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LXII.—On a new species of *Lyconus* from the North-east Atlantic

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Artibeus nanus, sp. n.

Allied to *A. turpis*, with which species it shares all essential cranial and dental characters (see above), but readily distinguished by its conspicuously smaller size. Length of skull,inion to front of canines, 18·2–18·7; maxillary tooth-row 5·8–6·1; forearm 36·5–38; third metacarpal 32·2–35 mm.

Type.—♀ ad. (alc.). Tierra Colorada, Sierra Madre del Sur, Guerrero, Mexico. Collected by Mr. H. H. Smith. Presented by Messrs. O. Salvin and F. DuCane Godman. Brit. Mus. no. 89. 1. 30. 5.

Range.—12 specimens (5 skulls) have been examined from the States of Guerrero, Colima, Sinaloa, and Vera Cruz, Mexico.

LXII.—On a new Species of *Lyconus* from the North-east Atlantic. By E. W. L. HOLT and L. W. BYRNE.

THE genus *Lyconus* originally described by Günther [1887], and by him made the sole genus of his family Lyconidæ, was regarded by that author as allied to the Macruridæ but of a more generalized type. Regan [1903] has joined *Lyconus* with *Bathygadus* and other genera in his subfamily Bathygadinæ of the Macruridæ; and Boulenger [1904] has also placed the genus in the neighbourhood of *Bathygadus* in the family Macruridæ. So far as can be judged from such anatomical details as are discernible on a superficial examination, *Lyconus* certainly appears to be closely allied to *Bathygadus*.

The genus has hitherto been known from a single specimen from the South Atlantic, the type of *Lyconus pinnatus*, Gthr. It is defined by Günther as possessing one canine-like tooth on each side of the vomer; but to admit the form described below the vomerine dentition should be described as consisting of one or more teeth on each side.

Another *Lyconus* was taken by the S.S. 'Helga' on the 5th August, 1906, at Station S. R. 352 off the south-west of Ireland, between 50° 21' N., 11° 39' W., and 50° 24' N., 11° 41' W., at soundings of 800 fath., in a Petersen pelagic otter-trawl fished on 800 fath. of warp. The depth at which the net chiefly worked is computed at 700 to 750 fath., but though it showed no sign of having actually touched bottom,

it caught some bottom-living Crustacea, and may have been practically on the ocean-floor when it extended its hospitality to *Lyconus*.

This specimen appears to us to be clearly distinguishable specifically from that described by Günther, and may be diagnosed as follows:—

Lyconus brachycolus, sp. n.

Head contained about $5\frac{1}{2}$ times in total length without caudal fin, rather compressed, about twice as long as broad, and as deep as its length without the snout. Eye 4 times in head, slightly shorter than the snout, the length of which is subequal to the width of the nearly flat interorbital space. The extremity of the snout is blunt and abrupt, with a median prominence in front of the eyes. From the snout the dorsal profile rises gently to the origin of the dorsal fin, which is opposite the origin of the pectorals and a little in front of the origin of the ventrals; the height of the body at the base of the pectorals is slightly less than double its width at the same point and about $\frac{3}{4}$ of the length of the head.

Mouth terminal, jaws subequal, gape slightly oblique, hinder extremity of maxilla behind vertical from eye.

Præmaxilla with 1 (or 2 closely apposed) fang anteriorly, but at some distance from the symphysis, followed by about 15 smaller sharp teeth in a single diminishing series. Mandible with 1 or 2 small teeth near the symphysis, followed by 2 fangs, separated by about 3 smaller sharp teeth, the second fang followed by about 3 smaller teeth, of which the last may be nearly as large as the second fang. The præmaxillary fang smaller than the anterior mandibular fang. Vomer with about 4 teeth on either side.

Pectoral fin with a narrow base and 13 rays, the longest rays extending about halfway to origin of anal, about $\frac{2}{3}$ as long as head; ventral set a little behind pectoral, with 9 rays, the longest about $\frac{2}{3}$ the length of the longest pectoral rays. None of the rays of either fin truly filamentous. Dorsal fin commencing opposite pectoral, with about 210 rather long and slender rays, continuous throughout as to fin-membrane and spacing of rays, but showing indication of subdivision by inflection of outline (reduction in length of rays) at the tenth ray; the first four rays (broken in type) possibly somewhat produced. Anal fin with rays shorter than the corresponding rays of dorsal. Skin delicate and rather loose; scales rather small, thin, cycloid, present everywhere except on jaws, underside of head, and fins; transverse

formula behind pectorals apparently ca. 6/ca. 15. Lateral line indefinite posteriorly.

Coloration in life silvery, after preservation greyish brown, with the head, vent, and marginal fins darker.

Length of the type 237 mm. (232 mm. without the caudal rays).

Hab. North-east Atlantic, off the south-west of Ireland, circa 750 fathoms.

The following table gives the measurements of the types of the two species in millimetres, with the proportions they bear to the lengths of the body and head respectively:—

	L. PINNATUS*.		L. BRACHYCOLUS.	
Length without caudal	120	800 p. c. of head.	232	560 p. c. of head.
„ to origin of dorsal fin	15	12.5 p. c. of length.	45	19 p. c. of length.
„ „ anal fin	39	32.5 „ „	94	40 „ „
Height at pectorals	13 (11)*	11 (9) „ „	33	14 „ „
„ anus	8 (7)*	6.6 (6) „ „	21.5	9 „ „
Breadth at pectorals	4	27 p. c. of head.	18	43 p. c. of head.
„ anus	3	20 „ „	11	27 „ „
Length of head	15	12.5 p. c. of length.	41.5	18 p. c. of length.
„ snout	3.5	23 p. c. of head.	12	29 p. c. of head.
„ eye	5	33 „ „	10.5	25 „ „
Interorbital width	3	20 „ „	13	31 „ „
Breadth of head	5	33 „ „	13	31 „ „
Length of pectorals	27 (16)*	180 (107) p. c. of head.	26	62 „ „
„ ventrals	8 (3.5)*	53 (23) „ „	17	41 „ „

These measurements show that *L. brachycolus* may be, at comparable sizes, a stouter fish than *L. brevipinnis*, and has certainly a comparatively longer head and abdomen and shorter caudal region. In the former species the head is contained about $5\frac{1}{2}$ and the distance to the origin of the anal fin about $2\frac{1}{2}$ times in the total length, while in the latter the proportions borne by these measurements are 8 and 3 respectively. These differences cannot be wholly accounted for by the difference in size and stage of growth, and are, in fact, in

* The type of *L. pinnatus* is not in a particularly good state of preservation, and measurements taken from it must not be regarded as necessarily accurately representing its dimensions while in the flesh; a careful comparison with Günther's figure seems, however, to show that, excepting that the original form was somewhat deeper in the body and that the pectorals and ventrals (as their present state indicates) have been broken, the distortion is not very great. Where the measurements shown by Günther's figure and by the type differ in any material degree, our table shows both measurements, those taken from the actual specimen being given in brackets.

some particulars in a direction contrary to the usual change of developmental proportion.

A further distinction lies in the much longer pectoral fins of *L. pinnatus*; while both specimens are too large to be affected by the great development of the pectorals, which is not uncommon in larval Teleosteans, the present imperfect state of the type of *L. pinnatus* makes it impossible for us to make an exact comparison of the two species in this respect, though we have no reason to doubt the accuracy of Günther's figure.

The relatively much larger eye of *L. pinnatus* may be a youthful character only, and the present state of the type of that species makes any comparison of its scale and fin-ray formulæ with those of *L. brachycolus* impossible.

L. pinnatus has only one canine-like tooth on each side of the vomer; this may be a distinction of importance, because, so far as we know, vomerine teeth tend rather to decrease than to increase in number with age. It has certainly some of the anterior dorsal rays considerably prolonged. In *L. brachycolus* the first four rays are broken, and, though the first ray is slightly stouter than the rest, none of them seem to be stout enough to afford foundation for any considerable production. Moreover, prolongation of the anterior dorsal rays may be a feature of merely sexual importance (cf. *Onus cimbricus*).

The following key should suffice to distinguish the two known species of this genus:—

LYCONUS, Gthr.

1. Head 8 and length to origin of anal fin 3 times in total length (without caudal); pectoral fins longer than (and probably more than half as long again as *) head . . . *L. pinnatus*, Gthr.
2. Head $5\frac{1}{2}$ and length to origin of anal fin $2\frac{1}{2}$ times in total length (without caudal); pectoral fins about $\frac{2}{3}$ as long as head *L. brachycolus*, H. & By.

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 GÜNTHER [1887]. 'Challenger' Deep-sea Fishes, p. 158.
 REGAN [1903]. Ann. & Mag. Nat. Hist. ser. 7, xi. p. 460.

* See footnote on p. 425.