S. coides*, H. B. (= *S. serillus*, C. & V.) (J. A. S. Bengal, xxix. p. 111). Mr. Day, without referring to this paper, also represents lanceolatus as a young *Serranus*, but takes it to be that of *horridus*, K. & v. H. We may remark at once, to judge from the figure given by Mr. Day, that this appears rather improbable, and he does not explain, or even notice *, the difference in the length of the dorsal spines in the two fishes;" and concludes by remarking, "we do not venture to say what the species stated by Mr. Day to be the old state of the lanceolatus may prove to be" (p. 5). Had a name been given, it would, in my opinion, only have added one more synonym to the *S. lanceolatus*.

I overlooked the note of Mr. Blyth thus referred to, until after my work had been printed. To find short remarks on species in a work destitute of an index is always difficult. Thus Dr. Günther, in vol. iii. of his catalogue, dated July 1861, places the three following species of Mr. Blyth amongst his doubtful ones—*Gobius breviceps*, Blyth, *Periophthalmus fuscatus*, Blyth, and *Salarias olivaceus*, Blyth; but in the year 1860 Mr. Blyth had already stated them to be *Gobius albopunctatus*, C. & V., *Periophthalmus papillo*, Bl. Schn., and *Salarias lineatus*, C. & V. (J. A. S. Bengal, xxix. pp. 111, 147, 111). I only mention these instances to show how the most accurate observers may overlook casual remarks.

* Dr. Günther has overlooked the following observation I made at p. 5 in the 'Fishes of Malabar':—"In young specimens the proportionate height of the dorsal spines (as in some other *Serrani*) is greater than in the adult."
In Madras, during the last two years, I have obtained several of the young *S. lanceolatus*, and on dissection discovered that caeco-
pyloric appendages were invariably absent. I was in hopes of ob-
taining the adult form to dissect, but in this I have been disappointed. On the other hand, I have now had the opportunity of personally examining Mr. Blyth's specimens, and commence answering the before-mentioned criticism by objecting to the words after *S. coides*, H. B. (= *S. serillus*, C. V.). I admit, *S. coides*, H. B., and *S. serillus*, C. V., are identical; but Mr. Blyth's specimens turn out to be the same as the one I have figured as *S. horridus*, which is certainly not *S. serillus*, C. & V.

Some of the specimens in the Calcutta Museum are as follows; the others offer no particulars calling for notice:—


b. A stand of three specimens, collected by Mr. Blyth to demon-
strate his views, and marked in his own handwriting. In Mr. Blyth’s deduc-
tions I most entirely concur, only objecting to his name *S. coides*, H. B.; for the adult is identical with what I figured as *S. hor-
ridus*, C. & V.

c. 9½ inches long, still showing the markings of the immature; but the yellow portion is being broken up by bands.

d. 18 inches long, the bands on the body have disappeared, and the black bands on the fins are broken up into black blotches.

e. 22 inches long, the mature *S. horridus*, C. & V., exactly like pl. 1. fig. 2 in the ‘Fishes of Malabar.’

In the museum of the Medical College in Calcutta, I had an opportunity of examining another fine collection of stuffed fish, mostly brought together by the late Dr. Walker. Amongst them is a beautiful specimen of the adult *S. horridus*, C. & V., 34 inches in length.

I have not deemed it necessary to advert to the specimens Captain Mitchell sent to the British Museum; the number of caeco-
pyloric appendages in the *S. serillus*, C. & V., and *S. bonitor*, C. & V., at once show they cannot be the adult *S. lanceolatus*, Bloch. Probably Captain Mitchell only gave his opinion after reading Mr. Blyth’s paper, which is incorrect, as the species he terms *S. coides*, H. B., is the one which I have figured as *S. horridus*, and amongst Hamilton Buchanan’s MS. drawings I find an unfinished sketch of his *S. coides*, which at once shows it to be the same as *S. serillus*, C. & V.

Thus a personal inspection of the specimens in the Calcutta Mu-
seum has distinctly proved that the species I figured as the adult *S. lanceolatus*, Bloch, is identical with what Mr. Blyth considered to be the mature one. It therefore appears the more likely to be a correct conclusion, having been come to by two different persons in distant places, who were ignorant of each other’s investigations, which were made from two distinct series of specimens. Only one thing ap-
ppears to be now requisite, namely, to examine whether the *S. hor-
ridus*, C. & V., has or has not caeco-pyloric appendages, as at present
its external conformation in every respect shows it to be the mature
*S. lanceolatus*, Bloch.

Whilst mentioning this question of caecal appendages, I may
observe that the following are the numbers which I have found
existing in specimens in Madras during the last two years:

*S. serillus*, C. & V., and *S. bontor*, C. & V., from 50 to 60; *S.
hexagonatus*, 32; *S. sonnerati*, C. & V., 12 to 13; *S. cyanostigmato-
toides*, Bleeker, 12.

**Mesoprion therapon**, sp. nov.


L. tr. 6/17.

Length of head \(\frac{4}{5}\), of pectoral fin \(\frac{2}{3}\), of caudal \(\frac{2}{3}\) of the total
length. Height of head \(\frac{1}{4}\), of body \(\frac{1}{3}\) of the total length.

**Eyes.** Diameter \(\frac{1}{3}\) of the length of head, \(1\frac{1}{2}\) diameter from end of
snout, 1 diameter apart.

The posterior extremity of the maxilla extends to beneath the
anterior margin of the orbit. Preopercle with a wide open notch, its
vertical margin finely serrated.

Teeth villiform, with a pair of canines on either side of the middle
of the upper jaw, the external being very large; an outer enlarged
row in the lower jaw, the largest being posterior; a triangular villi-
form patch on the vomer; and a band on the palate.

**Fins.** Third dorsal spine the longest. Pectoral pointed. Third
anal spine slightly the longest and strongest. Caudal lobed.

**Colours.** In spirit, whitish, with six black horizontal bands from
the head along the body, and six short, badly marked, vertical ones
from the dorsal fin, the crossing of the two sets forming large white
spots on the upper third of the body. A deep-black mark at the
base of the caudal fin. A white band across the occiput, which is
continued over the preopercle. Fins stained grey.

One specimen, 6 inches long, from Ceylon, and a second, 9 inches
long, from the Andamans.

**Diagramma alta**, sp. nov.


Length of head \(\frac{1}{3}\), of pectoral \(\frac{2}{1}\), of caudal \(\frac{1}{3}\) of the total length.
Height of head \(\frac{2}{3}\), of body nearly \(\frac{1}{2}\), of dorsal spines \(\frac{1}{2}\), of dorsal rays
above \(\frac{1}{3}\), of anal spines \(\frac{1}{6}\) of the total length.

**Eyes.** Diameter \(\frac{1}{3}\) of length of head, 1 diameter from end of snout,
\(\frac{3}{4}\) of a diameter apart.

Body elevated and strongly compressed.

Preopercle serrated, most coarsely towards its angle. The posterior
extremity of the maxilla extends to below the anterior third of the
orbit. A few small pores exist under the mandible.

Teeth villiform, without canines.

**Fins.** Dorsal spines strong, the third and fourth the longest,
interspinous membrane rather deeply notched. Second anal spine
much the longest and strongest. Caudal truncated.
Scales ctenoid.

**Colours.** Purplish on the body; tips of the dorsal spines, outer third of dorsal and anal rays, as well as the caudal fin, white.

Two specimens, nearly 4 inches long, in the collection, but no notice where they came from. I have since procured the species at Akyab.

**Ambassis notatus,** Blyth, J. A. S. of Bengal, 1860, p. 138, is the *A. baculis,* H. B.

**Bogota infuscata,** Blyth, l. c. p. 139.

D. 10\(\frac{1}{10}\) V. 1/5. A. 3/8. C. 17.

Preopercle strongly serrated, with large teeth at its angle. A spine directed backwards, apparently on the subopercle. A long spine on the opercle.

Preorbital entire. Lower jaw the longest.

**Teeth.** In the jaws, villiform.

**Fins.** Second anal spine the longest.

**Scales.** None visible now.

**Colours.** Brownish-black, except the fins, which are of a dirty yellowish-white.

The specimen is half an inch long and in a very bad condition. The occiput is broken across; in fact, it is too damaged to describe from. One thing is evident, that it does not belong to the genus *Ambassis*; it may be the fry of a species of *Priacanthus*.

**Amphiprionichthys zeylonensis,** sp. n.


Length of head \(\frac{1}{3}\), of caudal \(\frac{1}{3}\) of the total length. Height of head \(\frac{1}{2}\) of the total length.

**Eyes.** Upper surface, near the profile, 1 diameter apart, 1\(\frac{1}{2}\) diameter from end of snout.

Body elevated and strongly compressed, head slightly depressed.

Mouth anterior, jaws of equal length. Preorbital with a strong spine directed backwards. Preopercle with five spines, the two lowest the longest. Opercle very narrow, having two badly marked spines. A serrated ridge passes from the back of the orbit towards the occiput. Gill-membranes not entirely covered by the opercles.

**Teeth.** Villiform in jaws, none on vomer or palate.

Dorsal fin has a notch between its two portions.

Body and head studded with minute prickles. Lateral line distinct.

**Colours.** Bluish along the upper half of the body, becoming dirty-brown on the abdomen. An irregular series of about eight yellow blotches along the back, increasing in numbers towards the abdomen. Fins light-coloured.

Three specimens, up to 2\(\frac{1}{2}\) inches in length, are in the collection. They were dredged up off Galle by Dr. J. Anderson.

**Corvina cuja**, Ham. Buch.

*Scicenoides asper*, Blyth, J. A. S. of Bengal, 1860, p. 140.

The typical specimens of Mr. Blyth’s species are six in number, and up to 2 inches in length. They are the fry of a *Corvina*, and, it appears to me, of the *C. cuja*.

**Otolithus ruber**, Schn.

*Otolithus submaculatus*, Blyth, J. A. S. of Bengal, 1860, p. 141.

The four specimens in the Calcutta Museum, up to 6½ inches in length, and which are marked *O. submaculatus*, Blyth, belong to this species.

**Bola pama**, Ham. Buch.

*Scicenoides hardwickii*, Blyth, J. A. S. of Bengal, 1860, p. 139.

The three typical specimens are up to 2½ inches in length, and appear to be the fry of the *B. pama*, H. B.

**Gobius gobiodon**, sp. nov.


Length of head ½ of length of body. Height of body ½ of total length.

*Éyes* in anterior half of the head, ½ a diameter from end of snout, 1½ diameter apart.

Form of body similar to that of the genus *Gobiodon*.

Anterior portion of head and lower jaw covered with warty tubercles. Anterior cleft of mouth very oblique; the posterior extremity of the maxilla does not extend to under the anterior margin of the orbit. Gill-openings narrow, and only opposite the base of the pectoral fin.

*Teeth*. Villiform in both jaws, with a posterior canine in the centre of the lower jaw.

*Fins*. Ventrals united, not adherent to the abdomen. Caudal rounded; none of the rays produced, nor those of pectoral silik-like.

*Scales* ctenoid, extending anteriorly to opposite the middle of the first dorsal fin, and in a line between that situation and the base of the pectoral. Nine rows between the anterior portion of the base of the second dorsal and that of the anal fins.


*Hab*. Andamans or adjacent islands. Seven specimens, up to 1½ inch long, in the Calcutta Museum.

**Boleophtalmus inornatus**, Blyth, J. A. S. of Bengal, 1860, p. 168, is the *B. pectinirostris*, Gmehn.

**Periophthalmus scintillans**, Blyth, J. A. S. of Bengal, is the *Periophthalmus koelreuteri*, Pallas.
Eleotris feliceps, Blyth, J. A. S. of Bengal, 1860, p. 146.


Length of head 1/4, of caudal 1/5 of the total length. Height of head 1/3, of body 1/5 of the total length.

Eyes approximating, 1 diameter from end of snout.

Head slightly depressed; snout pointed.

Lower jaw the longest. Cleft of mouth small; the maxilla only extends halfway to below the orbit.

Teeth villiform.

Fins. Dorsal spines filiform, central caudal rays the longest.

Scales cycloid as far as the base of the anal fin, where they become strongly ctenoid. Scales extend as far forwards as the posterior margin of the orbit, and cover the cheeks and opercles. Twelve rows exist between the second dorsal and anal fins.

Colours. Brownish-white, irregularly spotted and blotched with a darker colour. Dark bands pass downwards from the orbit. Fins more or less spotted.

One specimen exists, received from the Andamans, where it was collected by Captain Hodges.

Eleotris fusca, Bloch.

E. incerta, Blyth, J. A. S. of Bengal, 1860, p. 146.

Three typical specimens of the latter in the museum are identical with E. fusca.

Eleotris cavifrons, Blyth, J. A. S. of Bengal, 1860, p. 145.


Length of head 2/4, of pectoral 2/11, of caudal 1/5 of the total length. Height of the head 1/4, of body 1/5, of first dorsal 2/15, of second dorsal 2/8, of anal 1/8 of the total length.

Eyes. Diameter 1/3 of length of head, 1 1/2 diameters from end of snout, 2 diameters apart.

Body subcylindrical; head depressed. A deep sulcus before the orbits. Snout rather elevated.

Lower jaw the longest. The posterior extremity of the maxilla extends to under the posterior margin of the orbit.

Teeth villiform, with an outer enlarged row, which are more numerous in the lower than in the upper jaw.

Fins. Caudal wedge-shaped.

Colours. Light brown; dark lines radiate from the orbit. Fins barred in spots.

Six specimens, up to 4 inches in length, exist in the Museum. They were received from Captain Hodges, who procured them at the Andamans.

Eleotris scintillans, Blyth, J. A. S. of Bengal, 1860, p. 146.

One specimen, in rather a damaged state, exists in the museum.
It agrees in appearance with E. ophiocephalus, but has small scales on the nape, and otherwise corresponds with E. cantoris, Günther, excepting that it has a black ocellus at the upper part of the caudal fin. The specimen, however, is only $2\frac{1}{2}$ inches long; so the ocellus may be a mark of its being immature.

**Amblyopus cæculus**, Bloch.

_Amblyopus cirrhatus_, Blyth, _J. A. S. of Bengal_, 1860, p. 147.
The typical specimen, $8\frac{1}{2}$ inches in length, is in the collection.

**Salarias dussumieri**, C. & V.

Specimens of this species are labelled _S. olivaceus_, Blyth. Whether the latter name should be considered a synonym of _S. lineatus_, C. & V., as stated by Mr. Blyth, or of _S. dussumieri_, C. & V., as shown by the typical specimens, must be doubtful, unless, by some accident, the label had been placed on the wrong bottle of specimens, as is not improbable.

**Salarias leopardus**, sp. n.


Length of head $\frac{3}{5}$, of pectoral $\frac{2}{5}$, of base of first dorsal a little above $\frac{1}{3}$, of base of second dorsal $\frac{2}{5}$, of caudal $\frac{1}{2}$, of anal $\frac{3}{10}$ of the total length. Height of head $\frac{2}{5}$, of body above $\frac{1}{3}$, of first dorsal $\frac{1}{4}$, of second dorsal $\frac{2}{5}$, of ventral $\frac{3}{10}$, of anal $\frac{1}{2}$ of the total length.

_Eyes_. Diameter $\frac{2}{5}$ of length of head, $1\frac{1}{2}$ diameter from end of snout, 1 diameter apart.

Head large, with a transverse crest of tentacles crossing the occiput, and a fringed orbicular tentacle half as long as the eye. Lips thick and fringed, having two bifid tentacles on either side of symphysis of the lower jaw. The posterior extremity of the maxilla extends to below the anterior margin of the orbit. Gill-opening wide.

_Teeth_ in a single row, imbedded in the gums in both jaws. No canines.

_Fins_. A notch between the two dorsals; the second dorsal is not continued on to the caudal; the latter is cut nearly square. Two fleshy prominences anterior to the anal fin.

Lateral line curves to opposite the end of the pectoral fin, whence it proceeds direct to the centre of the base of the caudal.

_Colours_. Of a rich brown, becoming white on the chest, and blotched all over with black marks, leaving narrow interspaces of a lighter colour. Fins spotted.

Specimen, 4 inches long, dredged up off Galle Harbour by Dr. J. Anderson.

**Andamia expansa**, Blyth.


Length of head $\frac{3}{5}$, of pectoral $\frac{2}{5}$, of caudal $\frac{2}{5}$ of the total length. Height of head $\frac{1}{10}$, of body $\frac{1}{5}$ of the total length. The breadth of the head equals its width.
Eyes elevated, diameter $1\frac{1}{4}$ of length of head, $1\frac{1}{2}$ diameter from end of snout, 1 diameter apart.

Body subcylindrical and compressed.

Snout rounded anteriorly. A short fringed tentacle over the posterior third of the orbit; a small, simple, nasal one. Snout with a lateral lobe, the two lips continuous, the lower forming a broad adhesive sucker behind the symphysis of the lower jaw, with a distinct posterior fold. The upper edge of the lower lip is coarsely fringed. Gill-openings wide, extending on to the lower surface of the head.

Teeth in a fine single row, implanted in the gums of both jaws. No canines.

Fins. Dorsals divided by a notch, or continuous. The first dorsal commences a short distance behind the occiput; its spines are free to a greater or less extent; in some specimens the second is the longest. The soft dorsal mostly equals in height the posterior third of the first dorsal; sometimes the second dorsal is higher than the first, but it does not appear to ever be higher than the body. Anal lower than the dorsal, all its rays free in their external half. Pectoral arises close to the gill-opening, its lower seven rays are free at their extremities. Extremity of caudal rays undivided and free.

Colours. Olive, banded with a darker shade, the bands and the ground-colour being about equal in width. Head spotted. All the fins with dark margins, except the anal, which is tipped with white.

Many specimens, up to 3½ inches in length, exist in the Calcutta Museum. All were received from the Andaman Islands.

**Osphromenus nobilis.**

*Ctenops nobilis*, M'Clelland, Calc. Journal of Natural History.

D. $\frac{5-6}{7-5}$. P. 12. V. $\frac{1}{4}$. A. $\frac{5}{23}$. C. 16. L. 1. 28–30.

Snout elongated, lower jaw the longest, lower margin of preopercle denticulated. Preorbital large, also denticulated. Opercle entire, ending in a soft pointed extremity. Intermaxillaries very protractile. The posterior extremity of the maxilla extends two-thirds of the distance to below the anterior margin of the orbit.

Eyes. Diameter $\frac{2}{7}$ of length of head, $1\frac{1}{2}$ diameter from end of snout.

Head acute, depressed, dorsal profile nearly horizontal.

Teeth in pointed tufts, or two incomplete rows on the margin of the intermaxillaries.

Fins. Dorsal small, situated in the posterior portion of the back. Pectoral short. Anal extending almost to the caudal, from which it is separated by a slight notch.

Scales ctenoid. Lateral line absent.

An accessory cavity exists above and behind the gills.

Colours. A white band passes from the eye to the centre of the caudal fin, a second from the pectoral along the side, and a third along the base of the anal fin.

Three specimens (not in a good state) exist, given by Dr. J. C.
Jerdon, who obtained them at Purneah. He informs me "its habitat is not mountain-streams, but rivers in the plains of Northern Bengal."

**Trichogaster fasciatus**, Bloch.

I obtained a large number of specimens of this species from the Calcutta market, and was enabled to form a complete series showing how the preorbital changes with age. At 3 inches the whole of its lower margin is serrated; at about 3½ inches the serrations become mere denticleations, fewer in number and wider apart; at 4 inches some of the specimens have the preorbital entire.

This species is given as *Trichopodus colisa* by Hamilton Buchanan, and figured at pl. 15. f. 40. The original drawing is marked *Trichopodus beje*; it may therefore be safely assumed that these two names belong to one and the same species.

Amongst the MS. drawings are beautiful coloured figures of:—the *Trichogaster lalius*, H. B., marked *T. ruber*; *Trichogaster chuna*, H. B., marked *T. vittatus*; *Trichogaster sota*, H. B., marked *T. fuscus*; *Trichogaster cotra*, H. B. marked *T. caerulescens*.

**Trichogaster lalius**, H. B.


Preorbital denticulated, also the horizontal margin of the preopercle, the teething becoming gradually coarser posteriorly.

Lateral line either absent or only just visible for a few scales.

Fourteen rows of scales between the dorsal and anal fins.

This lovely little fish is the most beautiful amongst the numerous species of freshwater fishes I have ever seen. It is vertically banded with scarlet and light blue, each scale having one half of each colour. The vertical fins are banded with scarlet dots. I kept four dozen of this species in my rooms in Calcutta for six weeks, hoping, but in vain, to get a ship captain to convey them to the Zoological Society's Gardens.

**Trichogaster chuna**, H. B.


Preorbital and preopercle serrated.

Lateral line only a puncture on a few scales.

*Colours*. A black band from the eye to the end of the caudal fin. Only one specimen, an inch long, is in the Museum: it may be a variety of the last; but more specimens are required to decide.

There are several interesting specimens amongst the *Ophiocephalidae* in this fine collection, a few of which deserve a passing notice.

**Ophiocephalus gachna**, H. B. (variety).


The body is banded, and has a general orange tinge. None of the teeth are enlarged. The pectoral fin reaches to above the anal, and
the ventral extends to the third anal ray. Three specimens, up to 6 inches in length, are in the collection received from Captain Godwin-Austen, who obtained them at Cherra Poonjee. Another specimen, 7 inches long, was sent by S. Teal, Esq., from Seeb Sangor, in Assam.

**Ophiocephalus barca, H. B.**

Variety *amphibius*.

This is the typical specimen of the *Bora chang*, described in the J. A. S. of B. viii. p. 550, is as follows:—


It differs very slightly from the *O. barca* of Calcutta, and is evidently the same species. It is from Bootan.

**Anabas oligolepis**, Blecker.


Two specimens, 9 inches long, exist in the collection; they were obtained in the Calcutta bazar.

**Mastacembelus zebrinus**, Blyth.


Length of head $\frac{1}{2}$ of the total length, and equal to the height of the body.

*Eyes* small, situated before the middle of the length of the head.

Angle of preopercle armed with three strong spinous teeth; a spine also present below and slightly before the orbit.

*Colours*. Olive, with bluish vertical bands alternating with golden ones. Dorsal and caudal fins banded in dots; anal with the bands of the body continued on to it. In preserved specimens the bands on the body are black.

This species is the common sort throughout British Burma, and is also found in the Irrawaddi, far above Ava.

**Mastacembelus armatus**, Lacép.

A fine specimen of the spotted variety, 14 inches long, exists in the Museum. It has a single row of large black spots along the base of the dorsal fin; no bands exist on its sides. D. 38/70. It was obtained from the Calcutta bazar.

**Glyphidodon notatus**, sp. n.


Length of head $\frac{1}{4}$, of pectoral $\frac{2}{3}$, of caudal above $\frac{2}{5}$ of the total length. Height of head $\frac{1}{4}$ of the total length.

*Eyes*. Diameter $\frac{3}{5}$ of length of head, $\frac{3}{4}$ of a diameter from end of snout, 1 diameter apart.

Body oval, compressed. Opercles entire.

*Teeth* in a single row.
Fins. Third dorsal spine the longest, rays much longer than the spines. Ventral does not extend to the anal, the second spine of the latter the longest. Caudal deeply forked.

Scales ctenoid; small ones exist over the soft dorsal and anal fins. Lateral line ceases opposite the middle of the soft dorsal, but is again continued, in the form of a round hole in the middle of each scale, along the central line of the body.

Colours. Brownish, each scale with a light centre. White bands cross from the back to the abdomen; the first passes from the first dorsal spine to the base of the pectoral fin, the second from the middle spine to the base of the ventral, the third from the last three spines to the anal, the fourth over the free portion of the tail at the end of the soft dorsal fin. A black spot in the axil of the pectoral fin. Caudal whitish.

Seven specimens exist in the collection, up to 3½ inches in length. They were received from Captain Hodges, who obtained them at the Andaman Islands.

Bregmaceros atripinnis, sp. n.


Length of the head \( \frac{2}{5} \), of pectoral \( \frac{2}{5} \), of caudal \( \frac{2}{7} \) of the total length. Height of head \( \frac{2}{5} \), of body \( \frac{3}{5} \), of dorsal fin \( \frac{6}{5} \), of anal \( \frac{3}{9} \) of the total length.

Eyes. Diameter \( \frac{2}{5} \) of length of head, 1 diameter from end of snout, 1\( \frac{1}{2} \) diameter apart.

Body elongated and compressed.

Posterior extremity of maxilla reaches to below the posterior third of the orbit.

Teeth in jaws, none in vomer or palate.

Fins. First dorsal consists of a single ray, which arises on the summit of the head, and is continued backwards to oppose the posterior extremity of the pectoral. First portion of the second dorsal higher than the body, its intermediate rays very low. Pectoral commences under the throat and is extended as far as the posterior third of the body. The anterior portion of the anal is not quite so high as that of the dorsal. Caudal slightly emarginate.

Scales cycloid, in parallel rows.

Lateral line absent.

Colours. Of a rich brown, becoming lighter on the abdomen. Dorsal, pectoral, anal, and caudal fins black; ventral of a dirty white.

Numerous specimens, up to 5 inches long, presented by Major Tickell in 1864, probably from Burmah.

Cynoglossus buchanani, sp. n.


Length of head \( \frac{1}{6} \) of the entire length. Height of body nearly \( \frac{1}{3} \) of total length.
Eyes. Upper orbit in advance of the lower. Eyes minute.
The length of the snout equals $\frac{1}{3}$ of that of the head. The rostral hook extends to beneath the posterior margin of the anterior orbit. A nostril exists between the orbits. No fringe to the lips. Mouth twisted round to the right side.

Teeth minute, and on the right side only.

Fins. Ventral fins confluent, pectorals absent.

Scales strongly ctenoid on both sides, with a dark line along their centres.

Lateral lines two, with sixteen to seventeen rows of scales between them in the widest part. Four to five rows of scales between the superior lateral line and the anterior portion of the base of the dorsal fin.

Colours. Coloured side brown, with wide irregular vertical bands. Two specimens exist in the Museum. One is 4 inches in length.

**Pseudorhombus arsius, H. B.**


Length of head $\frac{1}{4}$, of pectoral $\frac{1}{3}$, of caudal $\frac{1}{6}$ of the total length.

Height of body nearly $\frac{1}{6}$ of total length.

Eyes. Diameter $\frac{1}{4}$ of length of head, 1 diameter from end of snout, not $\frac{1}{8}$ of a diameter apart.

Teeth. About six conical ones in the lower jaw on either side, and four in the upper.

Fins. Dorsal arises opposite the anterior margin of the orbit, it does not join the caudal; the latter is rather pointed.

Colours as described by H. B.

Dr. Günther mentions in his 'Catalogue of Fishes,' vol. iv. p. 427, that "a coloured drawing of this fish is in the collection of drawings presented by General Hardwicke to the British Museum." I find one also exists 2$\frac{8}{10}$ inches in length amongst Hamilton Buchanan's MS. drawings.

This species grows to 6 or even 8 inches in length, and is common in Burmah.

**Silurus cochinchenensis, C. & V.**

*Silurichthys berdmorei,* Blyth.

These two species, as suggested by Dr. Günther, I find to be identical, the typical specimen of the latter is 4$\frac{6}{10}$ inches in length.

**Arius sona.**

*Pimelodus sona,* Ham. Buch.

I believe that this species, as suggested by Dr. Günther (Cat. of Fishes, v. p. 143), is not identical with *Bagrus arioides,* C. & V., as it was considered to be by Mr. Blyth (J. A. S. of B. 1860, p. 151). Five specimens of the former and one of the latter are in the collection.

Length of the head $\frac{2}{3}$ of the total length. Height of body $\frac{1}{3}$, width of head nearly $\frac{1}{5}$ of the total length.

The maxillary cirri extend to the end of the pectoral fin, the external mandibular pair to the posterior third of the pectoral, the inner pair to the base of the pectoral. Head rugose superiorly, occipital process keeled, granulated, as long as wide at the base, and extending in a concave extremity; basal bone crescent-shaped. The superior longitudinal furrow on the head extends to opposite the end of the opercle.

**Fins.** Dorsal spine upwards of $\frac{1}{3}$ of the total length, serrated on both sides on its upper half, rugose anteriorly in its lower half, having a short termination. Pectoral spine rather stronger but not nearly so long, being only $\frac{1}{5}$ of the length of the head, serrated on both sides. Adipose dorsal low. Caudal lobed.

**Glyptosternum telchitta, Ham. Buch.**

In Hamilton Buchanan's MSS. is one of this species termed *Pimelodes? nibrundus.* The drawing is $3\frac{1}{2}$ inches long. Six specimens exist in the collection; they are identical with the three typical specimens of *G. trilineatus*, Blyth.

In the genus *Hara*, Blyth, there are examples of the *H. buchanani*, Blyth, and *H. filamentosus*, Blyth. The species given in the 'Fishes of Malabar' as *H. malabarica*, Day, does not belong to this genus, but is a *Macrones.*

In the genus *Amblycestis*, Blyth, the two specimens of *A. mangois*, H. B., and *A. tenuipinnis*, Blyth, are identical. As to the *A. cecutiens*, Blyth, the specimens are not in a good state; they, however, appear very similar to *A. mangois*, H. B.

**Exostoma andersonii, sp. n.**

D. $\frac{1}{6}/0$. P. 1/11. V. 6. A. 1/7. C. 15.

Length of head $\frac{1}{5}$, of pectoral $\frac{1}{10}$, of base of first dorsal $\frac{1}{10}$, of base of adipose dorsal $\frac{3}{5}$, of base of anal $\frac{1}{5}$, of caudal $\frac{1}{2}$ of the total length. Height of head $\frac{1}{10}$, of body $\frac{1}{5}$, of first dorsal $\frac{1}{10}$, of ventral $\frac{2}{5}$, of anal $\frac{1}{10}$ of the total length.

**Eyes.** Very minute and covered by skin, situated on the upper surface of the head, midway between the snout and posterior extremity of the opercle, whilst their space apart equals their distance from the posterior nostril. A cirrus exists between the two nostrils, which are situated close together and a little posterior to the short maxillary cirrus, which has a widely dilated base consisting of a flap of skin having a second attachment which passes to the lower lip. Mandibular cirri on a transverse line; they are rather short, but the outer pair are the longer. Lips thick and studded with glands. The isthmus is divided by a slight sulcus from the body, but is continuous with the branchial membrane. Branchial aperture narrow, not extending on to lower surface of head. Upper surface of head covered with skin. Humeral process large. Head depressed, rounded anteriorly. Mouth transverse.
Teeth flattened, in a single row in both jaws, none on vomer or palate.

Fins. Dorsal commences opposite the posterior third of the pectoral, which latter is horizontal in its external, and vertical in its internal half. Dorsal and pectoral spines enveloped in skin, the pectoral much the strongest. The external two-thirds of the ventral is horizontal, its internal third vertical; the two fins at their bases are separated by a distance asunder which is equal to two-thirds of their length. The external ray is thickened and enveloped in skin. The anal is situated midway between the root of the ventral and that of the caudal. Adipose dorsal very low, extending from opposite the posterior extremity of the ventral to the upper margin of the base of the caudal. Caudal cut square.

Lateral line passes along the middle of the body.

Colours. Deep leaden, the skin being everywhere covered by minute elevations, which during life were probably yellow.

Two specimens, 5 and 6 inches long, are in the Calcutta Museum, taken at Hothani, and presented by Dr. J. Anderson; there are also two more from Ponsee, China.

**Exostoma Blythii**, n. sp.


Length of head nearly 1/2, of pectoral 3/5, of caudal 2/3 of the total length. Height of the head 1/5, of body 3/10 of total length.

Eyes small, on upper surface of head, and in the centre of its entire length.

Width of head equals its length.

Nasal cirri about three times as long as the orbit. Maxilla externally dilated into a fleshy appendage, but without cirri. Lips thick and reflected round the mouth. Two pairs of cirri on the symphysis of the lower jaw, placed at some distance asunder, the outer slightly the longest. Mouth inferior; snout broad.

Teeth in both jaws.

Fins. Pectoral subhorizontal, its rays plaited below, it arises under the branchial aperture, which is entirely superior. Dorsal is slightly anterior to the ventral, its spine is weak. Ventral subhorizontal. Caudal slightly forked, its lower lobe the longest.

Colours. Brown.

Two specimens, 2 1/2 inches long, exist in the Calcutta Museum.

**Exostoma Labiatum**, M'Clelland.


Length of head 3/8, of pectoral 1/5, of caudal 1/3 of the total length. Height of head 1/6, of body 1/5 of the total length.

Nasal cirri arise between the nostrils, and reach the end of the snout. The maxillary cirrus extends to the pectoral fin. Jaws in the form of a double crescent or CO shape. The two lips broad and continuous, widest laterally and inferiorly. The lower lip is in the
form of one central lobe with a smaller one on either side and a short cirrus between.

Fins as in the other species.
Two specimens 4 inches long. Old Collection.

**Exostoma berdmorei**, Blyth.
The typical specimen is 4 inches in length, but in a very bad state. Its snout is more pointed than in the other species.
One specimen from the Tenasserim Provinces, presented by Major Berdmore.

In the genus *Hemirhamphus* the following species exist in the Museum:— *Hemirhamphus buffonis*, C. & V., twelve specimens from the Calcutta bazar, labelled *H. striga*, Blyth; *Hemirhamphus cettuntoio*, Ham. Buch., many specimens, to 7 inches in length, labelled *H. brachynotopterus*, Blyth; *Hemirhamphus commersonii*, C. & V., one specimen 11 inches in length, from the Calcutta bazar, and labelled *H. notatus*, Blyth.

**Hemirhamphus plumatus**, Blyth.
In both specimens the extremity of the mandible is broken.
Length of head, in the best specimen (with the lower jaw), 2/3 of the total length. Upper jaw 2/3 longer than wide. Pectoral short.
Eyes rather nearer to the posterior extremity of the head than to the anterior extremity of the upper jaw, 1 1/4 diameter apart.
Upper surface of head flat.
Teeth in numerous villiform rows in the upper jaw, less numerous in the lower.
Fins. Ventral arises in the posterior 1/5 of the length from the snout to the base of the caudal fin; it reaches to under the base of the dorsal, which last is in advance of the anal. Caudal forked, lower lobe the longest. Upper margin of dorsal fin concave.
Lateral line in lower fifth of the body.
Colours. Bleached, silvery stripe visible.
Two specimens, 8 inches long, from Ceylon.

**Hemirhamphus neglectus**, sp. n.
*H. cettuntoio*, Blyth (not Ham. Buch.).
Length of head about 1/3 of the entire length, of the lower jaw (anterior to the upper) 1/5 of the total length.
Eyes 2 1/2 diameters from end of snout, 1 1/4 diameter apart, 2 1/4 diameters from the posterior extremity of the opercle.
Upper surface of head nearly flat, and covered with pores. Upper jaw twice as long as broad at its base.
Teeth rather coarse in both jaws, none on the palate.

Fins. Ventral commences in the posterior third of the distance from the orbit to the base of the caudal fin; it is short, only extending halfway to the anal. Caudal rounded.

Colours. Silvery stripe distinct, end of mandible milk-white.

Many specimens exist, from the Calcutta bazar. This species is also found in Burmah. The specimens in the Museum are labelled "H. ectuntio, H. B."

November 25, 1869.

John Gould, Esq., F.R.S., in the Chair.

Mr. Sclater spoke of the condition of the various Zoological Gardens on the Continent which he had visited during the vacation, and made remarks on the new and rare animals observed in these establishments.

At Rotterdam, in the Gardens of the Zoological Society of that city, one of the chief attractions noticed was a pair of the Anoa of Celebes (Anoa depressicornis). These had already bred once in the Gardens, and a second calf was shortly expected. A bird which Mr. Sclater had not previously seen alive was an African Spoonbill (Platalea chlororhyncha).

At Amsterdam, the Gardens of the Society "Natura artis magistra" were found to be in their usual excellent state of arrangement and condition. One of the best living series lately brought together here was that of the genus Bos and its immediate allies, amongst which were examples of the male, female, and young of Bos sondaicus.

The Zoological Gardens of Hamburg, now under the direction of Dr. F. Hilgendorf, C.M.Z.S., had recently acquired specimens of many very interesting and little-known species, amongst which might be specially noticed examples of Bassaris astuta and Tapirus indicus, and a pair of Otocyon delalandii, all formerly represented in the Society’s collection, but not now. A fine male Kudu (Strepsiceros kudu) seemed to be in excellent condition, but was, unfortunately, without a mate. The rarest bird in the collection was, perhaps, Numida vulturina, represented by two specimens. Two examples of the rare West-African Monkey Cercopithecus erythro-aster* had been likewise recently obtained, but had died and were now in the Museum of the city.

The Zoological Gardens of Berlin were about to be disconnected from State control, and to become the property of a new Society, whereby large means would be obtained for their augmentation and improvement. Dr. Bodinus, now Director of the Gardens at Co-

* Gray, P. Z. S. 1866, p. 168, t. xvi.
loigne, had accepted the post of Director of the new establishment, which seemed likely to become one of the most flourishing institutions of the sort on the Continent.

In the Zoological Gardens of Cologne Mr. Sclater had likewise seen much that was of interest, including breeding pairs and young of *Crax yarrelli* and *Dendrocygna arborea*.

The well-known Gardens of Antwerp, under the care of M. Vekemans, F.Z.S., remained unrivalled as regards their collection of Antelopes and breeding *Phasianidae*. Amongst the former series were pairs of both *Gnus* (*Catoblepas gnu* and *C. gorygon*), the Kob (*Antilope unctuosa*), the Dama Antelope (*Gazella dama*), the Lencoryx (*Oryx leucoryx*), and the Bless-bok (*Damalis albifrons*); besides single specimens of the Bontebok (*D. pygargus*), the Bubal (*Boselaphus bubalus*), the Hartebeest (*B. caama*), and the Reh-bok (*A. capreolus*). There was likewise a fine male Prongbuck (*Antilocapra americana*), believed to be the only example ever brought to Europe, except that formerly in the Society’s collection. This animal had regularly shed its horns during the two autumns it had passed at Antwerp, and had thus confirmed the previous observations of Mr. Bartlett and Dr. Canfield on this subject*.

The Secretary exhibited, on behalf of Mr. John Brazier, C.M.Z.S., a specimen of an egg of a species of *Megapodus* from Banks’s Island, and read the following notes by Mr. Brazier concerning it:—

"The egg I send to the Society I obtained, with four other specimens, at Vavua Lavu, or the Great Island in Banks’s Islands, 13° 52' S. lat., 169° 4' E. long., situated near the New Hebrides group. The bird is well known to the inhabitants of Banks’s Island; and my specimens were purchased of a native. The Megapode that lays this egg builds its mound on the mountains near the sulphur-springs. The natives told me that the mound is large, or, as they expressed it, a ‘big-fellow house.’ The contents of the egg were good eating. When I was on shore collecting shells &c. at Sandwich Island, New Hebrides, a native offered me two eggs for sale, but he wanted more than I felt inclined to give him for them. I believe my friend Sir W. T. Wiseman took four or five of the very same egg, that had been brought alongside of the ship at Vavua Lavu, or Great Island. When I had bought my specimens from the native, I set out at once for the mountains to obtain, if possible, some of the birds; but it came on to rain, and, night setting in, I had to return to the ship. Our stay there was only one day, for the greater part of which it rained. I was the first naturalist that had ever landed on the island to collect specimens of natural history. I should mention that I obtained the eggs on the 21st of August, 1865. I send you one specimen; one I keep myself; and the other has gone to Mr. Krefft for our National Museum."

Mr. Sclater stated that he was not aware of any previous record

respecting the existence of *Megapodius* in the group of New Hebrides, except the short notes of Dr. Bennett (P. Z. S. 1862, p. 247), where he alluded to the occurrence of this form in the islands of Tanna and Sandwich. Mr. Sclater had compared the present specimen with the series of eggs of the birds of this genus in the British Museum, and found it to come nearest to that of *Megapodius pritchardi*, G. R. Gray (P. Z. S. 1864, p. 41, t. vi.), which is figured in Hartlaub and Finsch's *Ornithology of Polynesia*, plate 2. But it was larger and more deeply coloured than that egg, and appeared to indicate the existence of an undescribed species of Megapode in Banks's Island, for which, following Mr. Gray's example, he suggested the name *Megapodius brazieri*.

The Secretary stated that, in reference to the preceding discussion as to the present existence of the Rhinoceros in Borneo, he had addressed letters to Mr. W. T. Fraser, C.M.Z.S., of Soerabaya, Java, and Mr. Pope Hennessy, Governor of Labuan, requesting them to endeavour to obtain information on the subject. From Mr. Fraser he had received the following reply, dated Soerabaya, August 30th, 1869:

"I duly received your note of the 30th of April regarding the existence of the Rhinoceros in Borneo. There have lately been arrivals of several prahu from Koeti, and I have been able to question the crews on the matter. They tell me that the animal has often been met with in the interior, in the centre of the forests; but they say that they have not heard of any having been caught. They seem to think that it is quite impossible to obtain either skulls or teeth of the animal. I promised them a good reward if they brought me any the next time they returned from Koeti; and perhaps this may have some effect. If I hear any thing further regarding the matter, I shall immediately let you know. I believe you can accept it as a certain fact that the Rhinoceros is an inhabitant of Borneo."

The following letter was read, addressed to the Secretary by Mr. E. L. Layard, F.Z.S., dated Cape Town, October 19, 1869:

"Sir,—The *Proceedings of the Zoological Society* for the year 1869, Part I., reached me by this mail; and on looking through them, at page 143, in Mr. A. D. Bartlett's very interesting account of the pellets thrown up by the male Hornbill (*Buceros*) I find Mr. Bartlett stating that 'he believed' Dr. Livingstone was the first person who called attention to the singular habit of the Hornbill in imprisoning the female in her nest during the term of incubation. He refers to the *Missionary Travels in South Africa* (p. 613). This book was published in 1857.

"If Mr. Bartlett will refer to the *Ann. and Mag. of Nat. Hist.* (series 2, vol. xi. p. 234), published in 1853, he will find that in my *Rambles in Ceylon* I have already noticed the fact, on equally good testimony as that of Dr. Livingstone. I do not, however, think that
I was the first to do so. If my memory serves me, when I communicated my 'wondrous tale' to my old friend and early ornithological guide, Mr. E. Blyth, he told me the circumstance was well known in India. I could, if I had time, refer to his letters still in my possession, ranging back three and twenty years, when Dr. Templeton and myself, aided by Mr. Blyth, began to work out the ornithology of Ceylon.

"I am, Sir, yours faithfully,

"E. L. Layard."

Mr. A. Murray exhibited some specimens of articles sold as food in the markets of Old Calabar. These consisted of examples of a species of Pteropus ready trussed, specimens of a rare burrowing Crustacean (Callianassa turnerana), and larvae of a longicorn Beetle found in decayed palm trees.

Mr. R. B. Sharpe exhibited a specimen of a very rare Indian Kingfisher (Alcedo grandis of Blyth). The specimen in question had been recently obtained in the Darjeeling Terai by a shikaree in the employ of Dr. John Anderson, Curator of the Indian Museum, Calcutta. This gentleman had sent the specimen to England for Mr. Sharpe to figure in his 'Monograph of the Alcedinidae.'

Mr. H. J. Elwes, F.Z.S., exhibited a fine pair of horns of the Sinaitic Ibex (Capra sinaitica, Hempr. et Ehrenb.), obtained by Mr. Palmer during the Sinaitic survey of last year.

Mr. H. E. Dresser, F.Z.S., exhibited, and made the following remarks on, some eggs of the Little Gull (Larus minutus):

"I have much pleasure in offering for inspection carefully identified eggs of the Little Gull (Larus minutus), together with a skin of the adult bird in breeding-plumage, obtained with the eggs, they being a portion of a series of eggs and skins of this Gull yesterday received from Russia. I am the more glad to be able to exhibit these eggs, as I have not hitherto seen authentic eggs of Larus minutus in any collection. I myself have for long endeavoured to obtain them, but until now in vain. When in Russia two winters ago I made careful inquiries as to the breeding-place of this bird, and was assured that it bred no nearer to St. Petersburg than the Volga or Kama rivers, and that eggs had been procured from near Perm. Last year I procured through Dr. Baldamus, the well-known German oologist, two eggs which he assured me could be nothing but those of Larus minutus, and which were taken near Smyrna by Herr von Gonzenbach. However, I now find that they cannot be the eggs of the Little Gull, as they differ so very much from those above referred to.

"The eggs I now exhibit (five in number, viz. a clutch of three taken on the 3rd of June, and a clutch of two taken on the 5th of June, this year) were collected at the upper part of Lake Ladoga, in
Day, Francis. 1869. "Remarks on some of the Fishes in the Calcutta Museum."

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