

NEW RECORDS, AND ONE NEW SPECIES,  
OF TELEOST FISHES FROM THE  
GILBERT ISLANDS

BY  
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# NEW RECORDS, AND ONE NEW SPECIES, OF TELEOST FISHES FROM THE GILBERT ISLANDS

By G. PALMER

AN interesting collection of marine fishes, which has now been presented to the museum, was made in 1962 by Mrs. M. J. Cooper, whilst she was living at Betio, Tarawa in the Gilbert Islands.

Randall (1955) in his report on the fishes of the Gilbert Islands, stresses the fact that there seem to be few species endemic to this group of islands, the majority of those found in this area being common to many of the oceanic islands of the tropical Pacific. In particular, the fauna is very similar to that of the Marshall Islands, some of the ichthyofauna of which has been dealt with by Schultz et al (1953 and 1960). About 400 species were recorded by Randall, some of which are represented in the present collection. Despite its comparatively small size of 297 specimens, the present collection consists of 75 species, 21 of which, including the new species, are listed as new records for the Gilbert Islands. These are indicated by an asterisk. In a number of instances live colour notes were made by Mrs. Cooper and these have been included under the appropriate species.

## APODES

### MURAENIDAE

#### *Echidna zebra* (Shaw)

*Gymnothorax zebra* Shaw, 1797, *Nat. Misc.*, 9: pl. 322

B.M. No. 1969.8.26.1-3.

3 specimens, 152-324 mm. in length. Taken off reefs at Bairiki, Tarawa.

The smallest example has 21 complete light bands encircling the body, the number of these apparently increasing with size, as the other two larger specimens have 25 and 39 bands respectively. Between the complete bands are a varying number of partial bands or spots.

#### *Echidna nebulosa* (Ahl)

*Muraena nebulosa* Ahl, 1789, *Spec. ichthyologicum de Muraena et Ophichtho* (Thunberg): 7. pl. right fig.

B.M. No. 1969.8.26.4-12.

9 specimens, 87-393 mm. in length, from bomb-crater tide-pool, Tarawa.

The teeth in the small examples are less molar-like than are those in the larger fish.

The 315 mm. eel is anomalous in having the tubes of the anterior nostrils united, although the nasal apertures are separate.

***Echidna ? leucotaenia* Schultz**

*Echidna leucotaenia* Schultz, 1943, *Bull. U.S. natn Mus.* **180**: 22.

B.M. No. 1969.8.26.13-14.

2 specimens, 39 and 40 mm. in length. Taken off Tarawa reefs.

Both specimens show the whitish snout and lower jaw, as well as the white margin on the median fins, which are said by Schultz to be characteristic for this species.

\*

***Pseudechidna brummeri* (Bleeker)**

*Muraena brummeri* Bleeker, 1858, *Natuurk. Tijdschr. Ned. Indie* **17**: 137.

B.M. No. 1969.8.26.15.

1 specimen, 350 mm. in length, from Tarawa lagoon.

Trunk 190 mm., tail 160 mm. Greatest depth 11 mm. Head 28 mm. Greatest height of dorsal fin 5 mm. Median fins well-developed, the height of the dorsal in the posterior part of the tail region being as high as the depth of the body. Dorsal, caudal and anal fins with a marginal white band. Colour of body an overall light brown with the anterior pores of the head and lower jaw a dark brown, as are the tubes of the anterior nostrils. Teeth conical, depressible, a double row in the maxillary series, those of the inner row being the larger. A single row in the intermaxillary series, with three mesial teeth. Vomer with a single row of 6 or 7 teeth. Teeth of the lower jaw in a single series. This species was not recorded by Schultz (1953) from the Marshall and Marianas Islands and appears to be a new record for the Gilbert Islands.

***Murenophis pardalis* (Temminck & Schlegel)**

*Muraena pardalis* Temminck & Schlegel, 1846, *Fauna japonica Pisces* Pt. 5: 268 pl. 119.

B.M. No. 1969.8.26.33.

1 specimen, 132 mm. in length from Tarawa lagoon.

Colour brownish, with prominent white spots which tend to coalesce to form vertical white lines.

***Gymnothorax picta* (Ahl)**

*Muraena picta* Ahl, 1789, *Spec. ichthyologicum de Muraena et Ophichtho* (Thunberg): 8.

B.M. No. 1969.8.26.16-26.

11 specimens, 72-474 mm. in length, taken from Tarawa lagoon.

***Gymnothorax petelli* (Bleeker)**

*Muraena petelli* Bleeker, 1856, *Natuurk. Tijdschr. Ned. Indie* **11**: 84.

B.M. No. 1969.8.26.27.

1 specimen, 112 mm. in length, from Tarawa lagoon.

***Gymnothorax rüPELLI*** (McClelland)

*Dalophis rüPELLIAE* McClelland, 1845, *Calcutta J. nat. Hist.* 5: 213.

B.M. No. 1969.8.26.28-32.

5 specimens, 50-212 mm. in length, from Tarawa lagoon.

The three smallest examples have a line of solid, dark pigment running longitudinally along the ventral surface, linking the dark rings.

***Gymnothorax thyrsoideus*** (Richardson)

*Muraena thyrsoidea* Richardson, 1844, *Zool. Voy. "Sulphur"*—Fishes: 111.

B.M. No. 1969.8.26.35-38.

4 specimens, 202-270 mm. in length, from Tarawa lagoon.

***Gymnothorax undulata*** (Lacepède)

*Muraenophis undulatus* Lacepède, 1803, *Hist. nat. Poissons* 5: 629, 642, 644 fig. 2.

B.M. No. 1969.8.26.39-40.

2 specimens, 114 and 302 mm. in length from Tarawa lagoon.

It is with some hesitation that the 114 mm. specimen is included in this species. Colouration in life was stated to have been pale brown, mottled with darker brown.

***Gymnothorax favaginea*** Schneider

*Gymnothorax favagineus* Schneider, 1801, *Syst. Ichth. Bloch.*: 525.

B.M. No. 1969.8.26.41-42.

2 specimens, 52 and 62 mm. in length from Tarawa lagoon.

These two specimens have the snout and the distal margins of the fins white. The smaller of the two is very dark and shows only light interspaces on the dorsal half of the body.

***Gymnothorax fimbriata*** (Bennett)

*Muraena fimbriata* Bennett, 1831, *Proc. zool. Soc. Lond.* Pt. 1: 168.

B.M. No. 1969.8.26.43-44.

2 specimens, 159 and 273 mm. in length. Tarawa.

The smaller specimen was taken on the reef off Tarawa at night. The larger was taken from Tarawa lagoon over sand and rock. Live colours are stated to have been a cream background mottled with brown.

***Gymnothorax flavimarginata*** (Rüppell)

*Muraena flavimarginata* Rüppell, 1828, *Atlas Reise nörd. Afrika. Fische des rothen Meeres*: 119, pl. 30, fig. 3.

B.M. No. 1969.8.26.45-51.

7 specimens, 117-283 mm. in length, taken on the outer reef, Tarawa.

Live colour brown, mottled with darker brown. A bright greenish margin to dorsal fin and around caudal.

*Gymnothorax* sp.

B.M. No. 1969.8.26.52-54.

3 specimens, 52-80 mm. in length, taken in Tarawa lagoon.

I have been unable to assign these specimens to any particular species.

\*

*Uropterygius leucurus* Snyder

*Uropterygius leucurus* Snyder, 1904, *Bull. U.S. Fish. Comm.* **22**: 521, pl. 6 fig. 12.

B.M. No. 1969.8.26.55-65.

11 specimens, 87-123 mm. in length. Taken on Betio, Tarawa at low water in a tide-pool with rotenone.

This appears to be a new record for the species from the Gilbert Islands. The type was taken in the Hawaiian Islands, and more recently has been recorded by Schultz in Schultz et al (1953) from the Marshall and Marianas Islands.

Trunk 42 mm., tail 45 mm. About 94 pores in the lateral line.

Colour in alcohol overall brownish. On the smaller specimens there are some 70 alternating vertical bars, sometimes incomplete, of brown and white. These are visible from the rictus of the jaws back to the end of the body.

*Uropterygius micropterus* (Bleeker)

*Muraena micropterus* Bleeker, 1852, *Natuurk. Tijdschr. Ned. Indie* **3**: 298.

B.M. No. 1969.8.26.66-69.

4 specimens, 200-233 mm. in length. Taken at Bairiki, Tarawa on outer reef, close inshore in tide-pools. Very common in this area.

I follow Randall (1955) in considering this to be distinct from *U. marmoratus*, although some authors believe these two species to be synonymous.

The maxillary teeth are in two series, the inner being two to three times as long as those of the outer row. They are canine-like, depressible and extend the whole length of the maxillary. The mandibular teeth are also in two series, the inner row again being the longer and extending almost to the rictus of the jaws. There are 6-7 vomerine teeth in a single series.

Live colour is stated to be white, speckled with greyish-black. Colour in alcohol is a greyish-white, speckled with darker markings along the dorsal side of the body. Ventral surface an unrelieved greyish-white.

*Uropterygius marmoratus* (Lacepède)

*Gymnomuraena marmorata* Lacepède, 1803, *Hist. nat. Poissons* **5**: 648.

B.M. No. 1969.8.26.70-77.

8 specimens, 40-460 mm. in length, from Tarawa lagoon.

\* ***Anarchias allardicei*** Jordan & Starks

*Anarchias allardicei* Jordan & Starks, in Jordan & Seale, (1905) 1906, *Bull. U.S. Bur. Fish.* **25**: 204, fig. 9.  
B.M. No. 1969.8.26.68.

1 specimen, 73 mm. in length. Taken in bomb-crater tide-pool on the southern reef, Betio, Tarawa.

This specimen is almost certainly a young example of *A. allardicei*. It is of a plain, darkish brown colour, much lighter around the caudal fin. The snout and lower jaw are very pale. The tooth pattern agrees very closely with the diagram in Schultz in Schultz et al (1953) for this species. Previously recorded from Samoa and the Marshall and Marianas Islands, it is not surprising to find that it occurs in this region, from which it has not previously been recorded.

**OPHICHTHIDAE**

Randall (1955) follows Myers and Storey (1929) and Gosline (1950) including in this family the genus *Muraenichthys*. I have followed this course here.

***Myrichthys maculosus*** (Cuvier)

*Muraena maculosa* Cuvier, 1817, *Règne Animal* (1st. Ed.) **2**: 232.  
B.M. No. 1969.8.26.79-80.

2 specimens, 98 and 265 mm. in length. Taken on the outer reef at Bairiki, Tarawa, on sand with rocks.

The live colour of the larger specimen was a deep cream, with reddish-brown spots. There are 28 of these in a lateral series, with a few smaller ones along the dorsal edge of the body in the interspaces. The smaller example shows only a few groups of melanophores along the sides of the body.

***Myrichthys colubrinus*** (Boddaert)

*Muraena colubrina* Boddaert, 1781, *Neue nord. Beytr.* **2**: 56, pl. 2 fig. 3.  
*Ophisurus fasciatus* var. *semicinctus* Bleeker, 1864, *Atlas ichthyol. Indes orient. Neerl.* **4**: 64.  
*Chleevastes elaps* Fowler, 1912, *Proc. Acad. nat. Sci. Philad.* **64**: 13.  
B.M. No. 1969.8.26.81-82.

2 specimens, 398 and 628 mm. in length, taken off the reef at night, Betio, Tarawa.

Schultz in Schultz et al (1953) states that the species *M. semicinctus* (Bleeker) and *M. elaps* (Fowler) are distinct from *M. colubrinus*, primarily on the form and completeness of the vertical bands, with the presence or absence of additional dark spots or markings in the interspaces. Randall (1955) and Smith (1962), however, consider these two forms to be synonymous with *M. colubrinus*. It may be noted that of the two specimens listed above the smaller keys out, according to Schultz, as *semicinctus*, whilst the larger represents *elaps*. Smith (1962) gives an illustration showing both forms under the name *colubrinus*. Here again, the smaller of these is a *semicinctus* according to Schultz, whilst the larger shows the wider bands and many dark spots and partial bands in the interspaces, of an *elaps*.

***Callechelys melanotaenia*** Bleeker

*Callechelys melanotaenia* Bleeker, 1864, *Atlas Ichth. Ind. Neerl.* . . . 4: 66, pl. 193 fig. 2.  
B.M. No. 1969.8.26.83-86.

4 specimens, 449-543 mm. in length. Taken with rotenone in bomb-crater tide-pool, Betio, Tarawa.

***Callechelys* sp.**

B.M. No. 1969.8.26.87.

1 specimen, 86 mm. in length, taken in bomb-crater tide-pool, Betio, Tarawa.

This specimen shows no colour pattern, other than a few circular groups of melanophores scattered along the sides of the body.

\* ***Muraenichthys macropterus*** Bleeker

*Muraenichthys macropterus*. Bleeker, 1857, *Act. Soc. Scient. Ind. Neerl.* 2: 91.  
B.M. No. 1969.8.26.88.

1 specimen, 235 mm. in length, taken in Tarawa lagoon.

Although this species has been recorded from the Tuamotu Archipelago and from the Marshall and Marianas Islands (Schultz in Schutz et al 1953), it has not previously been listed from the Gilbert and Ellice Islands.

Greatest depth 7 mm.; head length 24 mm.; trunk (from snout tip to vent) 90 mm.; length of tail 143 mm.; origin of dorsal fin 39 mm. anterior to vent.

Live colour was a sandy pink, with pale fins. Colour of preserved specimen a light brown.

***Muraenichthys* sp.**

B.M. No. 1969.8.26.89.

1 specimen, 118 mm. in length. Taken in bomb-crater tide-pool on southern reef, Betio, Tarawa.

I am unable to assign a specific name to this specimen. Measurements are as follows: depth of body 3 mm.; head 12 mm.; trunk 43 mm.; tail 75 mm.; dorsal origin is 4 mm. in advance of vent. Maxillary and mandibular teeth in single series, vomerine teeth biserial.

***Phaenomonas***

*Phaenomonas* Myers and Wade, 1941, *Allan Hancock Pac. Exped.* 9: 77, pl. 12.  
B.M. No. 1969.8.26.90.

This genus has been known only from the type species, *P. pinnata*, taken off the Pacific coast of tropical America, notably from Colombia and Isabel Island, Mexico. The specimen reported on here is considered to be distinct from *P. pinnata* and is described below. It is necessary, also, to modify the generic diagnosis given by Myers and Wade by altering the statement concerning the length of the dorsal fin. The amended description is given herewith.

Body elongate, cylindrical, very wormlike. Head and trunk much longer than

tail. A short, well-developed dorsal fin is present commencing on the head approximately half way between the snout and gill-opening; its entire length is not more than three times the head length. No pectoral or anal fins present. Snout blunt, lower jaw included. Eye small and almost hidden beneath skin, closer to angle of jaw than to tip of snout. Anterior nostrils tubular, on underside of snout. Posterior nostrils on underside of upper lip, the pore covered by a small membrane. Gill openings nearly vertical, low lateral. Teeth uniserial.<sup>1</sup>

\*

*Phaenomonas cooperae* sp. nov.

Fig. 1

HOLOTYPE: Brit. Mus. (Nat. Hist.) 1969.8. 26. 90. 513 mm. in length.

LOCALITY: Lagoon reef at Betio, Tarawa.

Body extremely elongate, cylindrical. Tail ending in a blunt, conical point. Depth of body contained 128 times in total length. Tail very short, contained 2.3 times in length of head and trunk. Dorsal fin present, originating midway between tip of snout and gill-opening and extending back to above the 39th vertebra; it is 57 mm. long and almost 3 times the head length. No anal or pectoral fins. There are about 260 pores in the lateral line from above the gill-opening to the end of the tail. The anterior nostrils are tubular, placed on the underside of the snout. The posterior nostrils are under the edge of the upper lip, covered by a flap of skin, and lie below the posterior half of the eye. The eyes are small, about  $1/3$  snout length and almost completely hidden beneath the integument and probably virtually non-functional. The gill-openings are oblique, low lateral in position, their length of 3 mm. being equal to the width of the isthmus. Ventral surface of snout grooved, with an enlarged premaxillary tooth in the groove. Teeth uniserial. Maxillary teeth, as in *P. pinnata*, running in a straight line from posterior insertion to the head of the vomer. Vomerine teeth in a single row, widely spaced, about 5 in number. Only three premaxillary teeth present, one on either side of the groove in the snout and partially hidden by a flap of skin. An enlarged median tooth protruding from the groove itself. Mandibular teeth in a single row on either side, becoming smaller posteriorly. All the teeth are conical.

Colour in alcohol a sandy brown, with no trace of pigment.

Summary of counts and measurements. Total length 513 mm.; depth of body 4 mm.; head and trunk 357 mm.; tail 156 mm.; head 18 mm.; snout 3 mm.; eye 1 mm. Depth in length 128.25; head in trunk 19.8; tail in trunk 2.3; eye in snout 3; dorsal fin 3 times head length; length of dorsal fin 57 mm.; number of lateral line pores 260; number of vertebrae 270.

<sup>1</sup> After this paper had gone to press, Dr. McCosker of the Scripps Institution of Oceanography informed me that he had 32 adult examples from the western Caroline Islands that appeared to be a new species of *Phaenomonas*, and offered some of this material to me for study. He also told me that Mr. Wayne Baldwin had obtained an adult specimen of this genus from Hawaii. For a full treatment of this genus, therefore, reference should be made to a joint paper which is to be published by Dr. McCosker and Mr. Baldwin.

Through the courtesy of the authorities of the Los Angeles County Museum, I have been enabled to examine the paratype of *P. pinnata*, which is 233 mm. in length. *P. cooperae* differs from the type species in having a proportionately longer dorsal fin, 3 times head length compared with less than head length; a larger number of lateral line pores, 260 as against 175, and the eye contained 3 times in snout as against 5-6 times in *P. pinnata*.

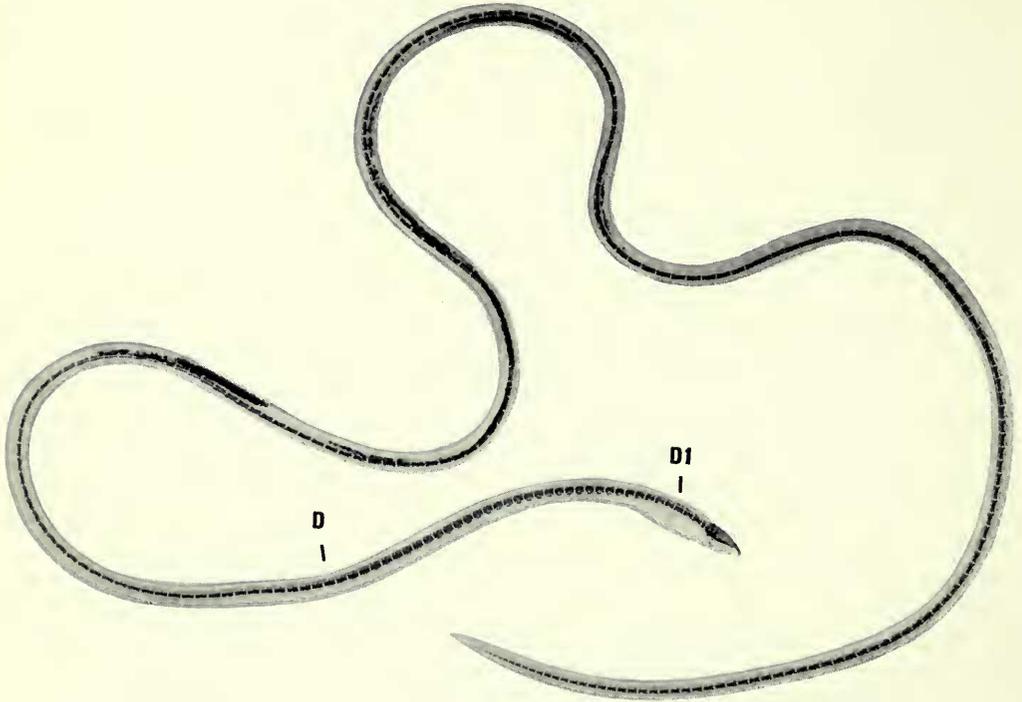


FIG. 1. X-ray of *Phaenomonas cooperae*. D-D1 = position of dorsal fin.

The species is named in honour of Mrs. Jane Cooper, without whose enthusiasm this collection would not have been made.

### MORINGUIDAE

Randall (1955) states that he follows Gosline and Strasburg (1956) in classifying the worm eels. I am following the same course here, so that material which keyed out in Schultz (1953) as *M. abbreviata* and *M. macrocephala* is here listed as *M. macrochir*. P. H. J. Castle (in litt.) states that he is convinced from pore and vertebral counts that *M. macrochir* and *M. macrocephala* are identical.

***Moringua macrochir* Bleeker**

*Moringua macrochir* Bleeker, 1855, *Natuurk. Tijdschr. Ned. Indie* 9: 71.

*Aphthalmichthys abbreviatus* Bleeker, 1863, *Ned. Tijdschr. Dierk.* 1: 163.

*Aphthalmichthys macrocephalus* Bleeker, 1863, *Ned. Tijdschr. Dierk.* 1: 165.

B.M. No. 1969.8.26.91-125.

35 specimens, 144-368 mm. in length. Taken at Betio, Tarawa in bomb-crater tide-pools, with rotenone.

Colour in alcohol a uniform light yellowish brown. The number of lateral line pores from above the gill-opening to the end of the tail varies between 93-120.

***Moringua javanica* (Kaup)**

*Aphthalmichthys javanicus* Kaup, 1865, *Cat. Apodal Fish. Brit. Mus.* 105, fig. 71.

B.M. No. 1969.8.26.126-129.

4 specimens, 340-740 mm. in length. Taken at Betio, Tarawa in bomb-crater tide-pool.

Colour in alcohol a light greyish brown. The number of lateral line pores varies from 138-148.

**CONGRIDAE****\* *Conger cinereus cinereus* Rüppell**

*Conger cinereus* Rüppell, 1828, *Atlas Reise nörd. Afrika. Fische des rothen Meeres*: 115.

B.M. No. 1969.8.26.130-131.

2 specimens, 538 and 735 mm. in length. Taken off Tarawa reefs at night.

These specimens represent a new record for the Gilbert Islands. The sixth infraorbital pore is above the rictus of the jaw. Pectoral fin with 15-16 rays. A black spot is present on this fin in both specimens.

According to Kanazawa (1958), this subspecies ranges through the Marshall, Phoenix and Christmas Islands, Palmyra, New Caledonia, Guam, Okinawa, Japan, the Philippines westward through the Indian Ocean, the Red Sea and the east and south coasts of Africa.

It is believed to be nocturnal in its habits and this is borne out by the fact that both these examples were taken at night.

**HEMIRHAMPHIDAE*****Hyporhamphus dussumieri* (Val.)**

*Hemirhamphus dussumieri* Valenciennes, 1846, *Hist. nat. Poissons* 19: 33, pl. 554.

B.M. No. 1969.8.26.132-135.

4 specimens, 73-96 mm. in S.L. Taken in Tarawa lagoon.

In June, 1968, 3 additional specimens of this species, collected by Dr. D. N. F. Hall, were received from the same locality. These were 245-263 mm. in S.L.

## SYNGNATHIDAE

*Doryrhamphus melanopleura* (Bleeker)

*Syngnathus melanopleura* Bleeker, 1858, *Natuurk. Tijdschr. Ned. Indie* 15: 464.  
B.M. No. 1969.8.26.136.

1 specimen, 48 mm. in S.L., from Tarawa lagoon.

## SERRANIDAE

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*Epinephelus kohleri* Schultz

Fig. 2

*Epinephelus kohleri* Schultz, 1953, *Bull. U.S. Nat. Mus.* No. 202 Pt. 1: 336.

*Serranus cyanopodus* Richardson 1846. Whitehead, 1969, *Bull. Br. Mus. nat. Hist. (Zool.)* 3: 212,  
pl. 3 fig. a.

B.M. No. 1969.8.26.137.

1 specimen, 280 mm. in S.L. Taken in deep water at the entrance to Tarawa lagoon.

D. XI 16, the fourth spine being the longest. A. III 8, the third spine the longest. Pect. I 16; depth 105 mm.; head 111 mm.; eye 18 mm.; Depth in S.L. 2.6; head in S.L. 2.5; eye in head 6.2; interorbital space 21 mm. Gillrakers on first arch 9+16. Scales ctenoid posteriorly, cycloid anteriorly in front of a line drawn between the origins of the dorsal fin and the pelvic fins.



FIG. 2. Photograph of *Epinephelus kohleri*, to show markings.

Live colours pale blue all over, with many brown spots and larger blotches.

This species is apparently quite rare in these waters, but it is known to most of the deep-water fishermen, who fish at night. They say that this species may be poisonous in certain localities, as in the entrance to Tarawa lagoon. This particular specimen is not so deep-bodied as was a previous one seen by Mrs. Cooper, nor had it so many of the larger blotches on the body. Chan (1968) has recently reported this

species for the first time from the Macclesfield Bank and Pratas Reef in the South China Sea.

This is a new record for the Gilbert Islands, the species previously being known from Rongarik and Bikini Atolls in the Marshall and Marianas Islands and from New Caledonia.

***Epinephelus hexagonatus* (Schneider)**

*Holocentrus hexagonatus* Schneider, 1801, *Syst. Ichth. Bloch.*: 323.

B.M. No. 1969.8.26.138-141.

4 specimens, 63-161 mm. in S.L. Taken at Betio, Tarawa in bomb-crater tide pool.

The markings on the two smaller examples tend to be more distinct than in the larger specimens. Gill-raker counts on first arch, including rudiments, are between 24-25. Pectoral rays 18.

***Epinephelus merra* Bloch**

*Epinephelus merra* Bloch, 1793, *Naturl. ausland. Fische* 7: Pt. 10: 17.

B.M. No. 1969.8.26.142-144.

3 specimens, 125-153 mm. in S.L. Taken at Betio, Tarawa in bomb-crater tide pool.

Gill-raker counts on first arch, including rudiments, 21-23.

***Epinephelus corallicola* Val.**

*Epinephelus corallicola* Valenciennes, 1828, *Hist. nat. Poissons* 2: 336.

*Epinephelus macrospilus* Bleeker, 1873-1876, *Atlas ichthyol. Indes orient. Neerl.* 7: 33.

B.M. No. 1969.8.26.145-146.

2 specimens, 132 and 138 mm. in S.L. Taken at Betio, Tarawa in bomb-crater tide pool with the previous two species.

According to Schultz in Schultz et al (1953) these specimens would be *E. macrospilus* (Bleeker), which he considers a valid species. I follow Randall (1955) in this instance and consider *E. macrospilus* to be a synonym of *E. corallicola*.

\* ***Epinephelus summana* (Forsskål)**

*Perca summana* Forsskål, 1775, *Descriptiones Animalium* . . . : xi, 42.

B.M. No. 1969.8.26.147.

1 specimen, 96 mm. in S.L. Taken at Betio, Tarawa in lagoon reef.

D. XI 16; A. III 9; pectoral 16; head 39 mm.; eye 7.5 mm.; interorbital 5 mm.

Live colour light brown, with pale blue-green spots scattered over the body and unpaired fins.

This species does not appear to have been recorded previously from the Gilbert Islands.

*Epinephelus* sp.

B.M. No. 1969.8.26.148-149.

2 specimens, 39 and 43 mm. in S.L. taken at Betio, Tarawa.

I have not found it possible satisfactorily to assign either of these two juveniles to a definite species.

*Cephalopholis argus* Schneider

*Cephalopholis argus* Schneider, 1801, *Syst. Ichth. Bloch.*: 311.

B.M. No. 1969.8.26.150-153.

4 specimens, 70-90 mm. in S.L. Taken at Betio, Tarawa in bomb-crater tide pool.

## PSEUDOCROMIDAE

For the purpose of this paper, I am following Schultz (1953) and Randall (1955) in placing *Plesiops* in the family Pseudochromidae, with the genera *Pseudochromis*, *Pseudogramma* and *Pseudoplesiops*.

*Plesiops nigricans* (Rüppell)

*Pharopteryx nigricans* Rüppell, 1828, *Atlas Reise nörd. Afrika. Fische des rothen Meeres*: 15, pl. 4 fig. 2.

B.M. No. 1969.8.26.154.

1 specimen, 68 mm. in S.L. Taken at Betio, Tarawa in bomb-crater tide pool.

Live colour was a dark brown, with numerous light blue-green spots on the body and unpaired fins.

D. XII 7; A. III 8.

\*

*Plesiops melas* Bleeker

*Plesiops melas* Bleeker, 1849, *Verh. batav. Genoot.* 22: 9.

B.M. No. 1969.8.26.155-157.

3 specimens, 30-40 mm. in S.L. Taken at Betio, Tarawa in lagoon reef.

D. X-XI 7-8; A. III 8. This species, which is a new record for the Gilbert Islands, may be distinguished from *P. nigricans* by the lower number of dorsal fin spines and by the lack of an ocellated blackish spot on the operculum.

## APOGONIDAE

*Apogon novemfasciatus* Cuvier

*Apogon novemfasciatus* Cuvier, 1828, *Hist. nat. Poissons* 2: 154.

B.M. No. 1969.8.26.158-162.

5 specimens, 38-76 mm. in S.L. Taken at Betio, Tarawa in tide pool.

## CARANGIDAE

*Alectis ciliaris* (Bloch)

*Zeus ciliaris* Bloch, 1788, *Naturg. ausland. Fische*: 29.

B.M. No. 1969.8.26.163.

1 specimen, 329 mm. in S.L. Taken in Tarawa lagoon, where it was netted.

This appears to be only the second record of this species from the area, the first having been that of Günther (1876), listed as from the Kingsmill Islands. This fish is seen in shoals at infrequent intervals at Tarawa, when it is caught in nets in the lagoon. At the time that the present specimen was taken, several examples had been caught within the space of a few months. This caused great interest amongst the younger Gilbertese, most of whom had never before seen this fish. Live colour was bluish above and plain silvery below, with dorsal and anal fins banded with black and white.

## CHAETODONTIDAE

*Chaetodon lunula* (Lacepède)

*Pomacentrus lunula* Lacepède, 1802, *Hist. nat. Poissons* 4: 507.

B.M. No. 1969.8.26.164-166.

3 specimens, 64-91 mm. in S.L. from Tarawa lagoon.

This species has a broad black ocular band extending from the head to the border of the preoperculum. Posterior to this is a pale band. There is a triangular shaped dark band extending from above the pectoral base to the middle of the spinous dorsal, where it is narrowest. There is a large black blotch on the caudal peduncle, narrowing to a thin line as it extends forward along the base of the soft dorsal. In smaller examples there is a black blotch, surrounded by a paler band, at the base of the middle of the soft dorsal.

*Chaetodon vagabundus* Linnaeus

*Chaetodon vagabundus* Linnaeus, 1758, *Syst. Nat. (Ed. 10)*: 276.

B.M. No. 1969.8.26.167-168.

2 specimens, 51 and 81 mm. in S.L. from Tarawa lagoon.

There is an ocular band commencing just forward of the dorsal origin and extending through the eye to the ventral edge of the preoperculum. Dorsally, this is narrower than the eye, ventrally broader than the eye. Dorsal fin with a broad marginal black band, not continued on to the last few rays. There is a broad dark band running along the base of the soft dorsal and extending across the caudal peduncle on to the last few anal rays. Caudal fin with a broad, crescent shaped dark band across the centre of the fin. Posterior to this is a narrow dark submarginal band, with the margin of the fin hyaline. On the body are about 6 thin black lines running obliquely backwards and upwards from behind the head and 10 to 11 similar dark lines running obliquely backwards and downwards towards the anal base.

## POMACENTRIDAE

*Amphiprion bicinctus* Rüppell

*Amphiprion bicinctus* Rüppell, 1828, *Atlas Reise nörd. Afrika. Fische des rothen Meeres*: 139.  
B.M. No. 1969.8.26.169.

1 specimen, 79 mm. in S.L. from Tarawa lagoon.

## LABRIDAE

*Stethojulis axillaris* (Quoy & Gaimard)

*Julis axillaris* Quoy & Gaimard, 1824, *Voy. de l'Uranie et de la Physicienne Zool.*: 272  
B.M. No. 1969.8.26.170-178.

9 specimens, 49-61 mm. in S.L. from Tarawa lagoon.

This species appears to be quite common throughout Oceania.

*Halichoeres marginatus* Rüppell

*Halichoeres marginatus* Rüppell, 1835, *Neue Wirbelth. Fische*: 16.

*Julis notopsis* Valenciennes, 1839, in Cuvier & Valenciennes, *Hist. nat. Poissons* 13: 485.  
B.M. No. 1969.8.26.179-180.

2 specimens, 37 and 42 mm. In S.L. from bomb-crater tide pool at Betio, Tarawa.

The prominent ocellated black spot on the dorsal fin is still very clear in both these young specimens. Both Randall (1955) and Schultz in Schultz et al (1960) consider that *Julis notopsis* Cuvier and Valenciennes represents the juvenile form of this species.

*Halichoeres trimaculatus* (Quoy & Gaimard)

*Julis trimaculata* Quoy & Gaimard, 1834, *Voy. "Astrolabe" Zool.* 3: 705.  
B.M. No. 1969.8.26.181-207.

27 specimens, 26-103 mm. in S.L. from bomb-crater tide pool, Betio, Tarawa.  
Very abundant in this area.

*Thalassoma lunare* (Linnaeus)

*Labrus lunaris* Linnaeus, 1758, *Syst. Nat. (Ed. 10)*: 283.  
B.M. No. 1969.8.26.208-211.

4 specimens, 53-63 mm. in S.L. from Tarawa lagoon.

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*Thalassoma amblycephalus* (Bleeker)

*Julis amblycephalus* Bleeker, 1856, *Natuurk. Tijdschr. Ned. Indie* 11: 83.  
B.M. No. 1969.8.26.212.

1 specimen, 30 mm. in S.L. from Tarawa lagoon.

This is the first record for this species from the Gilbert and Ellice Islands, although it is widely distributed throughout the south west Pacific and the Philippines.

The colour pattern in the young of this species is somewhat different from that of the adults, consisting of a black band extending from the snout, through the eye, to the base of the caudal fin, its width being about equal to eye diameter. There is a second black band commencing on the head between the eyes and extending back along the side of the dorsal fin, disappearing about halfway along the base of the soft dorsal fin.

D. VIII 13; A. III 14. Pores in lateral line 19+2+6.

### ELEOTRIDAE

#### *Eleotriodes sexguttatus* (Valenciennes)

*Eleotris sexguttatus* Valenciennes, 1837, *Hist. nat. Poissons* 12: 254.

B.M. No. 1969.8.26.213-214.

2 specimens, 40 and 76 mm. in S.L. from bomb-crater tide pool, Betio, Tarawa.

This species appears to be widely distributed throughout the western South Pacific, the Philippines and the Indian Ocean to Ceylon.

#### \* *Asterropteryx semipunctatus* Rüppell

*Asterropteryx semipunctatus* Rüppell, 1828, *Atlas Reise nörd. Afrika. Fische des rothen Meeres*: 138

B.M. No. 1969.8.26.215.

1 specimen, 23 mm. in S.L., taken at Betio, Tarawa from bomb-crater tide pool on the south reef.

Although widely distributed throughout the west Pacific, Hawaii and in the Indian Ocean, this is the first record of this species from the Gilbert Islands.

D. VI 8; A. I 7. Lateral line scales 24. This specimen has three spines at the angle of the preoperculum and has the second and third rays of the first dorsal prolonged beyond the membrane.

### GOBIIDAE

#### *Bathygobius fuscus* (Rüppell)

*Gobius fuscus* Rüppell, 1828, *Atlas Reise nörd. Afrika. Fische des rothen Meeres*: 137.

B.M. No. 1969.8.26.216-222.

7 specimens, 28-53 mm. in S.L. Taken in bomb-crater tide pool at Tarawa.

#### \* *Acentrogobius cauerensis* (Bleeker)

*Gobius cauerensis* Bleeker, 1853, *Natuurk. Tijdschr. Ned. Indie* 4: 269.

B.M. No. 1969.8.26.223-237.

15 specimens, 29-41 mm. in S.L. Taken from bomb-crater tide pool at Betio, Tarawa.

A new record for the Gilbert and Ellice Islands, although known from a wide area of the Pacific.

D. VI 11; A. I 11. Pect. 16. Lateral line scales 29-30. Cheek and operculum scaled. No free silk-like rays in pectoral fin.

*Acentrogobius* sp.

B.M. No. 1969.8.26.238-239.

2 specimens, 18 and 20 mm. in S.L. from bomb-crater tide pool, Tarawa.

*Callogobius sclateri* (Steindachner)

*Eleotris sclateri* Steindachner, 1880, *Sitz. ber. Akad. Wiss. Wien* **80**: 157.

B.M. No. 1969.8.26.240

1 specimen, 27 mm. in S.L. from tide pool, Betio, Tarawa.

D. VI 19; A. I 8; Pect. 16. Lateral line scales ca. 31. Scales are cycloid anteriorly, ctenoid posteriorly. There is a raised row of papillae on the snout, two rows on each cheek and one row transversely behind each eye. There are no free silk-like rays in the pectoral fin and no basal membrane on the pelvic fins.

This species was provisionally recorded from the Gilbert Islands by Randall (1955) as *Mucogobius sclateri*.

\* *Quisquilius eugenius* Jordan & Evermann

*Quisquilius eugenius* Jordan & Evermann, 1904, *Bull. U.S. Fish Comm.* **22**: 203.

B.M. No. 1969.8.26.241.

1 specimen, 16 mm. in S.L. from Tarawa lagoon.

Not previously recorded from the Gilbert Islands. Apart from the number of predorsal scales, which appear to be absent in this specimen, this fish agrees in all respects with the description of *Q. eugenius*, as well as with an example sent for comparison by the late Professor J. L. B. Smith.

\* *Quisquilius inhaca* (Smith)

*Gobius inhaca* Smith, J. L. B., 1949, *Ann. Mag. nat. Hist.* (12) **2**: 103.

B.M. No. 1969.8.26.242-244.

3 specimens, 19-23 mm. in S.L. from Tarawa lagoon.

D. VI 10; A. I 8; pect. 16-17. Lateral line scales 28.

These specimens show the characteristic reticulate appearance of the body caused by the edges of the scales being outlined by a dark line, and by the three to four light vertical bars on the head region. This species has not previously been recorded from the Gilbert Islands, and its range must now be extended from Inhaca, Mozambique to this area.

## BLENNIIDAE

*Istiblennius edentulus* (Schneider)

*Blennius edentulus* Schneider, 1801, *Syst. Ichth.* Bloch.: 172.

B.M. No. 1969.8.26.245-246.

2 specimens, 56 and 68 mm. in S.L. from a tide pool at Bairiki, Tarawa.

D. XIII 20; A. II 22. Live colour grey and green on the back. Dorsal fin grey-green, with lines of darker spots. Outer edge of fin a brilliant blue-black. Anal fin a pale greenish grey, with two pale blue lines shading to blue-black. Extreme edge of fin a pale blue. Pectoral fins yellowish, pelvics hyaline.

*Istiblennius lineatus* (Valenciennes)

*Salarias lineatus* Valenciennes, 1836, *Hist. nat. Poissons* 11: 314.

B.M. No. 1969.8.26.247.

1 specimen, 99 mm. in S.L. from Tarawa tide pool.

D. XII 22; A. II 24.

*Istiblennius paulus* (Bryan & Herre)

*Salarias paulus* Bryan & Herre, 1903, *Occ. Pap. B. P. Bishop Mus.* 2: 136.

B.M. 1969.8.26.248.-249.

2 specimens, 27 and 40 mm. in S.L. from outer reef, tide pools at Bairiki, Tarawa, where it is quite common.

It is with some hesitation that I include the smaller of these two specimens in this species.

Live colour, upper 2/3 of body pale brown, spotted with red, the lower 1/3 being a pale blue. Six dark brown inverted Y-shaped bars, with two turquoise dots per bar. Head brown with red spots. Preoperculum yellow. First dorsal spotted with red; soft dorsal rays cream, the membrane brown. The first half of this fin is also spotted with red. Anal fin becoming a dusky brown distally. Pectorals hyaline, pelvic fins white.

\* *Istiblennius cyanostigma* (Bleeker)

*Salarias cyanostigma* Bleeker, 1849, *Verh. Batav. Genoots.* 22: 5.

B.M. No. 1969.8.26.250-254.

5 specimens, 43-58 mm. in S.L. from Tarawa lagoon.

D. XIII 20; A. II 20; pect. 14. A well developed nuchal crest present. Supra-orbital cirrus simple. Nasal cirrus multifid. No nuchal cirrus. A well developed, recurved canine present on each side of the lower jaw. No well defined colour pattern evident on any of these specimens. Although fairly widely distributed in the central and south tropical Pacific, this species does not appear to have been recorded previously from the Gilbert Islands.

\* *Petroscirtes mitratus* Rüppell

*Petroscirtes mitratus* Rüppell, 1828, *Atlas Reise nörd. Afrika. Fische des rothen Meeres*: 111.  
B.M. No. 1969.8.26.255-256.

2 specimens, 17 and 43 mm. in S.L. Taken on the reef edge in the lagoon at Bairiki, Tarawa.

D. 26; A. 17; pect. 14. Origin of dorsal fin between hind edge of eye and preoperculum. Colour in alcohol brownish, with dark blotches or transverse bands on body. Five dark edged ocelli along the dorsal part of the body.

Although widely distributed throughout the Indo-Australian region from the Red Sea, down the coast of East Africa, across the Indian Ocean to the Philippines, Australia and the western South Pacific, this species has not previously been recorded from the Gilbert Islands.

## CLINIDAE

*Tripterygion minutus* Günther

*Tripterygion minutum* Günther, 1877, *J. Mus. Godeffroy* 4: Pt 13: 211.  
B.M. No. 1969.8.26.257.

1 specimen, 20 mm. in S.L. from tide pool on edge of outer reef, Tarawa.  
Live colour stated to have been banded with green and cream.

## SCORPAENIDAE

Randall (1955) listed only six species of scorpion fishes from Onotoa. Three of the five species dealt with here represent new records for the area.

*Scorpaena albobrunneus* Günther

*Scorpaena albobrunneus* Günther, 1873, *J. Mus. Godeffroy* 2: Pt 3: 77.  
B.M. No. 1969.8.26.258-259.

2 specimens, 44 and 48 mm. in S.L. Taken on the west reef at Betio, Tarawa amongst branches of coral.

Live colours brown, with patches of bright yellowish green. Pectorals yellow.

\* *Scorpaenodes guamensis* (Quoy & Gaimard)

*Scorpaena guamensis* Quoy & Gaimard, 1824, *Voy. de l'Uranie et de la Physicienne, Zool.*: 326.  
B.M. No. 1969.8.26.260-270.

11 specimens, 39-63 mm. in S.L. from the S.W. outer reef, Betio, Tarawa.

D. XIII 7-8; A III 5; pect. 18. Lateral line pores 24-25.

Live colour a rich mottled brown. Pectoral and caudal fins clear, with bright orange spots.

Although widely distributed throughout the Indo-Australian archipelago and the Philippines, this species has not been recorded before from the Gilbert Islands.

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***Sebastapistes nuchalis* (Günther)***Scorpaena nuchalis* Günther, 1874, *J. Mus. Godeffroy* 2-3: Pts 5-6: 76.

B.M. No. 1969.8.26.271-279.

9 specimens, 17-43 mm. in S.L., from the S.E. reef at Betio, Tarawa.

D. XII 8-9; A. III 5; pect. 15. Lateral line with 22-24 tubular scales. Teeth present on vomer and palatines. Body scales mostly ctenoid.

Not previously recorded from this group of islands. Stated by Smith (1957) to be abundant throughout East African waters and at all the islands beyond to the Seychelles.

There is a further specimen, 38 mm. in S.L. which I include with this species, although it possesses 13 dorsal spines. In all other respects it agrees with the nine other specimens identified as *S. nuchalis* and was taken with them.***Dendrochirus zebra* (Quoy & Gaimard)***Pterois zebra* Quoy & Gaimard, 1824, *Voy. de l'Uranie et de la Physicienne, Zool.*: 329.

B.M. No. 1969.8.26.280-282.

3 specimens, 65-112 mm. in S.L. from bomb-crater tide pool at Betio, Tarawa.

D. XIII 9; A. III 5. Scale rows above lateral line 48-50. Middorsal spines longer than depth of body.

\*

***Pterois antennata* (Bloch)***Scorpaena antennata* Bloch, 1787, *Naturg. ausländ. Fische* 3: 21.

B.M. No. 1969.8.26.283-284.

2 specimens, 28 and 70 mm. in S.L. from the S.W. outer reef, Betio, Tarawa.

D. XII 11; A. III 6; pect. 17. Scales above lateral line about 50.

This species is widely distributed throughout the Western Pacific and the Indo-Australian region, although according to Smith (1957), it is nowhere abundant. It has not previously been recorded from the Gilbert Islands.

There are two juveniles, 14 and 15 mm. in S.L., which I am provisionally identifying as this species.

**SYNANCEJIDAE**

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***Synanceja verrucosa* Schneider***Synanceja verrucosa* Schneider, 1801, *Syst. Ichth. Bloch.*: 195.

B.M. No. 1969.8.26.285-287.

3 specimens, 104-165 mm. in S.L., taken from the bomb-crater tide pool at Betio, Tarawa.

D. XIII 7; A. III 6; pect. 18.

Live colour greyish green, the pectorals edged with orange.

Widely distributed throughout the Indian Ocean from the east coast of Africa across to India and Ceylon, through Indonesia, the South China Sea and the Philippines to the western South Pacific, and the Indo-Australian region.

Not previously recorded from the Gilbert Islands, although Randall (1955) stated that it was clear that this species was present in the islands. It may be distinguished by the presence of a deep pit behind each eye, the latter being separated by an elevated bony area. There is also a small, deep groove below each eye.

## CARACANTHIDAE

### *Caracanthus maculatus* (Gray)

*Micropus maculatus* Gray, 1831, *Zool. Misc.*: 20.

B.M. No. 1969.8.26.289.

1 specimen, 42 mm. in S.L., taken on the west reef at Betio, Tarawa, between branches of coral.

D. VII 12; A. II 11; pect. 14. Live colour grey, with a pink cast. Body covered with black spots.

## BOTHIDAE

### *Bothus mancus* (Broussonet)

*Pleuronectes mancus* Broussonet, 1782, *Ichthyologia*, fig. and text (no pagination.)

B.M. No. 1969.8.26.299-302.

4 specimens, 92-167 mm. in S.L. from Tarawa lagoon.

D. 99; A. 78.

The colouration of this species is somewhat similar to *B. pantherinus*, but the two may be distinguished, as stated by Randall (1955), by the difference in the squamation of the interorbital. In *B. mancus* the anterior part of this area is naked, whereas in *B. pantherinus* it is scaled.

### *Bothus pantherinus* (Rüppell)

*Rhombus pantherinus* Rüppell, 1828, *Atlas Reise nörd. Afrika. Fische des rothen Meeres*: 121.

B.M. No. 1969.8.26.303-305.

3 specimens, 71-145 mm. in S.L., from Tarawa lagoon.

D. 90; A. 71.

## BALISTIDAE

### \* *Pseudobalistes flavimarginatus* (Rüppell)

*Balistes flavimarginatus* Rüppell, 1828, *Atlas Reise nörd. Afrika. Fische des rothen Meeres*: 33.

B.M. No. 1969.8.26.306-307.

2 specimens, 59 and 390 mm. in S.L., taken in Tarawa lagoon, near the reef.

D. III 24; A. 24; pect. 15. Lateral line ca. 35 pored scales.

Live colour of the smaller specimen was orange yellow on the body, with many brown spots; the larger specimen was dark greenish brown on the body, the head

being a pale orange except above the eye, where it was brown. Fins darkish basally, with two orange lines separated by a dark line on the distal edge.

Not previously recorded from the Gilbert Islands, although apparently not uncommon in Tarawa lagoon, where it is caught both in nets and on a hook.

## ANTENNARIIDAE

### *Antennarius altipinnis* Smith & Radcliffe

*Antennarius altipinnis* Smith & Radcliffe, 1912, in Radcliffe, *Proc. U.S. Nat. Mus.* **42**: 204.

B.M. No. 1969.8.26.308-310.

3 specimens, 28-28 mm. in S.L. Taken from the S.W. outer reef at Betio, Tarawa.

The largest of these three specimens is abnormal in possessing only 9 dorsal rays instead of the usual 12. In all other respects it agrees with the description of *A. altipinnis*.

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