

FOUR NEW SPECIES OF POLYCHAETOUS ANNELIDS
COLLECTED BY THE UNITED STATES FISHERIES
STEAMER "ALBATROSS" DURING THE PHILIPPINE
EXPEDITION OF 1907-1910

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In the course of the further sorting of the *Albatross* Philippine collections additional marine annelids have come to light. The specimens represent four new species—*Macellicephalo maculosa*, *Iphionella elongata*, *Onuphis branchiata*, and *Maldane philippinensis*. The earlier reports upon the polychaet worms of the expedition have been published in this bulletin, as follows: Treadwell, Polychaetous Annelids Collected by the United States Fisheries Steamer *Albatross* in the Waters Adjacent to the Philippine Islands in 1907-1910, volume 1, part 8; Hoagland, Polychaetous Annelids Collected by the United States Fisheries Steamer *Albatross* during the Philippine Expedition of 1907-1909, volume 1, part 9; and Treadwell, Additions to the Polychaetous Annelids Collected by the United States Fisheries Steamer *Albatross*, 1907-1910, Including One New Genus and Three New Species, volume 6, part 2.

MACELLICEPHALA MACULOSA, new species

FIGURE 1

The head and about 70 somites of the single specimen are preserved, these together having a length of 53 mm., with a body width of 5 mm. In preserved material the general body color is light yellow, with a pinkish tinge on the dorsal surface of the anterior 25 somites. The breadth of the prostomium is twice that of its length, and it is nearly oblong in form except for the rounded angles and the slight protrusion on the anterior margin, where the anterior tentacles are attached. (Fig. 1, *a*.) The eyes are prominent, the anterior ones being slightly the larger and located near the anterolateral angles of the prostomium. The posterior eyes are situated at a distance about equal to their own diameter posterior to the anterior ones. The tentacles are slender, sharp-pointed, about equal to the prostomium in length, two inserted on the anterior prostomial margin and the third in a shallow depression on its posterior margin. The tentacular cirri are much like the tentacles in form but are twice their length and three times their diameter. The single remaining palp is eight times as long as the prostomium and for the basal half

of its length rather more than half the prostomial diameter. The terminal half narrows gradually to a moderately sharp point. Prominent dark-brown spots occur on the tentacles, tentacular cirri, and palps.

The protruded pharynx is 8 mm. long. Above and below on its terminal margin on either side of the mid line there is a row of six papillae. Dorsally the mid line is marked with a more prominent papilla. A smaller one lies in a corresponding position on the mid-ventral line. Brown spots similar to those on the head appendages occur on the papillae. In each of the upper and lower jaws are two sharp-pointed, strong, light-brown teeth.

Dorsally and ventrally the central longitudinal areas of the body are sharply differentiated from the lateral by two longitudinal muscle bands, which are more widely separated from each other

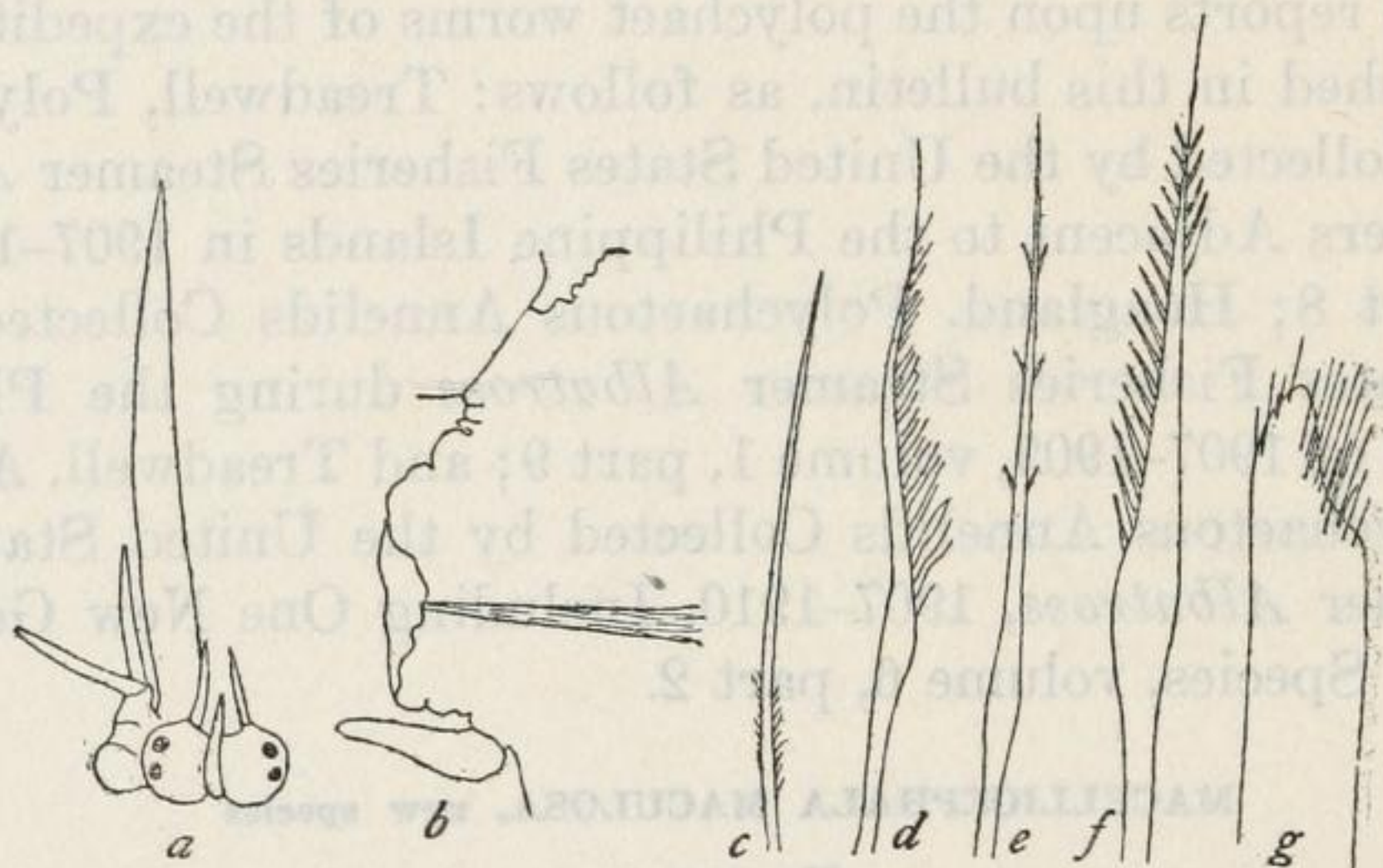


FIGURE 1.—*Macellicephalo maculosa*, new species: *a*, Head, $\times 7\frac{1}{2}$; *b*, fifteenth parapodium, $\times 17\frac{1}{2}$; *c*, *d*, *e*, various types of dorsal setae, $\times 250$; *f*, neuropodial seta, $\times 250$; *g*, anterior stout seta, $\times 250$

ventrally than dorsally. The first pair of elytra are large enough to overlap dorsally and completely cover the head. Actually, in this preserved specimen, they are thrown forward so as to leave the head uncovered, and their anterior margins extend to the middle of the length of the palp. The second pair are smaller, and this decrease in size continues in later somites, so that in the region of the twenty-fifth they barely reach to the margin of the dorsal muscle band. They are all very thin and transparent, especially the posterior ones, which are quite invisible until lifted on the point of a needle. They are oval in outline, with smooth margins and no noticeable surface markings.

The anterior somites are closely crowded together, and the parapodia are nearly as long as the somites. This is doubtless due to contraction in preservation. Later somites are longer and the parapodia more prominent. A conspicuous feature of later somites is the presence of a large chitinous coiled rod, like that described in a

number of other polynoids.¹ Viewed from the end, the parapodium has an oval outline, the posterior and anterior lips of the setal lobe being equal in length, the former continuous, the latter broken in the middle. The sixteenth parapodium with its elyrophore is shown in Figure 1, *b*. A heavy acicula reaches the surface near the middle of the parapodium. Dorsal to this is a tuft of very long, sharp-pointed setae carrying a fringe of fine hairs along one margin. Ventral to these are smaller ones of several kinds. (Fig. 1, *c*, *d*, *e*.) Neuro-podial setae are sharp-pointed with lateral hairs along both margins. (Fig. 1, *f*.) Anterior to the above-described setae, extending above

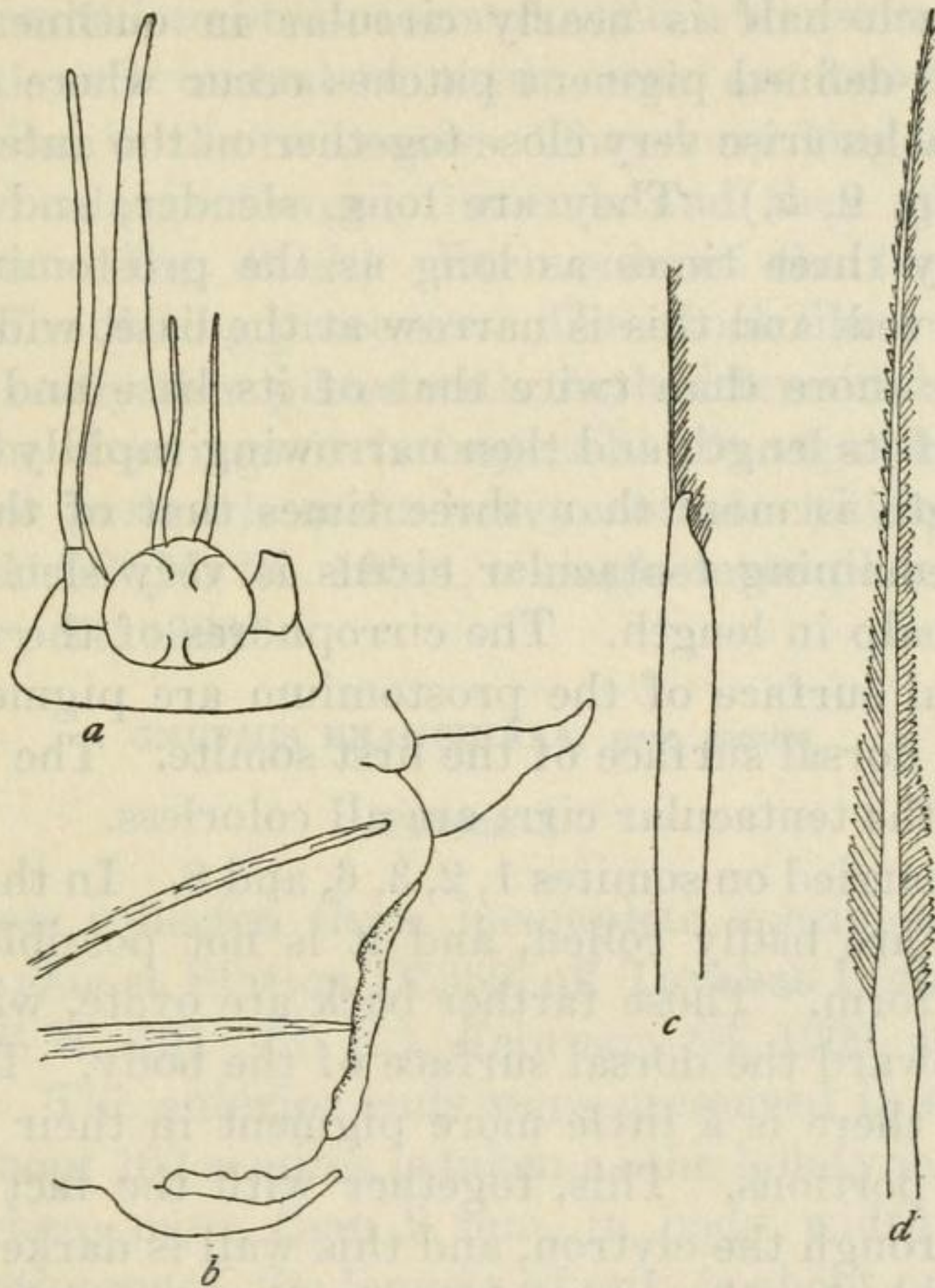


FIGURE 2.—*Iphionella elongata*, new species: *a*, Head, $\times 10$; *b*, parapodium, $\times 17\frac{1}{2}$; *c*, heavy seta, $\times 68$; *d*, seta, $\times 185$

and below the acicula, is a row of much heavier ones, blunt-pointed at the apex, with terminal and subterminal bunches of stiff spines. (Fig. 1, *g*.) In more posterior somites the setal row is much shorter.

Holotype.—U.S.N.M. No. 19543, a single imperfect specimen collected at Station D5369, off Tayabas Light, Marinduque Island ($13^{\circ} 48' N.$, $121^{\circ} 43' E.$), February 24, 1909, 106 fathoms, black sand.

IPHIONELLA ELONGATA, new species

FIGURE 2

The single specimen retains about 50 of the anterior somites. In its widest portion, 13 mm. back from the head, it is 9 mm. wide, and

¹Treadwell, A. L., *Acoetes magnifica*, Amer. Mus. Nov., No. 355, June 1, 1929.

at the posterior end of the fragment it has narrowed to 4 mm. The prostomium is a trifle more than 1 mm. in diameter. The anterior 20 mm. of the body has a decided purple tint, and behind this region it is light brown with a darker median line. The ventral surface is divided by two parallel lines into a median narrow stripe with a broader area on either side. Where the cuticle is intact, this surface has a bluish-gray tint. When the cuticle is removed the body surface is a uniform light brown.

The prostomial width is about twice that of its length, its two halves separated by a depressed area and, owing to the rounding of all angles, each half is nearly circular in outline. No eyes are visible, but ill-defined pigment patches occur where eyes should be. The two tentacles arise very close together on the anterior prostomial margin. (Fig. 2, *a*.) They are long, slender, and sharp-pointed, approximately three times as long as the prostomium. Only one palp is preserved, and this is narrow at the base, widening abruptly to a diameter more than twice that of its base and retaining this width for half its length and then narrowing rapidly to an acute tip. Its total length is more than three times that of the prostomium. The single remaining tentacular cirrus is very slender and almost equal to the palp in length. The cirrophores of the tentacular cirri and the dorsal surface of the prostomium are pigmented similarly to that of the dorsal surface of the first somite. The palp, tentacles, and styles of the tentacular cirri are all colorless.

Elytra are carried on somites 1, 2, 3, 6, and 8. In this specimen the anterior ones are badly rolled, and it is not possible to determine their normal form. Those farther back are ovate, with the broader end turned toward the dorsal surface of the body. They are nearly colorless, but there is a little more pigment in their dorsal than in their ventral portions. This, together with the fact that the body wall shows through the elytron, and this wall is darker dorsally than laterally, makes the distinction between the two ends of the elytron seem more marked than it really is. The margin is entire. A narrow band inside the margin has a finely granular appearance, and the whole surface inside this is divided by intersecting lines into angular areas, the whole having a strong resemblance to a cross section of a stem of a maize plant. Irregularly shaped spots of pigment are scattered along the intersecting lines.

The protruded proboscis has a row of six fleshy lobes on either side of the dorsal surface of its end. A similar lobe, but bifurcated, lies in the mid-dorsal line. There are seven or eight lobes on either side of the ventral margin. The jaws are two sharp, brown teeth, above and below.

The parapodium (fig. 2, *b*) has a fleshy setal lobe, with a heavy acicula reaching its surface at about its middle, where there is a

slight surface depression. A smaller acicula extends into the base of the dorsal cirrus (or into the cirrophore of elytra bearing somites). The ventral cirrus reaches about to the end of the setal lobe, tapers gradually to the apex, and has only a very slight basal constriction. The dorsal cirrus is much larger, is flask shaped, and has a broad base.

Dorsal and ventral to the point of emergence of the large acicula is a row of a few very heavy, yellow setae. These (fig. 2, *c*) have a terminal, somewhat bent tooth, carrying on its convex surface a long slender process densely fringed along its margin. The concave surface of the terminal tooth is covered with a dense mass of slender spines. Dorsal and ventral to these setae are two tufts of setae essentially similar in the two cases. They have long, slender shafts, which slightly enlarge toward the ends and then taper to a long slender portion. (Fig. 2, *d*.) Each side of the terminal portion carries a row of radiating processes. These look like a series of sharp spines but are really thin plates with toothed terminal margins. On the scale of the drawings it is impossible to represent this detail. In the posterior parapods occur heavy, coiled, chitinous rods.

Holotype.—U.S.N.M. No. 19544, a single incomplete specimen collected February 24, 1909.²

ONUPHIS BRANCHIATA, new species

FIGURE 3

The *Albatross* collected three incomplete specimens of this new species of *Onuphis* at Station D5369, off Tayabas Light, Marinduque Island ($13^{\circ} 48' N.$, $121^{\circ} 43' E.$), February 24, 1909, at 106 fathoms, in black sand. The anterior ends were preserved in all cases. One fragment of about 100 somites is taken as the holotype. It is 45 mm. long and nowhere more than 2 mm. in body width. The second somite (first setigerous), the longest of any, is about one-third longer than the first, and those immediately following are progressively shorter. The first 5 somites together are as long as the 12 immediately posterior to them. Throughout the remainder of the body the somites have nearly a uniform width showing only a slight and uniform shortening posteriorly.

The cirrophores of all tentacles are long, as long as the first somite. Each is ringed for the greater part of its length, leaving a short terminal portion without rings. In the unpaired cirrophore there are six of these rings; each of the others has eight. The styles of the

² On this day the *Albatross* was engaged off Tayabas Light, Marinduque Island, dredging in 83 to 159 fathoms, between 8 a. m. and 3 p. m., while at 8 p. m. the dip net and electric light as a lure were used over the side. It is not indicated how this specimen was obtained. Its broken condition would seem to indicate that it had been dredged.

inner paired and the median tentacles are equal in length, all very long, as long as the first 25 somites (fig. 3, *a*), and they narrow to blunt points. The styles of the outer paired tentacles are shorter than the others in the proportion of 3:13. The frontal palps are shorter than the cirrophores of the tentacles and are not visible from the dorsal surface. The nuchal cirri are slender and extend to the apices of the tentacular cirrophores. The eyes are obscure, situated behind the bases of the outer paired tentacles.

The gills begin as a slender filament on the first setigerous somite. In one specimen they become 2-branched on the fourth and 3-branched on the sixth. They are longest and most prominent in

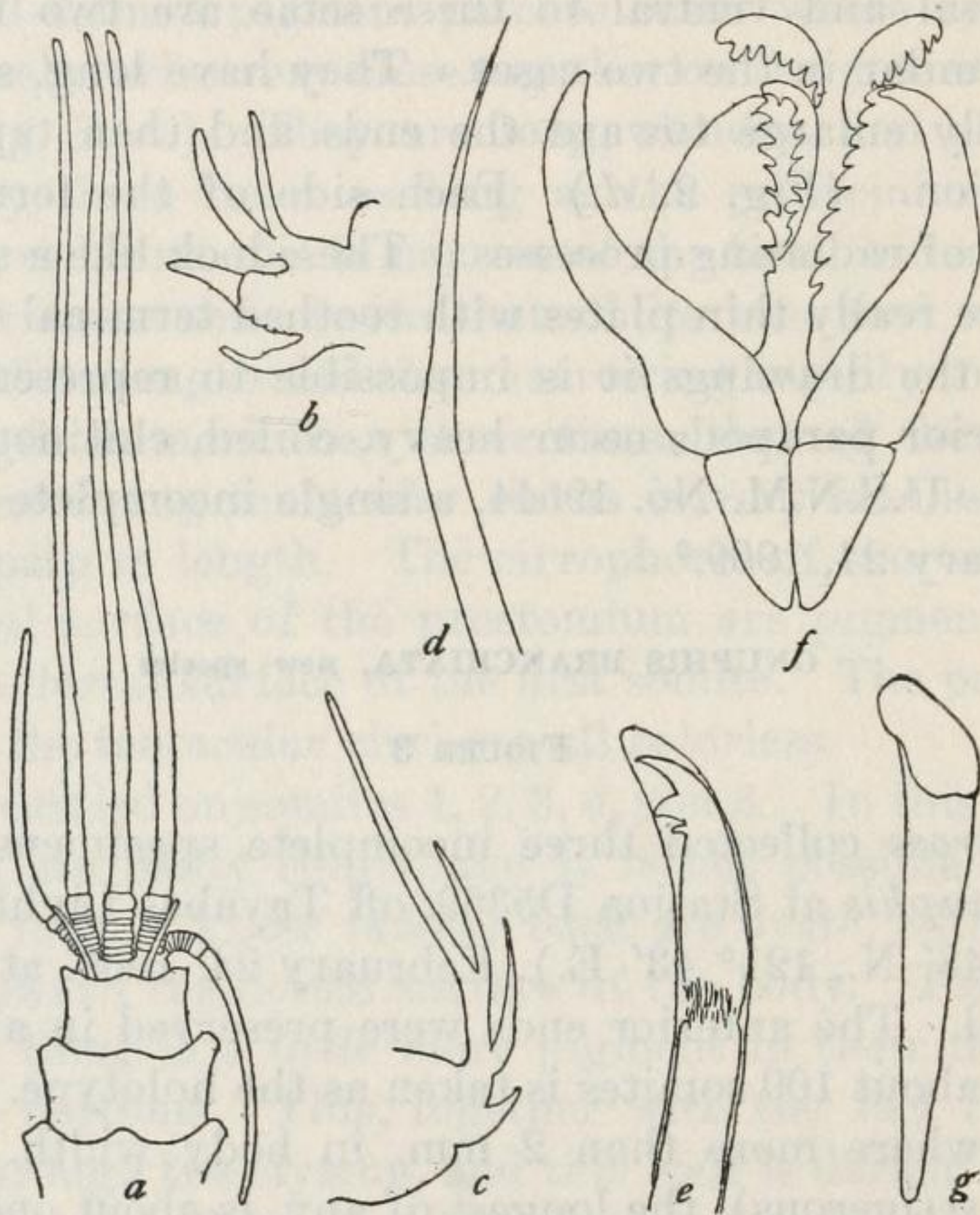


FIGURE 3.—*Onuphis branchiata*, new species: *a*, Head, $\times 5$; *b*, first parapodium, $\times 10$; *c*, tenth parapodium, $\times 10$; *d*, seta from twenty-fifth parapodium, $\times 180$; *e*, seta from first parapodium, $\times 180$; *f*, maxilla, $\times 17$; *g*, mandible, $\times 17$

the regions of somites 20 to 40, where they have five slender branches and are long enough to meet over the dorsal surface of the body. In one fragment of more than 100 somites they continued to the end. Lack of complete individuals makes it impossible to tell how far they extend in the entire animal.

In the first setigerous somites the dorsal cirri are rather heavy. Farther back they are as slender as the gill branches. On the first five setigerous somites the ventral cirri are fleshy and sharp-pointed, and extend beyond the apex of the parapodium. On the seventh

this cirrus becomes a prominent ventral pad extending well onto the ventral body surface. This condition continues as far as about the fifteenth setigerous somite, and behind this region the pad gradually becomes less prominent. On the sixth setigerous parapodium the condition of the ventral cirrus is intermediate between that of the fifth and the seventh.

The first parapodium (fig. 3, *b*) has a very long conical postsetal and much shorter presetal lobe, the latter having a vertical anterior margin. The setal lobe is rounded dorsally but is cut away toward the ventral end. The ventral cirrus is elongate lanceolate in form from a narrow base and reaches to just beyond the apex of the setal lobe. The dorsal cirrus is longer and slenderer than the ventral. This parapodium carries slender, needlelike setae and much heavier, hooked ones. In the tenth somite the setal lobe is small as compared with that of the first and is turned upward at an angle of 45° . The dorsal cirrus is long and slender; the ventral one has the pad form earlier mentioned. A vertical row of sharp-pointed, rather stout setae protrude slightly beyond the surface for the whole extent of the presetal lobe. Toward the upper end of this row are a few pectinate setae. The gill has two branches, one of which is long and slender. (Fig. 3, *c*.) The twenty-fifth parapodium has a conical postsetal lobe, though this is small in comparison with those of anterior somites. The presetal lobe has a vertical margin. The dorsal cirrus and bill branches are all very long, the gill branches being as long as the cirrus. Setae occur in a dense tuft. Near the upper end of the tuft are a few pectinate setae; the others are slender, some long and very slender, others bent near the ends. (Fig. 3, *d*.) Two hooked aciculae came to the surface ventral to the seta tuft. These did not appear in earlier somites. In the tenth four large setae apparently function as aciculae. Each of these has a heavy stalk that tapers abruptly at the apex to a short but very sharp-pointed terminal portion. Smaller setae having approximately the same form are associated with them. These latter protrude at the surface, their points forming a vertical row visible along the margin of the upwardly directed setal lobe. A tuft of very slender needle aciculae extends into the base of the dorsal cirrus.

In the first parapodium occur a number of the same kind of setae that McIntosh³ figures for *O. (Nothria) willemoesii* and describes as bifid. Those in *O. branchiata* (fig. 3, *e*) have one more subterminal tooth than has *willemoesii*, and the terminal tooth is much sharper. McIntosh found them throughout the anterior region, but in the species here described they do not occur as far back as the tenth somite.

³ McIntosh, W. C. Report on the Annelida Polychaeta collected by H. M. S. *Challenger* during the years 1873-1876, Rep. Sci. Res. *Challenger*, Zoology, vol. 12, p. 322, pl. 26a, fig. 1, 1885.

In the first parapodium there are also curved setae, such as those in Figure 3, *d*, and a number of straight ones, slender, sharp-pointed, and bilimbate.

The jaw apparatus is very light brown except for a transverse line at the junction of fang and carrier, the tips of the forceps, and the apices of some smaller teeth. The carriers are short (fig. 3, *f*), the width at the junction of the forceps nearly equal to their length. The right paired plate has 9 teeth, the left 8, the unpaired 9, the terminal 6 or 7. The mandibles are very slender and light brown except for a dark patch at the junction of the two halves. The beveled edges are oval, with a white incrustation. (Fig. 3, *g*.)

The animals live in thick-walled tubes composed of sand grains.

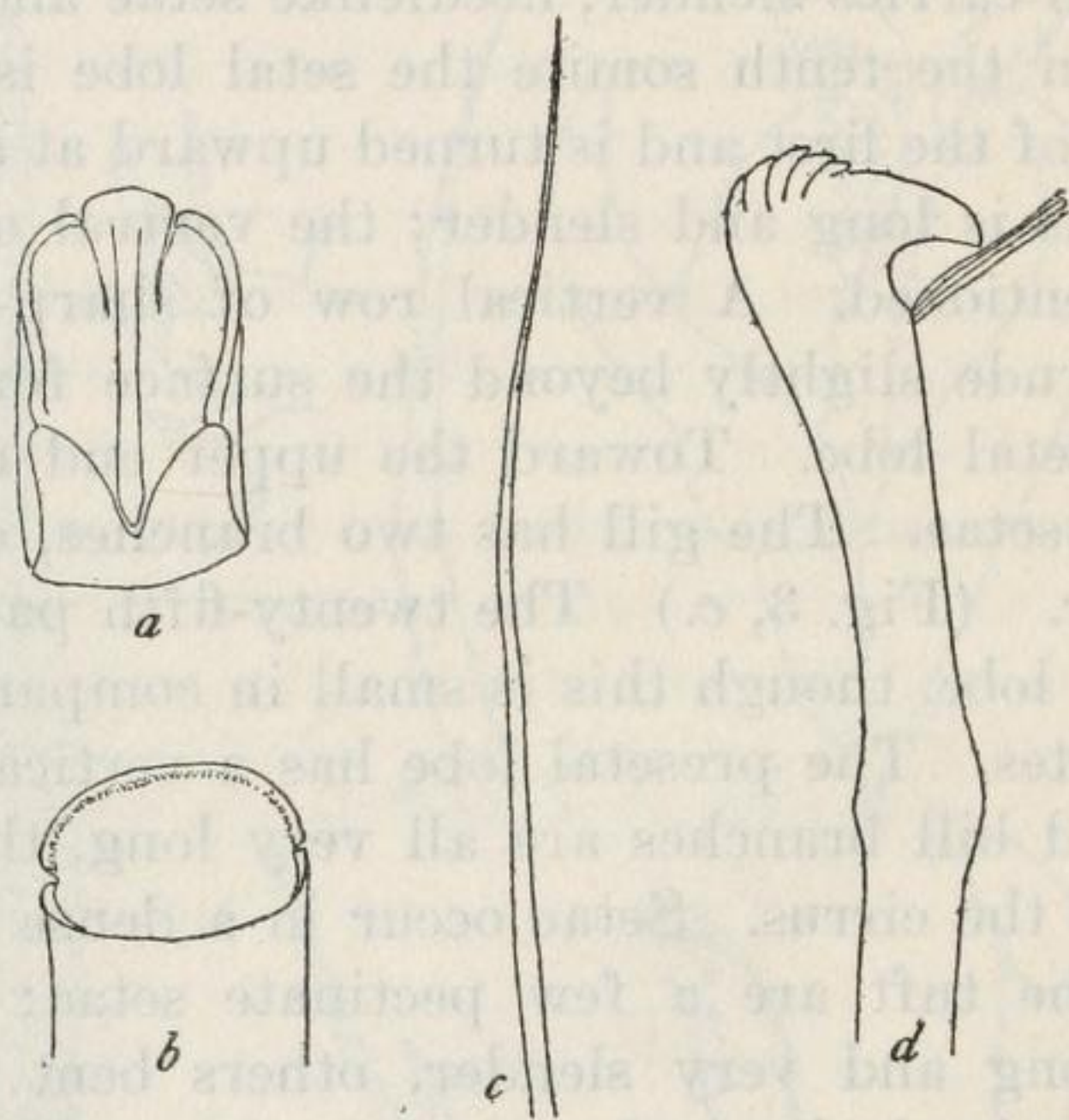


FIGURE 4.—*Maldane philippinensis*, new species: *a*, Head, $\times 5$; *b*, pygidium, $\times 5$; *c*, seta, $\times 45$; *d*, hook, $\times 250$

Holotype.—U.S.N.M. No. 19545, collected at Station D5369, off Tayabas Light, Marinduque Island ($13^{\circ} 48' N.$, $121^{\circ} 43' E.$), February 24, 1909, 106 fathoms, black sand.

MALDANE PHILIPPINENSIS, new species

FIGURE 4

At Station D5582 in the vicinity of Darvel Bay, Borneo, off Si Amil Island ($4^{\circ} 19' 54'' N.$, $118^{\circ} 58' 38'' E.$), the *Albatross* obtained fragments of a new species of *Maldane* on September 26, 1909, in 890 fathoms, in gray mud and fine sand bottom. No specimen is entire, but both anterior and posterior fragments are present, so that the essential taxonomic features can be determined. Since the fragments are in tubes in a homogeneous mass of grayish mud, it seems certain that these anterior and posterior ends really belong to the same indi-

viduals. They have been considered as representing the holotype of the species.

The prostomial disk is oval in outline and has a prominent median keel extending from the anterior to the posterior border. (Fig. 4, *a*.) The margin is elevated to form a distinct rim, which is cut by two pairs of incisions. Those of the anterior pair extend one on either side from near the anterior end of the central keel to the margin, cutting off an upper lip the margin of which extends about one-quarter of a circle. The other pair of incisions cut only the marginal rim and lie on either side about one-third of the distance forward from the posterior border. The mouth lies immediately under the rounded anterior lip. The pygidium is broadly oval and has a thin, elevated margin all the way around, this margin incised on either side just dorsal to the lateral median line. (Fig. 4, *b*.) The anus is dorsal.

The dorsal setae are long, slender, and very sharp-pointed. Eight or ten of these occur in each tuft, and they vary in size. (Fig. 4, *c*.) The hooks lie in a single row. Each (fig. 4, *d*) is heavy and has a large terminal hook and a series of poorly defined apical denticulations. At the point where the hook pierces the cuticle the shaft is swollen, and from this point it tapers to the inner end, the embedded portion of the hook being about eight times the length of the exposed.

Holotype.—U.S.N.M. No. 19546.



