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FISHES OF THE FAMILY

ANTHIIDAE

by

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FISHES OF THE FAMILY ANTHIIDAE

from the

Western Indian Ocean and the Red Sea

(With Plates 34 and 35)

by

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These fishes are generally assigned to the family Serranidae, one of the most diverse and cumbersome groups of fishes. Containing numerous ill-assorted types this family for convenience at least merits sub-division. One of the natural sub-groups, generally given sub-family status as the Anthiinae, but here given full family rank, consists mainly of small, brilliant, free-swimming coral haunting types confined almost exclusively to tropical seas. These differ from the Serranidae proper in the absence of a supramaxilla, in having larger scales, in the dentition, and mostly in the concave or lunate caudal. Although by most workers assigned without question to the Serranidae (**sensu stricto**) the monotypic genus **Variola** Swainson, 1839 has distinct affinities with the Anthiidae. The dentition, lunate caudal and the brilliant colouration accord better with the Anthiid than with the Serranid fishes.

Anthiid fishes are among the most exquisite of those which frequent reefs of tropical seas, occuring in some parts in such vast numbers as to form clouds that almost obscure sloping coral faces. Most live in relatively shallow water, extending to moderate depths, but a few usually more degenerate types are found in fairly deep water. The free-swimming types are preyed on extensively by larger fishes and are useful as bait. Because of their habits and small size the scientist is compelled to hunt them chiefly with explosives and poison.

In East Africa these fishes are rarely found south of 28°S, but are increasingly abundant north from there over most of the Western Indian Ocean. One curious exception is the Seychelles group proper, where we found not a single species of these fishes, though they were abundant at the neighbouring Almirante Islands, and especially plentiful at those more westerly such as Providence, Cosmoledo, Astove and Aldabra Islands.

Fifteen species are at present known from the Western Indian Ocean, of which all but three appear to be endemic there. Of these two are described as new. All these are assigned to nine genera as here recognised, of which one is defined as new, three of the genera have not before been found in the Western Indian Ocean, while four appear to be endemic there.

The genera recognised are distinguished as follows:

A. Dorsal fin continuous, first spine shorter than third.

I. Large distinct patch of teeth on broad tongue. Mostly medium sized fishes. Body deeper than 2.3 in body length ..... 1. **Holanthias**

II. At most a few teeth on tongue. Body mostly more slender than 2.3 in body. Mostly small to minute fishes.

a. Dorsal more or less uniform, not notched. 40 or more series of scales. Snout and maxilla scaly. Most pectoral rays divided.

1. L.1. runs up and along dorsal base, ends before caudal base. Moderate sized fishes ..... 2. **Callanthias**

2. L.1. normal, curves down behind to mid side, runs to caudal base. All small fishes.

x. Dorsal originates behind head, normally 10 spines. 2-4 scales between L.1. and middle of spinous dorsal. Teeth on vomer ..... 3. **Anthias**

y. Dorsal originates on head, 11-12 spines. 5-6 scales between L.1. and middle of spinous dorsal. Vomer edentate ..... 4. **Emmelanthias**

b. Dorsal deeply notched, last spine not more than half length of third. Less than 40 series of scales. Snout and maxilla not scaly. Pectoral rays all simple ..... 5. **Pelontrus nov.**

B. Dorsal origin far forward on head, first two spines longest, flexible, the first separate in front, rest of dorsal continuous ..... 6. **Nemanthias**

C. Dorsal fin divided, the first part of 10 spines.

I. L.1. incomplete. Less than 35 series of scales. Pectoral rays simple. Teeth on vomer.

a. Antrorse spines on lower preopercle margin. Pectoral long, to well beyond anal origin. Maxilla naked ..... 7. **Pteranthias**

b. Lower preopercle margin entire. Pectoral short, barely beyond anal origin. Maxilla partly scaly ..... 8. **Xenanthias**

II. L.1. complete. More than 40 series of scales. Most pectoral rays divided. Vomer edentate ..... 9. **Luzonichthys**

1. **Holanthias** Gunther, 1868.

Type **Anthias fronticinctus** Gunther, 1868 (S. Atlantic). Strongly compressed rather deep body with moderate ctenoid scales, head scaly. Lateral line complete. Mouth oblique, fine teeth in bands in jaw, canines in front, teeth on vomer, palatine and entopterygoid, and a broad patch on tongue. Preopercle hind edge finely serrate, lower margin entire. A single dorsal fin with 10 spines. Caudal deeply lunate. Moderate sized fishes of temperate and tropical seas, few species, 2 in our area.

A. 3rd dorsal spine not longer than 4th. 24-25 rakers on lower limb ..... **natalensis**

B. 3rd dorsal spine much the longest. 28-30 rakers on lower limb ..... **borbonius**

HOLANTHIAS NATALENSIS (Fowler), 1925. (**Pl 34, A**). **Sacura natalensis** Fowler 1925, 226, fig 2 (Natal). **Holanthias furcatus** Pellegrin 1935, 51 (Reunion). **Glaucosoma peaolopesi** Smith 1939, 216, fig 1 (S. Mozamb). **Holanthias natalensis** Smith 1949, 200, pl 20, fig 456. DX17-18. A III 8-9. L.1. 45-50. Tr 9/20. Gillrakers 11+1+23-24. Depth about 2, head about 3 in body. Eye 4-5 in head, about equals snout, 1.5 in interorbital. Preopercle margin finely serrate. Mouth oblique, bands of villiform teeth in each jaw, outer series enlarged. Fine teeth on broad tongue on vomer, palatine and entopterygoid. Dorsal origin on head, spines stout, 4-5th longest, 1.5-2 times eye, 2-3rd soft rays elevated, filamentous, longer than head. 3rd anal spine longest, little exceeds eye. Pectoral 1.2 in head, pelvics little longer. Caudal deeply lunate. Scales ctenoid, rough with age, cover head and much of fins. Auxiliary scales over most of head and body. Alive as Pl 34, A, preserved uniform. Attains at least 700mm. W. Indian Ocean from Natal northwards.

HOLANTHIAS BORBONIUS C & V, 1828. (**Pl 34, D**). **Serranus borbonius** C & V 1828, 263 (Bourbon): **Anthias borbonius** Gunther 1859, 89 (Reunion): Pollen 1868, 57 (Reunion): Bleeker 1873, 92 (Reunion): Sauvage 1875, 134, fig 2 (Madag): Bleeker 1879, 10 (Maur). **Odontanthias borbonicus** Bleeker & Pollen 1875, 64, Pl 5, fig 1 (Madag). **Anthias borbonicus** Gudger 1929, 513 (Maur). **Aylopon mauritianus** Guichenot 1868, 86. **Anthias ornatus** Fourmanoir 1954, 213, fig 8 (Comores), **Holanthias borbonius** Smith 1955, 344 (W.Ind.Oc.) D X 16-17. A III 6-7. P 2,14,2. L.1 45-48. Tr. 3/20. About 7 scales on cheek. Gillrakers 12+1+27. Depth about 2.2, head about 2.5 in body. Eye 3.5-4 in head exceeds snout, 1-1.2 times interorbital. Preopercle hind margin with about 25 serrae, that at angle much enlarged, several small points on lower margin, sub and interopercle with few serrae, 3 opercular spines. Mouth oblique, in lower jaw fine sharp teeth irregularly biserial on side, near front of jaw 2 curved canines on side and in front on side 1-2 antrorse stout canines. In upper jaw on side an external series of small canines, mostly antrorse, ending at 1-2 large curved canines each side in front, on side within the outer teeth a band of villiform teeth widening to a cluster in front with 3-4 blunt retrorse canines behind, elongate patches of teeth on vomer, palatines, and most of surface of broad tongue covered by an ovoid patch of fine teeth. Dorsal inserted over preopercle margin, 1st spine shortest, 3rd longest, exceeds half body depth, remainder shorter, front dorsal rays elongated, 2nd anal spine longest and strongest, 1.6 times eye. Pectoral (broken) about head length, also pelvics, reach anal origin. Caudal deeply lunate. Scales ctenoid, completely cover head except preorbital, about 5 series across maxilla end, and about 7 across cheek, base of vertical fins scaly. Live colour as in Pl 34,D. (After painting by Pike). Preserved yellowish brown with light zones showing the markings of life. A single specimen 90mm. standard length from the Comores, the type of **Anthias ornatus** Fourmanoir 1954, kindly sent by M. P. Fourmanoir. Attains at least 300mm., Western Indian Ocean.

2. **Callanthias** Lowe, 1839.

Type **C. paradiseus** Lowe, 1839 (Madeira) = **ruber** Rafinesque, 1810. Elongate body with moderate ctenoid scales, head completely scaly. Lateral line runs up to and along dorsal base, ends at hind end of dorsal or on peduncle. None of opercles serrate. A single dorsal fin with 11 spines, origin behind head. Mouth moderate, maxilla at least partly scaly. A single series of conical teeth on side of each jaw, in upper a band of villiform teeth within, front canines. Conical teeth on vomer, few smaller on palatine. Three species known, **ruber** Rafinesque, 1810 northeast Atlantic; **allporti** Gunther, 1876 Australasia; and one from S. Africa. They differ in shape and colour, also in scale counts, as follows:

	ruber	**legras**	**allporti**
Scales series	40	43	48
L.1. tubules	25	33	42

There seems to be no valid reason for not including these species in the same genus.

CALLANTHIAS LEGRAS Smith, 1947. **Callanthias allporti** (**non** Gunther) von Bonde 1923, 13 (Natal). Barnard 1927,465. **C. legras** Smith 1947, 335, fig 1 (Algoa Bay), and 1949, 201, **Pl 20,fig 460**. D XI 10-11. A III 10. P2,16,2. Scales, lateral series 43-44, L.1. 33 tubules, ends almost halfway along peduncle behind dorsal. Tr 2/13-14. Seven series across cheek. About 30 predorsal to nostrils. 8+1+21-22 slender gillrakers. Depth 3.1, head 3.4 in body. Eye 3.1 in head, 1.4 times snout, equals interorbital. All opercles smooth. Mouth oblique, maxilla to below front third of eye. Each jaw with a lateral series of small conical teeth, and canines in front, lower flare outwards. In upper jaw also an inner band of villiform teeth. 3-4 conical teeth on vomer, a few small teeth on head of palatine. Dorsal origin behind head, 1st spine shortest remainder graduate longer rearwards, fin continuous, 3rd anal spine longest. Caudal lunate. Pelvics pointed, reach anal origin. Scales ctenoid. Bases of pectoral and caudal scaly. Single series of small elongate scales up membrane of dorsal and anal behind rays. Alive mainly reddish with yellow stripes, fins mainly yellow, soft dorsal, anal and caudal lobes edged violet, pelvics pink (see Smith 1949, Pl 20, fig 460). Preserved, uniform. The type, 215mm. Algoa Bay, and von Bonde's Natal specimen (1923) also 215mm. length. Rare, trawlers report seen occasionally escaping from net when surfaced. Known only from S. Africa. Von Bonde Ann. Nat.Mus 1934,443 records **Callanthias allporti** (Gunther) from Zanzibar, but states that it has the native name Changu Nyavi, which is used there for Lethrinid fishes.

3. **Anthias** Bloch, 1792.

Type **A.sacer** Bloch, 1792. Usually elongate body with moderate ctenoid scales, also cover head, lateral line complete. A single dorsal fin of 10-12 spines and 14-18 soft rays, its origin behind head. Mouth large, maxilla scaly, fine teeth in bands in each jaw, also canines, sometimes flaring outwards. Teeth on vomer and palatine, rarely on tongue, then few. Preopercle margin spinose, usually large in young, especially at angle. Caudal forked or lunate, often filamentous, sometimes pelvic also. Fins usually scaly. Small fishes, mostly brilliantly coloured, normally live about coral in all tropical seas, some exhibit sexual dimorphism. They are much preyed on by larger fishes such as the Lutianidae. The species differ chiefly in colours and markings, which are fugitive, and as there is often little difference in meristic characters, the identification of preserved material, especially small specimens, is troublesome. The vast area which even small species cover adds to the difficulties, and the synonymy is confused. Extensive study of fresh material where these fishes occur will be essential before the complex problems of their specific identities will be solved. Only 5 species certainly identified in the Western Indian Ocean, while certain doubtful records are listed:

A. 2-3 scales between lateral line and middle of spinous dorsal.
   - I. Third dorsal spine usually elongate, flexible, more so in males. 24-26 gillrakers on lower limb, L.1. 40-43 ..... **squamipinnis**
   - II. Third dorsal spine normal even if longest.
     - a. 22 gillrakers on lower limb. L.1. 47-50 ..... **taeniatus**
     - b. 27-28 gillrakers on lower limb. L.1. 48-50 ..... **altus nov.**

B. 4 scales between lateral line and middle of spinous dorsal.
   - I. 10th dorsal soft ray twice as long as first. Caudal large and lunate. Spotted in life ..... **evansi**
   - II. 10th dorsal soft ray not twice as long as first. Caudal moderate. Blue streaks along body ..... **bimaculatus**

ANTHIAS SQUAMIPINNIS (Peters), 1855. (**Pl 34,B, male, C,juv,E,female**). **Serranus** (**Anthias**) **squamipinnis** Peters 1855,429 (Mozamb). **Anthias cheirospilos** Bleeker 1857,36 (E. Indies) male. **Anthias lepidolepis** Bleeker, 1957,37 (E. Indies), female. **Anthias gibbosus** Klunzinger 1884,9(Red Sea). As **Anthias squamipinnis** Peters, numerous records from Red Sea and W. Indian Ocean, including Sauvage 1875, 133 (Madag), (Pl 17,fig 1?): Klunzinger 1884, 9, Pl 3, fig 1 (Red Sea). Smith 1949,201,Pl 20, figs 459 (Mozamb). D X 16-17 (rarely D XI). A III 6-7. P 2,14-15,1. L.l. 40-43. 3 scales above L.l. below middle of spinous dorsal, 15-16 from anal origin up to L.l. 6-7 series across cheek. 9-10+1+23-25 formed gillrakers, no rudiments. Depth 2.8(juv)-2.4 (ad), head about 3.2 in body. Eye 3.5-4.2 in head, 1.2 times snout, equals to 1.1 in interorbital with age. About 30 spinules on hind preopercle edge, those at angle larger, lower margin usually smooth. Subopercle and interopercle with few spines on margins. 2 obvious opercular spines, upper larger, a hidden blunt point above. Mouth oblique, jaws subequal, maxilla to below about mid-eye. In lower jaw uniserial small sharp teeth on side, on each side 1-2 recurved canines on side of front, in front 1-2 antrorse canines. In upper jaw an external series of fine sharp teeth on side, those behind antrorse, with band of villiform teeth within and in front on each side an antrorse canine, another, retrorse, behind. Triangular patch of teeth on vomer, small teeth on palatines. No sexual difference in dentition. Dorsal inserted over opercle, 1st spine shortest, 3rd usually filamentous, up to half body length, longest in males, not obvious in fishes to 35mm. Pectoral 1.1 in head. Pelvic in females equals, in males exceeds head, to beyond anal origin. Caudal deeply lunate, lobes increasingly filamentous with age. Scales ctenoid, auxiliary scales on head and shoulder. Fins scaly, spinous dorsal for basal half, soft fin for basal $\frac{3}{4}$. About 25 predorsal to above mid-orbit, about 5 series across end of maxilla. Alive as Pl 34, males and females differ constantly, as shown, easily distinguished even when preserved, males always with marks on pectoral, also show more spots on body and fins. To 120mm., from S. Africa northwards throughout E. Africa and all islands of W. Indian Ocean except Seychelles group. Stated to extend to mid-Pacific. The elongation of the 3rd dorsal spine normally shows only with age.

I have a few specimens 30-55mm. which were taken with normal **squamipinnis** and identified in the field as that species. They differ in the rather globose front of head, the 3rd dorsal spine normal, about equal to 4th, but in all other respects they agree exactly with **squamipinnis**. The figure of Sauvage 1875, Pl 17, fig 1 shows this type. Weber and de Beaufort 1931, 100 state that their specimens of **squamipinnis** have "L.l. scales with squamulae at their base." I find only an occasional squamule in only very few of my specimens. Pacific specimens should be compared with those from Africa.

ANTHIAS TAENIATUS Klunzinger, 1884, 9,pl 3, fig 2 (Red Sea). **Anthias cichlops** (**non** Bleeker), Smith, 1951,57, fig 4 (Inhaca), and 1953, 578, and 1955, 338 (Moz), and 1955a, 689 (Aldabra).

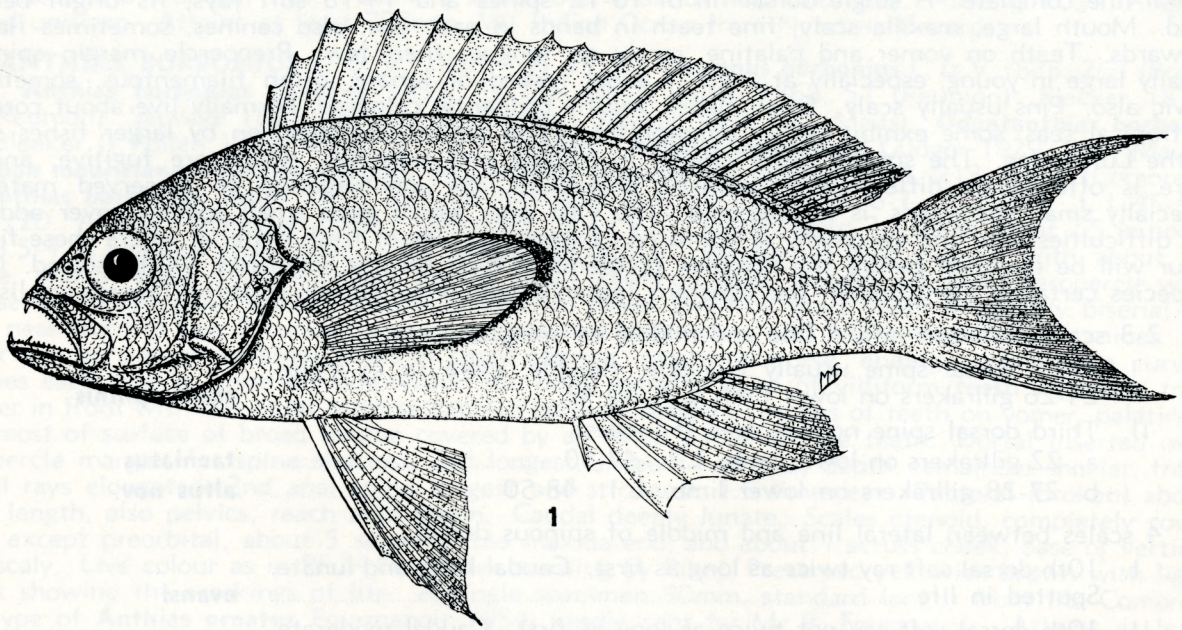

Fig. 1. **Anthias taeniatus** Klunzinger 80mm.

PLATE 34

A. *Holanthias natalensis* (Fowler). 510mm. B, C & E. *Anthias squamipinnis* Peters. B, male, 120mm. C. Juv. 20mm. E, female, 115mm. D. *Holanthias borbonius* C & V. 125mm. F. *Luzonichthys addisi* Smith. Type. 68mm. G. *Luzonichthys microlepis* Smith. Type. 63mm.

DX 17. A III 7. P 2,17,2. L.1.50. Tr 3/13. Predorsal about 23 to mid interorbital. 6 cheek scales. 9+1+22 gillrakers. Depth equals head, 3 in body. Eye 3.2 in head, exceeds snout, equals interorbital. Hind margin of preopercle strongly serrate, about 22 points to angle, that at angle enlarged, 2 points on lower margin, the rest smooth. Mouth oblique, maxilla end broad, extends to below mid-eye, teeth uniserial on side of lower jaw, a small recurved canine halfway along and a widely spaced pair in front with smaller teeth between. In upper jaw an external series of small curved teeth on side and a narrow band of villiform teeth within. In front 1-2 smaller canines each side, these widely separated, behind them on each side a small retrorse canine. Indistinct triangular patch of teeth on vomer and a narrow band on palatine. Dorsal origin over hind part of opercle, 3rd spine 1.3 times eye, 4th and 5th slightly longer, last spine subequal with 3rd, longest soft rays twice eye. Second anal spine longer and stronger than 3rd, 4th soft ray 2.5 times eye. Pectoral equals pelvic, almost head length, pelvic slightly behind pectoral, reach anal origin. Caudal lunate, lobes pointed. Few auxiliary scales on head, none on L.1. scales. life colour unknown, preserved yellowish brown with 3 or 4 light stripes along the body, the first along the dorsal base, the second from above eye along the side, the 3rd from behind the eye curves down then runs to caudal base, the lowest from below pectoral base along side above anal. One specimen, 80mm. length, from Pinda, Mozambique, which agrees reasonably well with **taeniatus** Klunzinger, to which it is provisionally assigned, previously united with **cichlops** Blkr., 1873 from Pacific.

Anthias altus n sp.

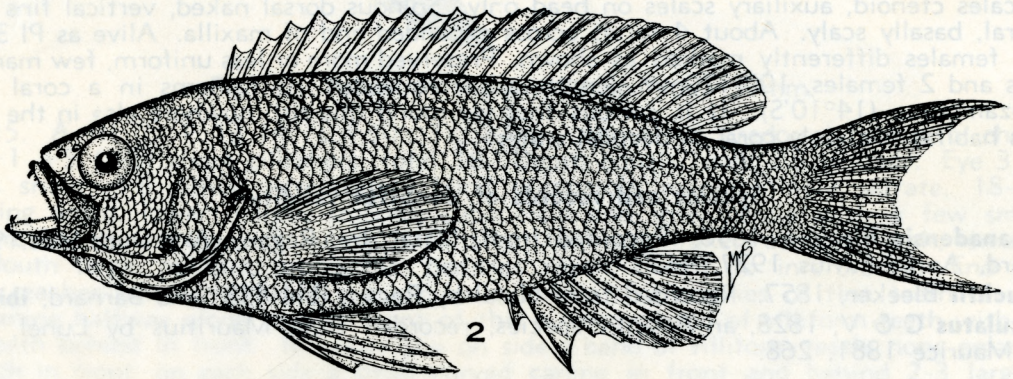

Fig. 2. **Anthias altus n sp**. Type, 108mm.

D X 16. A III 7. P 2,17,2. L.1. 48-50. Tr. 3/14. Predorsal about 22 to above mid-eye. About 7 across cheek. 10+1+26-27 slender gillrakers. Depth about 3.1, head 3.5 in body. Eye 3.8 in head, 1.1 times snout, 1.1 times interorbital. Hind preopercle edge with 22-23 serrae, larger ventrally, those at angle enlarged, 1 or 2 points on lower margin, interopercle and subopercle with few small points, 3 opercular spines, the middle largest. Dorsal origin over hind margin of opercle, 1st spine short, less than eye, 3rd spine about equals eye, shorter than 4th, last spine longest, soft rays slightly higher. Second anal spine longer and stronger than 3rd, 4th soft anal ray 2.3 times eye. Pelvic equals pectoral, little shorter than head, pelvic barely to anus. Caudal deeply lunate, lobes pointed but not filamentous. A single series of fine teeth on lower jaw, halfway along a recurved canine, on each side in front an outward flaring canine with small teeth behind. In upper jaw on each side an outer series of fine teeth, those behind antrorse, within these a narrow band of villiform teeth, on each side in front, widely separated, a small canine, and within and behind on each side a retrorse canine, teeth on two sides separated by an edentate space. Feeble teeth in triangular patch on vomer, a narrow band on palatines. Scales ctenoid to tip of snout, only few auxiliary scales on head, none on body scales. Life colour unknown, preserved uniform yellowish. Two specimens from 43 fathoms off Lamu, Kenya, 78 and 108mm. respectively, the latter the type both sent by Dr. J. F. Croil Morgans. I cannot assign this species with certainty to any known form, it approaches **manadensis** Bleeker but I prefer to describe it as new.

ANTHIAS EVANSI Smith, 1954. (**Pl 35, A**). Smith 1954,1, fig 1 (Kenya), and 1955, 342 (W.Ind. Ocean, Aldabra): and 1955a, 689 (Aldabra). D X 17. A III 8. P 3,13,1. L.1. 48-50. Tr 4/15. About 7 cheek scales. 9+1+22-24 gillrakers. Depth 3.1, head 3.4 in body. Eye about 4 in head, equals snout, 1.1 in interorbital. Preopercle margin with 22-25 fine serrae on hind margin, one at angle little larger, lower margin usually smooth. 2 opercular spines. Fine serrae on subopercle and

interopercle. Mouth oblique, a pointed papilla at tip of snout, maxilla extends almost below hind edge eye. In upper jaw on side a single series of fine incurved teeth, a band of 2-3 series of smaller teeth within. On each side in front 1-2 antrorse canines, behind these 3 retrorse canines. In side of lower jaw behind 2 series of fine teeth, uniserial forward, end at large retrorse canine, front of jaw projects with antrorse canine each side in front, and cluster of villiform teeth between. Few teeth on vomer, small teeth on palatine. Tongue smooth. Dorsal origin behind head, fin single, in adults 10th soft ray longest. 3rd anal spine longest. Caudal large, deeply lunate, lobes extended. Scales ctenoid, cover head, body and basal parts of fins, 3-4 rows across maxilla. Alive as Pl 35, A. Preserved light yellow brown with spots on body. To 115mm. Kenya, Pemba, and other islands to Aldabra and beyond, not Seychelles, always rare, usually deepish water about coral, difficult to capture.

ANTHIAS BIMACULATUS Smith, 1955 (**Pl 35**,**C**,male, **D**,female). Smith 1955, 399, fig 1 (Moz). **A. hypselosoma** (**non** Bleeker) Smith 1955, 342. D X 16. A III 7-8. P 2,14,1. L.l. 44-47. Tr 4/16. 8 series on cheek. 10+1+24-25 gillrakers. Depth about 3, head 3.3 in body. Eye 3.5 in head, 1.6 times snout, equals interorbital. Preopercle hind margin with 35-40 fine serrae, 6-10 points on lower edge, other opercles entire, 2 spines on opercle. Mouth oblique, maxilla to below hind margin of pupil. In upper jaw small sharp teeth uniserial on side, with narrow band of fine teeth within, a stout blunt canine each side in front, and 1-2 retrorse canines behind. In lower jaw uniserial teeth on side, a narrow band within, on side a recurved canine, in front small flaring canines. Triangular patch of teeth on vomer, narrow band on palatine. Tongue smooth. Dorsal origin behind head, the fin more or less uniform, continuous. Anal pointed. Caudal deeply emarginate, lobes normal. Scales ctenoid, auxiliary scales on head only. Spinous dorsal naked, vertical fins otherwise, also pectoral, basally scaly. About 4 series across expanded end of maxilla. Alive as Pl 35, C & D, males and females differently marked as shown. Preserved more or less uniform, few marks remain. Four males and 2 females, 100-120mm. length, all from about 10 fathoms in a coral cleft near Pinda, Mozambique (14°10'S). It is curious that we found this fish nowhere else in the W. Indian Ocean. Its habitat is clearly coral in deepish water.

Species and records of doubtful validity

Anthias manadensis Bleeker, 1856. Recorded from Natal by Regan, Ann.Durb.Mus.1917, 458: Barnard, Ann.S.A.Mus 1927, 463

Anthias huchtii Bleeker, 1857. Recorded from Natal by Regan, **ibid** 458: and Barnard, **ibid** 463.

Anthias oculatus C & V, 1828, an Atlantic species, recorded from Mauritius by Lunel, Liste Esp. Poiss.Maurice 1881, 268.

4. **Emmelanthias** Smith, 1955.

Smith 1955,342. Type **E. stigmapteron** Smith, 1955 (S.Africa). Elongate body with mostly ctenoid scales. Lateral line complete. A single dorsal fin with 12 (11) spines, origin on head. Fine teeth uniserial in jaws, canines in front, also pair lower outwardly flaring. Vomer edentate, possibly teeth on palatine. Closely related to **Anthias** Bloch, differs chiefly in anterior insertion of dorsal and increased dorsal spines. Only the type.

EMMELANTHIAS STIGMAPTERON Smith, 1955. (**Plate 35**,**B**.). Smith 1955, 342, fig 2. D XII 16. A III 7. P 2,18,1. L.l. 51. Tr 5-6/21. Six cheek scales. 8+1+21 gillrakers. Depth 3, head 3 in body. Eye 3.8 in head, 1.2 times snout, 1.3 times convex interorbital. Preopercle margin with large spines, especially at angle, one below, other opercles entire. 2 opercular and 2 scapular spines. Mouth oblique, maxilla to below mid-eye. Fine sharp teeth uniserial in each jaw, canines in front, also a lower pair flaring outwards. No teeth on vomer, a few feeble teeth on palatine. Dorsal origin over preopercle margin, the first spine minute, possibly obsolete with age. 2nd and 3rd anal spines subequal. Scales mostly ctenoid, those of chest and belly cycloid. Bases of pectoral and caudal scaly, other vertical fins naked. Alive as Pl 35, B, preserved, uniform. Only the juvenile type, 30mm., found thrown ashore at 33°25'S x 27°15'E in South Africa.

5. **Pelontrus nov.**

Type **Pelontrus morgansi n.sp.** Compressed body with not more than 30 moderate ctenoid scales, snout naked. Lateral line complete. Mouth large, lower teeth uniserial, upper villiform on sides, few small front canines. Vomer and palatine with teeth. Dorsal fin with 10 spines, continuous but deeply notched. Pectoral rays simple. Caudal more or less truncate. Closely related to the monotypic Pacific **Plectranthias** Bleeker, 1872 but differs in having pectoral rays all simple and fewer scales.

Pelontrus morgansi n.sp.

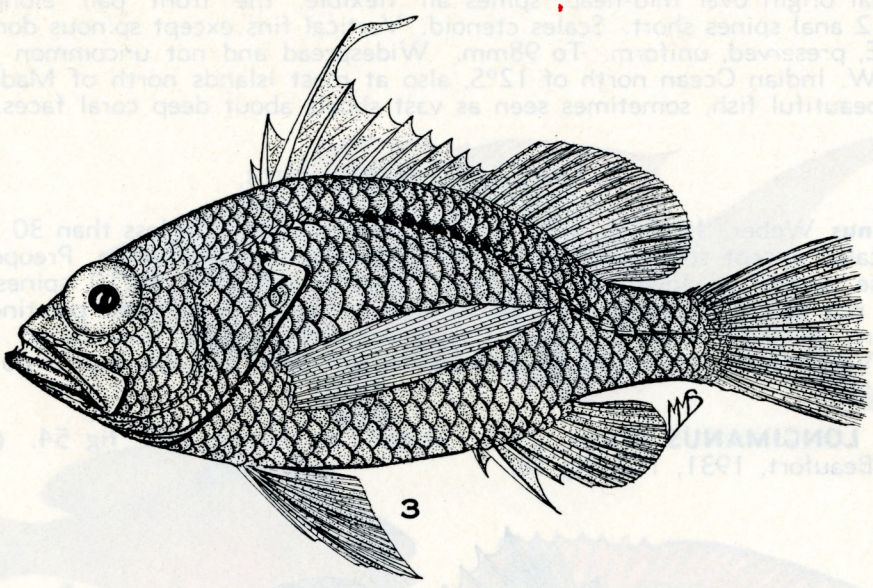

Fig. 3. **Pelontrus morgansi n.sp.** Type. 37mm.

D X 14-15. A III 7. P 13-14. L.1.30. Tr. 2/10. About 18 predorsal, about 6 cheek scales. (6) +1 +1 +5 (+5) short gillrakers, total 18. Depth equals head, 2.3 in body. Eye 3.8 in head, 1.5 times snout, 1.8 times interorbital. Hind preopercle margin finely serrate, 18-22 points, not reaching angle, lower margin smooth, subopercle and interopercle with a few small points. Three opercular spines, lower 2 subequal. 7 short formed gillrakers on upper arch, remainder mere knobs. Mouth large, oblique, protractile, pedicles reach almost to interorbital. End of maxilla expanded, reaches below middle of eye. In lower jaw a single series of fine teeth on side, small retrorse canine halfway along jaw, in front of this a narrow band of villiform teeth with few larger retrorse teeth behind in front. In upper jaw on side a band of villiform teeth, none enlarged, forms wider patch in front, on each side a small curved canine in front and behind 2-3 larger retrorse canines. Fine teeth in chevron-shaped band on vomer, and band on palatines 2-3 teeth wide. Tongue slender, spatulate, smooth. Dorsal origin over opercular spines, 1st spine short, half of eye, little less than half of 2nd spine, 3rd spine abruptly longest and stoutest, thickest along mid-length, about 2.3 times eye, with pennant-like flap, remainder shorten to last which is slightly longer but stouter than 1st spine. Soft fin rounded, mid-rays about equal 4th spine. 2nd anal spine longest and strongest, about 1.4 times eye. Pectoral pointed, equals head, extends almost above end of anal, all rays simple. Pelvic 1.4 in head, reaches anus. Caudal feebly rounded. Scales ctenoid, vertical fins not scaly. Predorsal scales extend to front of interorbital. Snout, suborbital and maxilla naked. In life apparently reddish, preserved uniform brownish, a dark spot on each of 9-16th L.1. scales. Two specimens, 28 and 37mm. standard length respectively, from about 40 fathoms off Lamu, the larger the type. These interesting specimens were sent by Dr. J. F. Croil Morgans after whom the species is named. They represent an interesting addition to the African fauna.

6. **Nemanthias** Smith, 1954.

Smith 1954, 4. Type **N. carberryi** Smith, 1954 (Malindi). Elongate body with small ctenoid scales. Lateral line complete. Eleven dorsal spines, the front spine elongated, flexible, separate, second also flexible, elongate, rest of fin continuous. Fine teeth in band in upper jaw, uniserial in lower, 4-8 canines in front of each jaw. Vomer and palatines dentate. A single species, W. Indian Ocean only.

NEMANTHIAS CARBERRYI Smith, 1954. (**Plate 35, E**). **N.carberryi** Smith 1954, 4, fig 2 (Kenya). D I + X 16-17. A III 7. P 1,18,1. L.1. 50-53. Tr. 8-9/20. 10 cheek scales. 10-11+1+24-25 gillrakers. Depth 3.1, head 3.3 in body. Eye 4.5 in head, 1.1 in snout, 1.4 in convex interorbital. Papilla at apex of snout. Hind preopercle edge with 13-15 serrae, one at angle enlarged, 2-3 points in lower margin, other opercles entire, 3 spines on opercle. Mouth oblique, maxilla to below pupil. Lips villose. A narrow band of small sharp teeth in upper jaw, outer larger, 2 pairs of front canines each side. Uniserial small teeth on side of lower jaw, a pair of canines in front. Lower jaw expanded

as lobe with 2 outwardly flaring canines each side. A few series of feeble teeth on vomer and palatines. Dorsal origin over mid-head, spines all flexible, the front pair elongated, the first separate. First 2 anal spines short. Scales ctenoid. Vertical fins except spinous dorsal basally scaly. Alive as Pl 35,E, preserved, uniform. To 98mm. Widespread and not uncommon in deeper water about coral in W. Indian Ocean north of 12°S, also at most islands north of Madagascar, but not Seychelles. A beautiful fish, sometimes seen as vast shoals about deep coral faces.

7. **Pteranthias** Weber, 1913.

Type **P.longimanus** Weber, 1913 (E. Indies). Compressed body with less than 30 series of ctenoid scales. Head scaled except snout, chin and maxilla. Lateral line incomplete. Preopercle margin serrate, 2 antrorse spines on lower edge. Dorsal divided, the first of 10 spines. Pectoral rays simple. Caudal not forked. Teeth small, few canines in front, vomer and palatine dentate. Gillrakers few, short. A single small species, the type from the Pacific now found in the Western Indian Ocean. Very closely related to **Xenanthias** Regan, 1908, probably merits no more than subgeneric rank.

PTERANTHIAS LONGIMANUS Weber, 1913, Siboga Exp. Fische, 208, fig 54. (Borneo. Timor). Weber and de Beaufort, 1931, 112, fig 18.

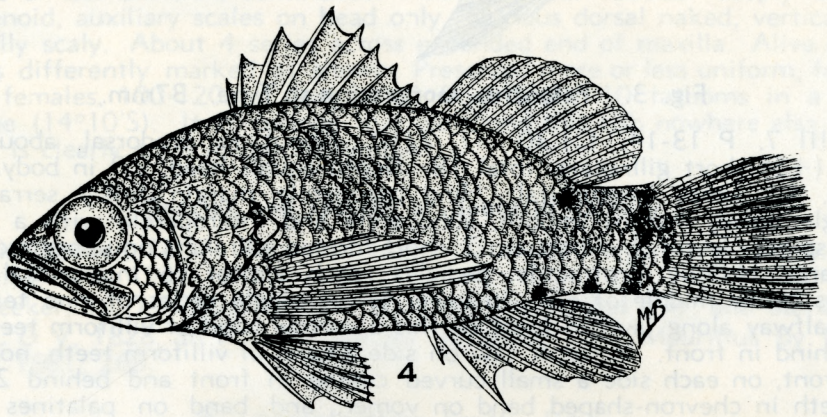

Fig. 4. **Pteranthias longimanus** Weber, 1913.

D X 13-14. A III 6-7. P 12. L.l. 13-15, series 25. Tr 1/7-8. About 16 predorsal to above mid-eye. 4 cheek scales. (3)+1+5(+4) gillrakers, total 13; only 6 formed rakers. Depth 2.9, head 2.4 in body. Eye 3.4 in head, twice snout and interorbital. Gillrakers short and stout. Hind preopercle edge with about 10 coarse serrae, 2 strong antrorse spines on lower margin. Sub and interopercle with few coarse serrae, 3 opercular spines. Mouth large, maxilla to below hind edge eye or little beyond. In lower jaw on side irregular small pointed teeth, one somewhat larger halfway along, retrorse, before this a cluster of fine teeth on each side of symphysis, in upper jaw a band of fine villiform teeth on side broadens anteriorly, a small canine each side in front and 1-2 retrorse behind, the patches of teeth on each side separated by a narrow edentate space. Fine teeth on vomer and palatines. Dorsal origin over opercular spines, spines increase to the 4th, longest, 1.4 times eye, shorten to last, which is minute, soft fin lower than spinous. Second anal spine longest, subequal with 4th dorsal spine. Pectoral 1.1-1.2 in head, reaches halfway along anal. Pelvic 2 in head, not to vent. Caudal subtruncate. Scales feebly ctenoid, a few small scales along base of soft dorsal and anal. Predorsal scales extend to mid-interorbital, none on snout, chin or maxilla. Tubes of L.l. end below front of 2nd dorsal, in some specimens there are a few pits on the succeeding scales. In life probably pink, preserved yellowish with dark spots on the hind part of the body, 2 on ventral surface along above anal and 2 at caudal base distinct. 5 specimens 17-26mm. length, obtained by trawling in about 40 fathoms off Lamu, Kenya, all sent by Dr. J. F. Croil Morgans, of Zanzibar. I have compared these specimens with one of Weber's types, kindly sent by Dr. J. J. Hoedeman, of Amsterdam, and I cannot find any difference of specific rank. This specimen differs from the original descriptions of **longimanus** in certain particulars, notably in having D X 14, and the 4th dorsal spine is the longest. This is a notable extension of distribution of so small and feeble a species.

PLATE 35

A. *Anthias evansi* Smith. Type. 113mm. B. *Emmelanthias stigmapteron* Smith. Type. 30mm. C & D. *Anthias bimaculatus* Smith. C. male, 112mm. D. female, 105mm. E. *Nemanthias carberryi* Smith. Type. 98mm.

8. **Xenanthias** Regan, 1908.

Type **X. gardineri** Regan, 1908 (Seychelles). Compressed rather deep body with about 30 series of ctenoid scales. Lateral line incomplete. Preopercle serrate, also interopercle and subopercle. Teeth villiform, with small canines, fine teeth on vomer and palatine. Dorsal divided, first part of 10 spines. Pectoral short, rays simple. Caudal rounded. Only the type species.

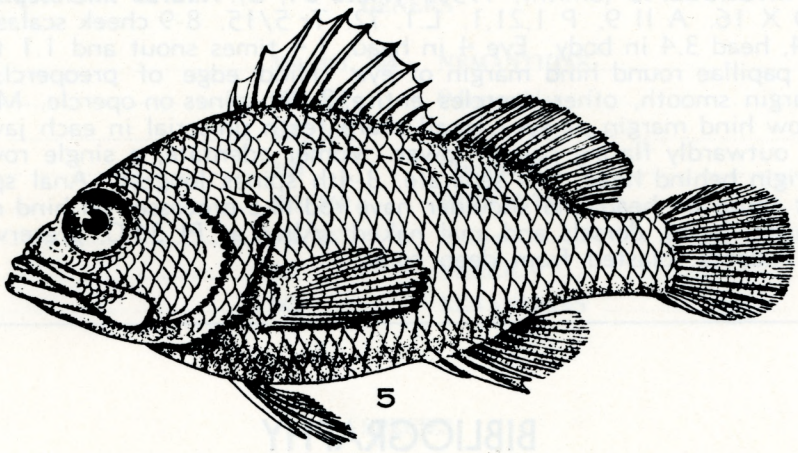

Fig 5. **Xenanthias gardineri** Regan, after Regan.

XENANTHIAS GARDINERI Regan, 1908. Regan 1908,223, Pl 28, fig 1 (Seych). By kindness of Dr. E. Trewavas I have been able to examine two of Regan's Seychelles paratypes, B.M. No.1908.3.23. 62-6, 35 and 36mm. total length. D X 14. A III 6. P 15. L.l. 18, series 28. Tr 2/8-9. About 20 median predorsal to hind nostril. 6 series on cheek. (3)+1+5 (3) gillrakers, total 12, only 6 formed rakers. Depth about 2.3, head 2.4 in body. Eye about 3.2 in head, exceeds snout, about twice interorbital. Gillrakers short and stout. Hind preopercle edge with 18-20 strong spines, median largest, lower margin with one blunt point, sub and interopercle strongly spinose. 3 opercular spines, median largest. Mouth large, maxilla well behind eye, apical width about 2/3 eye. In lower jaw on side a single irregular series of small pointed teeth, one midway recurved, caniniform. Across the front of the jaw a band of villiform teeth, a few inner median enlarged. In upper jaw a band of villiform teeth, wider in front, a few inner median teeth larger, one antrorse blunt canine each side in front, wide apart. Fine teeth on vomer and palatines. Dorsal origin over hind margin of operculum, spines increase to the 4th, longest, about 1.8 times eye, shorter to the last which is shortest, soft fin broken. Second anal spine longest and stoutest, subequal with 5th dorsal spine. Pectoral 1.3-1.4 in head, reaches above anal spines. Pelvic 2 in head, not to vent. Caudal feebly rounded. Scales ctenoid, a few small basal scales along soft dorsal and anal. Predorsal scales cover interorbital, in 2-3 rows, reach hind nostril, none on snout or chin. Maxilla partly scaly, apical half naked. Tubes of L.l. end below middle of soft dorsal. Live colour unknown, but probably reddish; as preserved uniform yellow brown. So far known only from the Seychelles (Regan).

9. **Luzonichthys** Herre, 1936.

(**Naurua** Whitley & Colefax, 1938). Type **Mirolabrichthys waitei** Fowler, 1931 (Philippines). Elongate body, scales small, mostly ctenoid, lateral line complete, more than 50 series. Two dorsal fins, the first of 10 feeble spines, originates behind head. Most pectoral rays branched. Gillrakers slender. Teeth small, on side uniserial, and small canines in front of each jaw. A few teeth on palatine, none on vomer. Papillae round hind margin of eye. Two species in the Pacific and 2 in the W. Indian Ocean, possibly identical, the latter 2 easily distinguished by scale count, **addisi** with 52-54, **microlepis** with 72 series.

LUZONICHTHYS ADDISI (Smith), 1955. (**Plate 34, F**). **Naurua addisi** Smith 1955,348, fig 4. D X 16. A III 7-8. P 2,17,2. L.l. 52-54. Tr 4/15. 8-9 cheek scales. 10+1+20-21 gillrakers. Depth about 4, head 3.3 in body. Eye 4 in head, 1.4 times snout, equals convex interorbital. About 20 papillae round hind margin of eye. Hind edge of preopercle serrate, lower margin smooth, other opercles entire, 2 flat spines on opercle. Mouth large, oblique, maxilla reaches below near hind edge of eye. Small sharp teeth uniserial in each jaw, and 2 small outward flaring canines in front of each.

Vomer edentate, a single row of fine teeth on palatine. Dorsal origin behind head, two fins separate, 3-5th spines longest. Anal spines short, slender, graduated. Scales mostly ctenoid. Fine scales on pectoral base, on caudal base, and a few along base of second dorsal, first dorsal and anal naked. Alive as in Pl 34, F, preserved, uniform. Known from only 4 specimens, 48-68mm., Astove and Aldabra islands, obtained by blasting in deep water, the type from Aldabra.

LUZONICHTHYS MICROLEPIS (Smith), 1955. (**Plate 34, G**). **Naurua microlepis** Smith 1955, 345, fig 3 (Aldabra). D X 16. A II 9. P 1,21,1. L.l. 72. Tr 5/15. 8-9 cheek scales. 8+1+21 slender gillrakers. Depth 4, head 3.4 in body. Eye 4 in head, 1.4 times snout and 1.1 times convex interorbital. About 18 papillae round hind margin of eye. Hind edge of preopercle with 6-7 feeble spinules, lower margin smooth, other opercles entire, 2 flat spines on opercle. Mouth large, oblique, maxilla almost below hind margin of eye. Small sharp teeth uniserial in each jaw, small canines in front of each jaw, outwardly flaring pair in lower. Vomer edentate, a single row of fine teeth on palatine. Dorsal origin behind head, fins separate, 3-4th spines longest. Anal spines small. Scales mostly ctenoid but those on head and shoulder have rod-like processes on hind margin. Fine scales on pectoral and caudal bases, dorsals and anal naked. Alive as Pl 34,G, preserved, uniform. Only the type, 63mm., Aldabra, blasted from deep coral.

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Names in capitals are those accepted as valid in the Western Indian Ocean

GENERA

SPECIES