

DESCRIPTIONS OF NEW SPECIES OF SPIONIFORM ANNELIDS.

BY J. PERCY MOORE.

The following descriptions of four species of Spionidæ and one of Magelonidæ are based upon material mostly included in the collection of Polychæta belonging to this Academy, and which, with one exception, was secured by the writer in the region about Wood's Hole, Massachusetts.

Prionospio heterobranchia sp. nov.

This very interesting and distinct species is based upon a single imperfect specimen lacking the posterior end, and having a length for the first 65 segments of 12 mm., and a maximum width at somite VIII of less than $\frac{1}{2}$ mm. Form very slender, widest and depressed in the branchial region, thence tapering very gently into the very slender and subterete posterior region.

Prostomium (Plate XV, fig. 1) elongated cuneiform, tapering behind to a slender point which overlaps somite II and reaches to its posterior margin; lateral margins with slight concavities opposite the eyes for the accommodation of the bases of the tentacular cirri; anterior margin entire and broadly rounded; a conspicuous median ridge begins just anterior to the eyes and, becoming more prominent, reaches to the posterior end of the prostomium, where it forms a slightly free and elevated process. Eyes one pair, very large and conspicuous, elongated, black, situated close together at the sides of the median ridge and between the bases of the tentacular cirri. No cephalic appendages. Peristomium closely united to prostomium, relatively small, somewhat pushed forward below as an oral papilla in the form of a truncated cone; at the sides and above embracing the prostomium laterally as slender, curved, lateral cephalic lobes much shorter than the prostomium and ending in rounded enlargements anterior to the attachment of the tentacular cirri, which have unfortunately been lost. Proboscis protruded in the form of a short inverted cone with a somewhat crenulated border extending slightly beyond the prostomium.

Somites II to VI wider and much depressed; VII to X of the same width but becoming deeper; after X the segments become gradually more slender and terete and taper gently caudad. Branchial segments very short, the others about $\frac{2}{3}$ as long as wide and feebly marked.

Parapodia of branchiate segments II to V large and conspicuous (figs. 2 and 3); both notopodia and neuropodia provided with large, foliaceous, postsetal laminæ, usually overlapping or at least touching across the sinus; the former rising as a long dorsal process external to but quite free from the gill; the latter nearly circular, and in the case of the first one (II) apparently bearing a slender cirrus-like process on the ventral border. Behind V the parapodia are much smaller and soon become reduced to the form shown in fig. 4, in which the notopodial and neuropodial postsetal lamellæ have a similar form, but the former is twice the size of the latter. Posteriorly they become still smaller.

Branchiæ 5 pairs, on somites II to VI inclusive. All large, exceeding the diameter of the body even in contraction, erect, and arising from the dorsum close to the notopodia. The first pair (fig. 2) have a central stem containing a large vascular loop and ending in a slender, free filament. The basal $\frac{2}{3}$ of the stem is crowded, chiefly on the posterior and medial surface, with numerous slender, finger-like processes, each with a small vascular loop connected with the two limbs of the stem loop; free surfaces ciliated. The last pair are similar, but the papillæ are longer toward the base and distributed on all sides of the proximal $\frac{2}{3}$ of the stem (fig. 5). The 2d and 3d (fig. 3) are simply flattened and ligulate, marked across the posterior face by numerous very fine transverse ridges which correspond with delicate branches uniting the two sides of the vascular loop. The 4th is intermediate, resembling the last in form, but bearing a few filaments along its inner and posterior margin.

Anterior parapodia bear capillary setæ exclusively, arranged in shaggy, fan-shaped, vertical tufts in both rami, and curving outward and upward, the dorsal members of bundles on the branchial notopodia being especially long, and those of the first two exceeding the width of their respective somites. They are all simple, with very narrow wings or none, and very acute. Behind the branchial region the notopodials become gradually, and the neuropodials quickly, smaller and fewer. At about XL 1 or 2 crochets appear in the notopodium along with several very long, thread-like, flexible setæ. Little further change occurs within the length of the specimen. In the neuropodium crochets appear at XV; at XXV there are 6 or 7 crochets alternating with as many very small, straight, delicate setæ; at L there are about 10 crochets and a few still smaller setæ. Crochets (fig. 6) colorless, slender, terminated by 1 large and 3 or 4 small teeth, all enclosed in a spacious hood of two halves.

Body walls generally colorless and translucent, allowing the red

blood in the anterior part and the olive-green intestine in the posterior part to show through; tentacular cirri with a red central vessel and gills red throughout.

The type and only specimen (Coll. A. N. S. P., No. 850) was dredged from the soft ooze at the bottom of the deepest part of the Eel Pond at Wood's Hole on August 4, 1902. Several subsequent searches have failed to reveal any others.

Prionospio tenuis Verrill, the only species definitely described from our shores, has four minute eyes and four pairs of gills, of which the first only is branched, the others being foliaceous. A larger specimen, probably representing a distinct species, is recorded as having all of the 4(?) pairs of branchiæ lanceolate and pectinate posteriorly, with slender papillæ. Webster and Benedict record an undetermined species at Provincetown, Massachusetts. The four or five European species are all easily distinguished by the characters of the prostomium, gills and crochets.

Numerous species of *Polydora* have been described from both sides of the Atlantic. Eight species occur in the region about Wood's Hole, the following two of which are new and rather closely related.

***Polydora anoculata* sp. nov.**

Form very slender and elongated, anterior half depressed and of nearly uniform width; posterior half gently tapered, nearly terete. Length up to 20 mm., breadth at VI 35 mm. Number of segments about 98.

Prostomium (Plate XV, figs. 7, 8 and 9) about 3 or 4 times as long as broad, not prolonged caudally beyond somite II, but truncate or broadly rounded; anterior half abruptly bent downward, with a steep front; sides straight or slightly concave in anterior half; anterior end cleft medially, the halves diverging as a pair of rather prominent, short, rounded lobes, which may be drawn together or separated. Eyes totally absent and no nuchal ridge nor nuchal cirrus.

Peristomium (figs. 7, 8 and 9) bounding mouth by a small simple posterior lip; lateral cephalic lobes nearly meeting below, compressing the ventral portion of prostomium between them and extending as far forward as the base of anterior prostomial lobes. Tentacular cirri arising from posterior dorsal region of peristomium, in contact with sides of prostomium, rather stout, length three or four times width of body, reaching to XIII or XV, constricted at base, then widened, then tapered to blunt tip, channeled for entire length, and much wrinkled transversely.

Segments all well marked, uniannulate, those of the anterior $\frac{1}{3}$

depressed, the remainder terete or subterete, strongly convex below, more or less flattened above; the first 4 very short, about five times as wide as long, nearly straight laterally; the next (VI) enlarged, nearly twice as long as the preceding, strongly convex laterally, and widest in front. The others gradually increase in length until the middle ones are $\frac{1}{2}$ to $\frac{3}{4}$ as long as wide. Posteriorly they again become very short and close to the pygidium minute. Pygidium (figs. 10 and 11) bearing a small, scarcely expanded, somewhat funnellform caudal disk as wide as the small posterior segments and less than one-half the greatest width of the body, the margin even, with only a very faint ventral emargination and a deep dorsal cleft which passes into the slight fecal groove. Anus dorsal of the center, on a small papilla.

Parapodia of II with rami widely separated, the notopodium (fig. 7) immediately behind the base of the tentacular cirrus, and consisting of a minute setigerous tubercle and a short papilliform cirrus or postsetal lobe; the neuropodium at the level of the notopodia of succeeding somites, but otherwise of normal form. Succeeding parapodia are strictly lateral, with well separated rami; the notopodia at first with rather large foliaceous, postsetal lamellæ projecting dorsal, and after the gills appear gradually diminishing (fig. 12); neuropodia with longer lower postsetal lamellæ which practically disappear after somite VII. Branchiæ (fig. 12) appear on X on all specimens studied, the first very small, and continue to LIII at least. When best developed they are short, thick, digitiform and extend over the dorsum, meeting or nearly meeting in the middle line. They have the usual structure.

Somites II-V and VII bear capillary setæ only. Notopodials of II 5 or 6, very slender, delicate, and wingless; the others bear 4-6 longer, slender, slightly curved, and narrowly bilimbate dorsal setæ, and about as many shorter, coarser, often twice-bent, bilimbate ventral setæ. Neuropodia bear 12 or 14 setæ in 2 rows; they are similar to the notopodials, but, except on II, distinctly shorter and more strongly curved. Behind VII the notopodal setæ (figs. 13) are at first similar, but after the gills appear their number is reduced and they gradually become longer, more slender and straighter, those of posterior segments exceeding the diameter of the body. No notopodial crochets. Crochets appears in the neuropodia at VIII, which, like the next 3 or 4 segments, contains 2 or 3 accompanied by 1, or rarely 2, very delicate setæ at the ventral end of the series; for the remainder of the length there are 3 or 4 crochets and no setæ. Crochets (fig. 17) are delicate, colorless, strongly bent near the end and provided with a stout tooth arising at a wide angle (about 110 degrees), and above it an accessory tooth; both

enclosed in a delicate hood. On VI from 4 to 6 sessile spines are arranged in a slightly oblique series, diminishing in size from above downward. They (figs. 16 and 23) are pale yellow, rather slender, the blunt tips rather strongly hooked, a prominent subterminal spur on one side, and a smaller one often on the other. Guard setæ (fig. 15) form a row anterior to and alternating with the spines; when unworn they are broadly bilimbate at the end with a delicate and elongated mucron. Overlapping the anterior-most spine from the dorsal side are 2 or 3 much larger bilimbate setæ (fig. 14), abruptly bent and either truncate or mucronate at the tip. A ventral posterior tuft beneath the last spine contains 4 or 5 much more delicate, nearly straight setæ, closely resembling the guard setæ.

Color of intestine usually pale yellow; body walls translucent, without pigment; blood red, coloring the gills and other parts.

Known from the region about Wood's Hole only. Uncommon. Usually taken in association with colonies of *Amaracium pellucidum* in 7-17 fathoms in Vineyard Sound. Less often on piles among *Cynthia* in Little Harbor and with *Polydora colonia* at Vineyard Haven.

Type Coll. Acad. Nat. Sci. Phila., No. 2,338.

A specimen taken on July 14th contained nearly mature eggs.

***Polydora colonia* sp. nov.**

Form elongated and very slender, resembling *P. anoculata* and of about the same size or rather smaller. Number of somites unknown. Length of head and 38 somites 6 mm., width at VI 3 mm. Depressed anteriorly, subterete farther back.

Prostomium (Plate XV, fig. 18) elongated; anterior half with straight sides and of nearly uniform width, posterior half tapering into a nuchal ridge which ends in a blunt point at the posterior margin of IV; anterior margin broadly rounded, entire or slightly emarginate. Eyes usually totally absent, but occasionally a small collection, or two, of pigment, as in the specimen figured.

Peristomium united with prostomium and somite II, forming a simple posterior lip and a pair of prominent lateral cephalic lobes much shorter than prostomium. Tentacular cirri attached to dorsum of lateral cephalic lobes, not constricting prostomium. The basal half has the usual structure and proportions, but the distal half, probably owing to maceration, is very slender and elongated, the total length being about 7 times the width of VI (fig. 18). The next four segments are very short and much depressed; VI is nearly as long as the three preceding segments, strongly convex and furrowed laterally, widest

anteriorly. Succeeding segments rapidly increase in length until by XIII they are $\frac{2}{3}$ as long as wide, becoming also subterete, strongly convex below and somewhat flattened above. Pygidium unknown.

Except the first (on II) the parapodia are larger than usual. That of II consists of a minute notopodial setigerous tubercle and papilliform postsetal lobe immediately behind the base of the tentacular cirrus, and a small neuropodium situated at the level of the notopodia of succeeding segments. Succeeding parapodia have prominent foliaceous postsetal lamellæ on both rami, but with the appearance of crochets on VIII the neuropodium becomes much reduced.

Gills begin on VIII or sometimes IX and continue to XXVIII, at least, arising from the dorsum in contact with the base of the notopodium; form subcylindrical, rather short, apparently never long enough to meet across the back, but their bases connected or nearly connected by a low, ciliated, delicate, transverse fold.

Setæ of II few and very small, the notopodials only 3 or 4, very slender and delicate, the neuropodials 6 or 8, short, slightly curved and narrowly bilimbate. Succeeding notopodial setæ rather conspicuous and numerous for the genus, anteriorly about 18-20, arranged in 2 rows, the dorsalmost (fig. 19a) longest and rising prominently over the back, narrowly bilimbate, very slender and little curved, the ventralmost (fig. 19b) much shorter, often doubly curved, with much broader wings and acute awn-like tips. Toward the middle of the body the number decreases and all the setæ become more slender and elongated. Anterior neuropodials also in two vertical rows of usually 6 or 7 each, all smaller and more strongly curved than the notopodials. Crochets appear abruptly in the neuropodium of VIII and never, so far as observed, are accompanied by capillary setæ. Anteriorly there are 3, farther back 5 or rarely even 6. They are colorless, slender, with a long acute beak and slender erect accessory tooth and are enclosed distally in a delicate hood, composed of a pair of well separated guards (fig. 22). On somite VI there are almost invariably three (in only one case out of many four) pale yellow spines in a strictly vertical row (figs. 20, 21). They are straight, slightly enlarged at the end where they bear a principal and an accessory blunt, straight, conical tooth, below which, on the posterior face, is a half-round sheath ending in a free border on the side of the small tooth and forming a flange encircling the base of the large tooth on the opposite side (figs. 20a and 21). On the anterior side of these spines and alternating with them are a corresponding number of broadly bilimbate setæ, and a group of 3 or 4 similar and perfectly straight setæ lies just dorsad of the spines. Ven-

tral and slightly anterior to the lowermost is a second group of similar but much smaller setæ (fig. 20).

Lives abundantly in colonies formed of soft mucoid tubes covered with fine silt in the interstices of tunicates and sponges on wharf piles in the harbor of Vineyard Haven, Massachusetts. Individual tubes are less than 1 mm. in diameter and from 20-30 mm. long. Hundreds of them are inextricably intertwined and cemented together with mucous, forming masses 1 or 2 inches in diameter. Specimens taken at the end of July contain large eggs which begin at somite XVI or XVII.

The type is No. 2324 (Coll. Acad. Nat. Sci. Phila.).

Unfortunately all of the numerous specimens were preserved in the tubes and are more or less macerated and the posterior ends lost. The setæ, however, and especially the spines and associated setæ on VI, are perfectly characteristic and serve to distinguish the species completely from any European or American species.

***Magelona rosea* sp. nov.**

Form very slender, body slightly depressed anteriorly, tapering very gradually and subquadrate posteriorly. Length 40 mm., greatest width 1 mm. Number of segments about 95.

Prostomium and peristomium completely coalesced to form a head (Plate XVI, fig. 24) of a broad ovoid form, about $\frac{1}{4}$ long erthan broad but capable of much greater elongation during life. A pair of dorsal cephalic ridges, in contact medially, extend for nearly the entire length of the head, tapering to acute points anteriorly, and near the end suddenly diverging, leaving a thin triangular area between. Anterior and lateral portions of prostomium formed by a thin but rigid shovel-like expansion marked on the dorsal surface by a number of delicate raised sub-parallel lines. No prostomial appendages and no eyes.

Peristomium dorsally consisting of the posterior portion of the cephalic ridges and a pair of prominent lateral lobes, again subdivided by a groove extending from the posterior margin; ventrally a simple ring bounding the mouth behind. Tentacular cirri (fig. 24) arising from the sides of the peristomium above the mouth and beneath the margins of the prostomial plate. They are 8 mm. long, reaching somite XX, delicate, and tapering, the lateral surface covered with very fine and close transverse ridges, the medial with somewhat coarser but still very small papillæ which increase in length to the distal half where they are as long as the diameter of the cirrus. Proboscis soft, bulbous, protruded to half the length of the head and marked with numerous fine longitudinal parallel ridges.

Metastomium slender and of nearly equal diameter throughout,

only the anterior 8 segments and the tapered caudal end being distinctly narrower; margins of body even and regular, the parapodia being small and inconspicuous and arising from small, slightly depressed rings; segments more or less distinctly divided into dorsal, ventral and lateral fields by longitudinal furrows above and below the parapodia, the latter forming interpodal wrinkled glandular areas, and the ventral field divided by a median neural groove, which becomes obscure posteriorly. Anterior region, consisting of peristomium and nine podous segments, separated from the posterior region by a deep annular groove in which the ninth pair of parapodia lie (fig. 24); its segments somewhat narrower than those of the posterior region and without distinct intersegmental furrows, the distance between successive parapodia about $\frac{2}{3}$ the width. Ventral median field occupied by a series of slightly overlapping, segmental ventral plates, which become smaller from in front caudad and are divided into halves by the neural groove; lateral fields distinctly bounded and much furrowed transversely. Distinct glandular bands or half-rings extend across the dorsum between the parapodia, and several small and irregular transverse furrows mark the dorsum and sides of each segment, dividing it imperfectly into about 3 incomplete rings. Posterior region slightly wider than the anterior and consisting of 84 or 85 segments; first segment very short, but the others increasing in length until they are about half as long as wide; ventral field distinctly wider than dorsal, without ventral plates and divided by a deep ventral groove. Throughout most of this region the parapodia lie in the deeper furrows, and a shallower furrow is only obscurely indicated a short distance caudad to each pair. Farther back it becomes clear that the segments are biannulate and that the parapodia lie between the larger anterior and smaller posterior annulus.

Pygidium very small, oblique, with the anus dorsal and covered by a broad flat papilla; below and behind the anus a pair of small, slender eirri, often replaced by a pair of minute papillæ.

Parapodia all biramous and more or less foliaceous, the first 9 pairs with capillary setæ only, the others with crochets only in both rami. The first 8 pairs consist of winglike, foliaceous, postsetal laminae, the notopodial being somewhat broader and strongly curved ventrad to meet the neuropodial, which is longer and projects more directly laterad; both somewhat contracted at the base to form a stem, which bears the spreading, fan-shaped tufts of setæ, the neuropodial being somewhat the larger. The ninth parapodium (fig. 26) is similar but rather larger and has a more extensive series of setæ. In the posterior region the

neuropodia and notopodia consist of vertical ridges, each bearing a series of 18-20 crochets and ending in minute notopodial and neuropodial cirri, while from their contiguous ends arise foliaceous expansions borne on short stems (figs. 27-29). These expansions increase somewhat in size to the middle of the body and bending toward each other overlap broadly, but farther back they become much reduced in size and the cirri disappear, simultaneously with an increase in the number of crochets.

Setæ of both rami of the first nine pairs of parapodia (II-X) all capillary, colorless, moderately slender, not greatly elongated, with curved and tapered stems very delicately bordered by margins which are broad on the concave and narrow on the convex side; arranged in one regularly spaced series of from 15 to 30 and spreading in a broad fan-shaped figure. Except that they are slightly longer, the notopodials differ in no noticeable respect from the neuropodials, and except that they are rather longer, more numerous and in part arranged in double series, those of the tenth somite are exactly like the preceding ones. Posterior to somite X both rami bear hooded crochets only, in simple series facing each other; anteriorly each series contains 15 to 20, posteriorly as many as 30. They (fig. 30) are little exposed, colorless, slightly tapered distally, where they terminate in an abruptly hooked blunt beak, surmounted by a smaller tooth and enclosed in a pair of wide guards.

Color translucent white, the intestine varying from buff to greenish-brown, pharynx salmon pink, both showing through body walls; blood madder pink, especially conspicuous in the tentacular cirri which contain a large vascular loop.

Specimens taken during the latter part of August contain nearly ripe eggs in the middle segments of the body.

Type No. 1677, Coll. Academy of Natural Sciences of Philadelphia.

Lives in sand at and below low water, forming soft sand tubes under stones, etc. As the worm crawls the pharynx is everted as a tumid fold or bulb reaching half the length of the head, the ventral median part being most prominent and marked by delicate longitudinal furrows.

This species has been found only on a sandy beach, chiefly below low water, in a little shallow bay on the Buzzard's Bay side of Wood's Hole. Prof. E. A. Andrews found it at the same place about ten years before it came to my notice, and has described a specimen under the name of *M. papillicornis* Müller. The remarkable larvæ have been described by Fewkes (as *Prionospio tenuis*) from Newport, and by Andrews from Beaufort, N. C., and Wood's Hole.

Magelona papillicornis was originally described by Fritz Müller in 1858 from specimens taken off the coast of Brazil. Since then it has been repeatedly recorded from various parts of Europe, and because of its remarkable characters has been much studied. As mentioned above, Andrews was the first to recognize *Magelona* on the coast of North America. More recently Johnson has described a very distinct species from Puget Sound.

Hitherto the North Atlantic species has always been considered identical with the Brazilian species, the very noteworthy difference in the color of the blood of the two having been curiously overlooked. Müller describes his species as having pale violet blood, whereas all specimens from the North Atlantic have madder pink blood. Müller's description is very brief, and the other characters mentioned are generic only. It is quite probable that when the Brazilian species is better known other characters than the color of the blood will be found to distinguish it from ours. Comparison of Wood's Hole specimens with the excellent figures of parapodia given by McIntosh and Mesnil make it clear that the European species again is quite distinct from ours and will require to be named. The most obvious difference is that the setæ of the tenth somite of the former are provided with a bulbous terminal enlargement and small process, while those of *M. rosea* are unmodified.

Spionides japonicus sp. nov.

Known from the anterior end only. Size large, probably not less than 4 or 5 inches long, moderately slender. The type, consisting of the head and 44 setigerous somites, is 25 mm. long and 2.5 mm. wide. A fragment from the postbranchial region indicates a still larger worm, having a width of nearly 4 mm.

Prostomium (Plate XVI, fig. 31) flattened, subtriangular, nearly as broad as long, the base anterior; anterior margin very broad, divided into a low, wide, median lobe and a pair of narrow, bluntly rounded lateral lobes directed toward the sides; lateral margins concave, meeting in the blunt, rounded apex which is slightly elevated and bears a slender, suberect nuchal cirrus, behind which a low, narrow ridge continues along the dorsum. Eyes 1 pair, large, conspicuous, reddish-brown, crescentic, situated at a slight widening behind the middle of the prostomium; just anterior to each of them is a curved series of small reddish-brown pigment specks.

Peristomium forming lower lips and lateral cephalic lobes; the latter small, rounded laterally and becoming very narrow posteriorly, where they disappear beneath the prostomium just behind the level of the

eyes. Tentacular cirri missing, their faint scars of attachment on the dorsum of the lateral lobes just anterior to the level of the eyes. Body segments short and rather indistinctly defined; much concealed by the foliaceous parts of the parapodia; body rather strongly depressed, gently convex above and below.

Parapodia very conspicuous, so large that they completely envelop the body and give somewhat the appearance of a series of thin disks strong upon an excentric band. They are very broadly attached and the two rami nearly continuous, with extended setigerous tubercles, low presetal lobes, and very large and foliaceous postsetal lamellæ. The first (fig. 31) is relatively small and lies by the side of the prostomium, the posterior part of which is crossed by the notopodial setæ. On the next few both postsetal lamellæ increase rapidly in size, the notopodial soon predominating over the neuropodial and extending dorsally and ventrally. In this region the neuropodial lamella (fig. 32) is formed much like the quadrant of a circular disk, and the notopodial lamella like a narrow palette, broadly rounded above and with an auricular process below which is absent or little developed in the most anterior parapodia. The notopodial lamellæ meet or overlap medially and touch the neuropodial lamellæ below. After somite XXX the notopodium gradually becomes smaller and withdraws from the dorsum. By XXXVIII it is strictly lateral and its postsetal lamellæ is no larger than that of the neuropodium, and leaves the dorsum entirely exposed. Simultaneously with this change a delicate transverse integumental fold appears on the dorsum, connecting the bases of the notopodial lamellæ of the two sides. At first quite insignificant, these increase in height as the branchiæ diminish and by XLII their lateral parts are nearly half as high as the lamellæ which they connect, but the medial part is much lower.

The first 3 pairs of parapodia are free, but all others are united continuously along each side by a thin lateral fold of integument, which is attached to the sides of the body ventrally and whose dorsal border is free between the parapodia but attached to each neuropodium for the full height of its base and for a short distance above it. Thus is formed a series of deep interpodal pockets widely open above.

Branchiæ arise from the dorsum just above the base of the notopodial lamella from III to XLII inclusive, largely concealed behind the medial ends of the lamellæ. The first 2 or 3 are rather small, but they soon increase in size and rise erect far above the notopodial lamellæ. The last 10 gradually diminish before they finally disappear. Typical branchiæ (fig. 32) are more or less flattened, ligulate, tapered and

unbranched. They contain large axial bloodvessels, from which pinnate loops branch on either side, corresponding with slight surface plications.

Capillary setæ alone are found on both rami of parapodia of the branchial region. They form broad spreading fan-shaped tufts and are very numerous (40 or more notopodials and even more neuropodials) and arranged in two vertical rows, a long seta of the posterior being always paired with a shorter one of the anterior row; much the longest and most slender in dorsal part of notopodium, stouter in ventral part of both rami. All setæ are pale yellow with tapering, longitudinally striated stems finely granulated on the surface, with more or less prolonged and delicate tips and the more or less well developed wings or margins directed toward the middle part of the foot on both rami (fig. 33). Wings best developed on dorsal neuropodial and ventral notopodial setæ, the marginal setæ of both bundles nearly lacking them. Notopodial setæ of II very small and delicate, those of the two sides crossing over the prostomium. As the foliaceous structures and gills become smaller the setæ also become smaller and fewer. Crochets appear in the ventral portion of the series on neuropodia of the post-branchial region. There are 2 on XLI and 6 on XLIII. They (fig. 24) are nearly colorless, rather slender, delicately striated longitudinally, the tips gracefully hooked, with a stout beak surmounted by an accessory process, both enclosed in a delicate hood conforming to their contour.

The type is No. 1, 055, Coll. Acad. Nat. Sci. Phila.; found with *Aricia fimbriata*, taken at Albatross Station, No. 5,771, off Honshu, Japan, on June 5, 1900; 61 fathoms; bottoms of green sandy mud.

From the type of the genus, *S. cirratus* Webster and Benedict, known only from Eastport, Maine, this species differs in having numerous pairs of gills beginning on III, instead of 13 pairs only beginning on IV, in having 1 pair of large eyes instead of 2 pairs of small ones, and in the much larger size.

EXPLANATION OF PLATES XV, XVI.

PLATE XV.—*Prionospio heterobranchia*—figs. 1 to 6.

Fig. 1.—Dorsal aspect of head and somite II, showing scars of attachment for tentacular cirri and gills. $\times 40$.

Fig. 2.—Anterior aspect of parapodium II with setæ and detached gill of other side. $\times 98$.

Fig. 3.—Similar view of parapodium and gill of IV, without setæ, $\times 98$. Only a few of the transverse bloodvessels and external ridges are shown.

Fig. 4.—Anterior aspect of parapodium X. $\times 98$.

Fig. 5.—Posterior aspect of detached gill of VI. $\times 98$.

Fig. 6.—A crochet from neuropodium of L. $\times 600$.

Polydora anoculata—figs. 7 to 17.

- Fig. 7.—Dorsal aspect of head and first 6 setigerous somites, one tentacular cirrus in place. $\times 56$.
 Fig. 8.—Dorsal aspect of head and 2 setigerous somites of another specimen. $\times 56$.
 Fig. 9.—Ventral aspect of same. $\times 56$.
 Fig. 10.—Dorsal aspect of pygidium and posterior somites. $\times 56$.
 Fig. 11.—Ventral aspect of pygidium. $\times 56$.
 Fig. 12.—Parapodium XV. $\times 83$.
 Fig. 13.—Dorsal (*a*) and ventral (*b*) notopodial setæ from XV. $\times 440$.
 Fig. 14.—Strongly bent seta from dorsal tuft of VI. $\times 440$.
 Fig. 15.—Guard seta from VI. $\times 440$.
 Fig. 16.—Three spines from VI, *a* and *b* from young, *c* from adult (type) specimen. $\times 440$.
 Fig. 17.—Profile and face views of neuropodial crochet from XV. $\times 600$.

Polydora colonia—figs. 18 to 23.

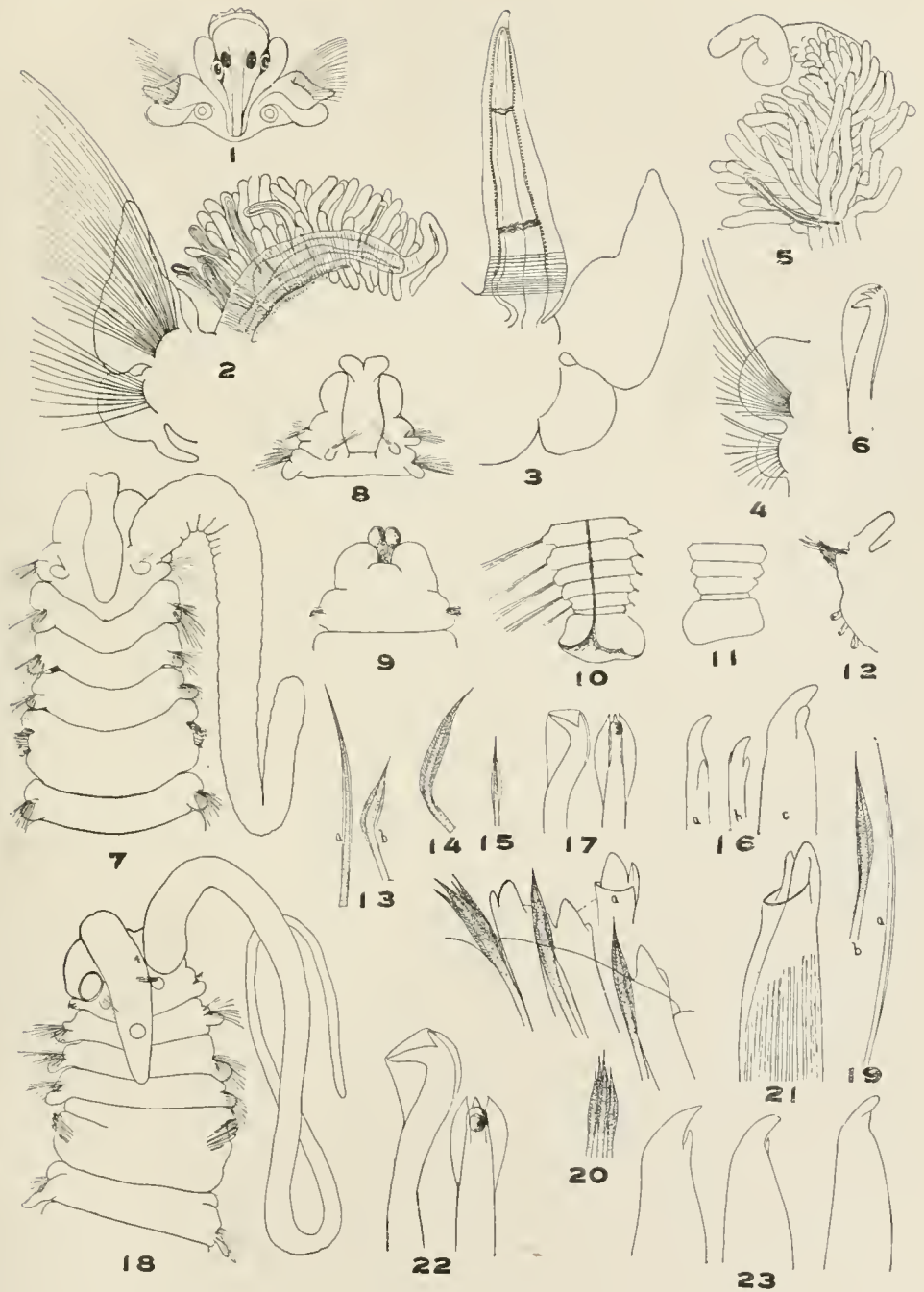
- Fig. 18.—Dorsal aspect of head and first 6 setigerous somites, one tentacular cirrus in place. $\times 56$.
 Fig. 19.—Dorsal (*a*) and ventral (*b*) notopodial setæ from XV. $\times 440$.
 Fig. 20.—Anterior and ventral view, showing all of the spines and setæ of one side of VI under slight pressure, *a* the reverse or postero-dorsal aspect of the end of one of the spines. $\times 440$.
 Fig. 21.—Profile of one of the spines from somite VI of a larger specimen. $\times 440$.
 Fig. 22.—Profile and face views of a crochet from XV. $\times 600$.
 Fig. 23.—Variations in the form of the spines on somite VI of *Polydora anoculata*. $\times 440$.

PLATE XVI.—*Magelona rosea*—figs. 24 to 30.

- Fig. 24.—Dorsal aspect of head and anterior region, showing the right tentacular cirrus in outline and the left complete. $\times 9$.
 Fig. 25.—Ventral aspect of anterior end, showing bases of tentacular cirri, partly everted proboscis and ventral plates. $\times 24$.
 Figs. 26–29.—Outlines of parapodia X from the anterior side, all except fig. 27 with setæ or crochets. $\times 56$.
 Fig. 30.—Two crochets from somite L, striations omitted from one. $\times 440$.

Spionides japonicus—figs. 31 to 34.

- Fig. 31.—Dorsal aspect of head, lacking tentacular cirri, and first two setigerous somites with setæ. $\times 24$.
 Fig. 32.—Anterior aspect of parapodium XV, with setæ, the concealed portion of the gill shown in dotted outline. $\times 24$.
 Fig. 33.—A pair of middle notopodial setæ from XV. $\times 98$; *a*, a small portion, $\times 440$.
 Fig. 34.—An entire crochet from the neuropodium of XL, $\times 250$; and distal end of the same, $\times 440$.



MOORE. NEW SPIONIFORMIA.

