

NEW SPECIES OF AMPHARETIDÆ AND TEREPELLIDÆ FROM THE
NORTH PACIFIC.

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Among the Polychæta dredged by the steamer *Albatross* while in the service of the Alaskan Salmon Commission of 1903 occur the following new species. Two previous papers based upon the same collections have been published in these *Proceedings* for 1905.

Amphicteis alaskensis sp. nov. (Plate XLIV, figs. 1-4.)

The available examples of this species vary in length from 22 to 76 mm. One selected for the type is 33 mm. long, of which the thorax is 19 mm.; its greatest width is 4.3 mm., and the cephalic cone is 2.3 mm. in both length and breadth.

Counting the region of trunk anterior to the paleoli as formed of two somites, the worm consists of thirty-four segments and the pygidium. The setigerous segments are from III to XX inclusive, and the uncinigerous VII to XXXV inclusive.

The median prostomial plate (fig. 1) is shield-shaped, about twice as long as broad, the posterior end pointed, the anterior cleft in the middle and formed of two somewhat divergent lobes. On each side of the plate is a broad, low, lateral ridge broadly rounded anteriorly and reaching not quite so far forward as the median plate. Bounding both these ridges and the plate posteriorly is a pair of transverse folds curving slightly forward laterally and caudad medially to meet in the median line at a sharp angle. These ridges are pigmented with brown above and they form the angle at which the nearly vertical anterior portion of the prostomium meets the nearly horizontal posterior region. The latter is much broader than the former and at its convex posterior margin nearly twice as wide as long. All of these parts taken together constitute the dorsal face of the prostomium. Beneath, and usually retracted within the mouth, is the folded tentacular membrane bearing a few short slender tentacles which scarcely exceed the cephalic cone in length. The somewhat quadrate prostomium is bounded by the short peristomial ring which completes the base of the cephalic cone.

The large mouth is bounded below by the prominent thickened peristomial lip, while dorsally the peristomium is much shorter and over-

lapped by the branchial ridge medially and more extensively by the paleolar tubercles laterally. This region is biannulate. The third somite is somewhat enlarged and tumid ventrally, the dorso-lateral portions project as thickened prominences bearing the paleoli, while the dorsal half is merely a low welt, strongly concave along its anterior margin and partly covered by the branchial ridge.

Somites IV and V are much shorter, together barely equaling III, and coalesce dorsally to form the ridge upon which the branchiæ are supported. The branchiæ form a group of four on each side so arranged that three are attached in a transverse anterior row on the region corresponding to somite IV and only one more posteriorly on V. Between the branchial scars of the two sides is a smooth quadrate area nearly twice as long as broad which is slightly inserted posteriorly into a transversely elongated area which reaches across the entire distance between the posterior pair of scars. A single branchia remains. This is slightly flattened, especially toward the tip, is regularly tapered to a slender end and its length about equals the greatest diameter of the thorax.

The next four or five somites increase slightly in both length and diameter, and then decrease in diameter but remain of constant length throughout the thoracic region. Each is divided into a dorsal and a ventral half-ring by the prominent setigerous tubercles. The latter have thick glandular walls and the intersegmental furrows are deep and well defined. The dorsal region is thin-walled and smooth, and the first five intersegmental furrows only are distinct.

Abdominal segments taper gradually to the pygidium and are nowhere distinctly defined by furrows. Dorsally the walls are high-arched, thin and smooth, ventrally they are thickened by a pair of prominent longitudinal muscle ridges with a neural groove between. Laterally between the parapodia of successive segments is a series of rugous areas, while across the ventral surface between each pair of parapodia a narrow glandular line frequently extends.

The pygidium is provided with a pair of thick lips bounding the vertical, slit-like anus and each bearing on the side an inconspicuous cirrus much shorter than the diameter of the pygidium.

Of the setigerous tubercles the pair bearing the paleoli are prominent and much larger than any others and they encroach much upon the lateral portions of the peristomium. The paleoli are about twenty (18-21) in number in each group and are inserted with their long diameters radial around an arc of nearly two-thirds of a circle. From this base they spread forwards and laterad in a broad, scoop-like figure.

The tubercles of IV and V are crowded closely together beneath the lateral margins of the branchial scars, that of the latter being slightly medial and caudal of the other. Both, and especially the latter, are minute. Succeeding tubercles up to the sixth increase in size, after which they remain of constant size and of a slightly flattened cylindrical form. Distinct, more or less club-shaped cirri are borne on the ventral side of the distal portion of all the tubercles, but they are larger and more abruptly clavate on the first four. The first and second tufts contain only six or eight setæ, the others twelve to fifteen, always arranged in two rows.

The uncinigerous tori are distinct, somewhat ear-shaped lappets arising from the posterior border of the segments below and separated by a short space from the setigerous tubercles. The anterior ones are the longest and their ends project most freely. Their size decreases regularly to the last thoracic. The uncini form a single irregularly curved line containing 160 to 170, which are largest dorsally and decrease regularly to the ventral end.

Abdominal somites are provided with shorter tori (fig. 2) which project more prominently than those of the thoracic segments. They bear about 75 uncini in a single series. No trace of ventral cirri can be detected, but the achæitous notopodia are provided with prominent, curved, paddle-shaped cirri.

The paleoli form rather close spreading tufts, with the largest ones near the anterior margin but not reaching to the tip of the prostomium. They (fig. 3) are much flattened and moderately stout at the base and taper rather abruptly to acute tips. They are bright yellow and polished. The setæ are pale yellow, strongly striated, slightly curved, with narrow double wings and very acute tips. On the first three somites they are rather more slender than on the others.

The uncini (figs. 4*a* to *c*) are more or less triangular, with the upper rounded portion much elevated, the posterior ligament process very prominent, and the anterior one small and covered by the lowermost hook. The base is relatively short. The relative breadth to length varies. Usually there are six large, acute, closely appressed teeth or fangs, the clefts between which do not incise the base very deeply (less than one-half of the entire width of the uncinus). Frequently the upper tooth is much reduced in size.

The type of this species was taken with one other specimen at station 4,274, in Kadiak Bay, at a depth of 41 fathoms on a bottom of green mud with some fine sand. Another and larger one comes from Boca de Quadra, Southeast Alaska, in 48 fathoms and soft green mud.

Amphitecis alaskensis is easily distinguished from the species recorded in my paper of Japanese Polychæta, under the name of *A. japonica* McIntosh, by the character of the paleoli, which in the latter species are only ten or twelve, and when perfect have slender curved tips reaching far beyond the end of the prostomium.

Amphitecis glabra sp. nov. (Plate XLIV, figs. 5 to 8.)

The two known examples of this species are of moderate size, the type having a length of 23 mm., of which 15 mm. belong to the thorax, which is 3 mm. wide.

The form is rather slender, slightly clavate, and gently tapered. There are 20 thoracic segments, 17 of which are setigerous, and 15 abdominal segments, or possibly more as the extreme posterior end is macerated.

The entire prostomial region is relatively much broader than in *A. alaskensis* and its median plate (fig. 5) much wider than long, irregularly pentagonal, with the long anterior border cleft into a pair of short divergent lobes, from between which a broad median groove extends about halfway across the dorsal surface. On each side of this plate is a small triangular area, which is again bounded laterally by a narrow fold ending freely in front. The pigmented transverse ridges occur as in *A. alaskensis*, but are longer correspondingly to the width of the prostomium, which they cross nearly transversely; beginning at the posterior end of the lateral fold mentioned above they arch forward and meet at a wide angle in the median line immediately behind the apex of the cephalic plate. The entire dorsal surface of the prostomium lies in nearly the same plane, and its anterior portion is not bent downward at an angle with the rest as in *A. alaskensis*. The tentacular membrane is rather low and has a nearly regular elliptical outline, and the few tentacles remaining are scarcely longer than the entire prostomium.

The upper lip is slightly cleft medially and the peristomium in the region of the lower lip is enlarged and more or less tumid. Ventrally somite II is about one-third as long as the prostomium, and dorsally it exhibits a transversely elongated median area slightly elevated above and separated from the surrounding parts by a slight groove. Somite III is nearly as long as I ventrally; dorso-laterally it is prominently enlarged to bear the paleoli, and dorsally becomes very much reduced in length to form a narrow border that passes along the anterior margin of the branchiferous area and joins the median interbranchial area of IV. Succeeding somites are well differentiated and of nearly equal length throughout the thoracic region. The dorsal portion includes

more than a semicircumference and is very smooth and iridescent. The ventral is much flatter, has deep bounding furrows and a transverse glandular line near the anterior margin. The ventral region slightly exceeds the dorsal in width and embraces it laterally so as to form a shelf or flange supporting the setigerous tubercles. The thoracic region tapers regularly into the abdominal, which differs from it little except in the form of the parapodia and the more prominent lateral muscles and deeper neural groove. The pygidium is much injured on both specimens.

Branchia have existed in the usual four pairs, but a single one only remains in place. It is nearly terete but somewhat compressed and tapers regularly from the base to the slender subulate tip. Its length is about equal to the width of the thorax or when appressed it reaches somite IX. The sears (fig. 5) show the branchiæ to have been more crowded than in *A. alaskensis* and to arise in a distinctly quadrate group, two pairs on each side. Apparently the two anterior belong to somite IV and the two posterior to V, and the two medial are somewhat larger than the two lateral. A shield-shaped area about twice as long as wide is present between the median branchiæ, reaching from the anterior margin of IV to the middle of V where it meets a transversely extended area limited laterally by the outer pair of branchiæ.

The paleoli arise from the dorso-lateral tubercles of III and form an open, spreading tuft, little concave and arising from a small arc. They number but eight or ten and all are slender and curved, with awn-like tips (fig. 7), and the longest reach beyond the tip of the snout.

The setæ tufts on the branchiferous segments are borne on small papillæ placed close together just laterad of the branchiæ. The setæ are few in number and much smaller than those on succeeding segments. Remaining setigerous tubercles are cylindrical and quite prominent with small truncate cirri, and bear compact tufts of about twelve setæ which are longer, more slender, and more curved than in *A. alaskensis*.

Uncinigerous tori are short inconspicuous lines near the posterior margins of the segments just below the setigerous tubercles. Posteriorly they become more prominent and on the abdominal segments project freely, but are usually so macerated in these specimens that the exact form is doubtful. The one represented in figure 6 shows the thickened dorsal cirrus.

The uncini (fig. 8) are narrow with very long base lines and five very slender acute teeth very deeply divided at the base. The anterior ligament process is rather conspicuous and lies beneath the lowermost tooth, while the posterior ligament process is only moderately devel-

oped. The number of teeth is very constant and the dorsalmost are not so greatly larger than the ventral as in *A. alaskensis*. On somite X there are 115. Abdominal uncini are precisely similar, but owing to maceration the number on a torus is uncertain.

This species was taken at station 4,227 only, in Behm Canal, the depth being 62 fathoms and the bottom of dark green mud with fine sand.

A small portion of tube present is rather elastic and springy and is coated externally with a layer of brownish flocculent sediment.

Melinna cristata sp. nov. (Plate XLIV, figs. 9 and 10.)

The single example representing this species closely resembles *M. cristata* (Sars) Malmg., from which it differs especially in the more finely denticulated post-branchial membrane as well as in the much larger size and greater number of segments.

Although the posterior extremity is missing and the last one-third of the body is strongly spirally coiled, the specimen measures approximately 73 mm. long, exclusive of the branchiæ. At its widest part the thorax measures 3 mm., while the abdomen has a maximum width of 2 mm. The 17 setigerous thoracic segments have a length of 12 mm. and the fifty-five remaining abdominal segments 61 mm.

The prostomium or cephalic plate is a broad, short plate with a slightly convex crenulated anterior margin projecting freely over the bases of the fourteen to sixteen tentacles. The latter have a uniform diameter from base to end. The anterior and median ones are the largest with a length of about one and one-half times the thoracic width and about twice that of the posterior tentacles, which are scarcely as long as the body width and about half the diameter of the anterior ones. On the dorsal surface of the prostomium are the sensory folds, which are directly transverse. Beginning close to the lateral margins of the head they meet at the middle line and bend slightly forward side by side. Their dorsal surface is pigmented with a rich orange brown. Just in front of them on each side is a small, slightly elevated pad. The much folded upper lip is large and projects far beyond the mouth, just anterior to which is a distinct glandular area.

The lower lip is formed by the prominently projecting smooth margin of the prostomium, which is indistinguishably united to the first setigerous segment. Dorso-laterally it forms a prominent wing anterior to the first tuft of setæ, whence it is continued caudally into a flange-like ridge on each side of the thorax. Somites III and IV are well defined and together equal in length the single ring formed by the union of the prostomium and first setigerous somite. The remaining thoracic segments are

equal and well distinguished on the ventral side, but thin-walled and coalesced dorsally. The ventral body walls between the tori are well provided with glands forming indistinct ventral plates on each segment. On the first four thoracic segments the flange-like ridges above the setæ are very distinct and, together with the pectinated membrane on somite V, bound a quadrate area in which the branchiæ arise. Anterior to the gills this region is marked by several slight transverse furrows. The postbranchial membrane is thin and deep and closely appressed to the dorsum of the thorax. It springs from the anterior border of V, and reaches nearly to the anterior border of IV, the free border being provided with eighteen blunt but prominent teeth.

The four pairs of branchiæ are permanently bent forward over the prostomium, and each has a length slightly exceeding twice the width of the thorax. They are all rather thick and coarse and taper from above the base to the bluntly pointed tip. For the basal one-fourth or one-fifth they are constricted and those on each side coalesced and so arranged that three lie externally, apparently arising from II, III and IV, and one internally on somite III. Between the latter, and uniting them across the middle line, is a thin membrane.

Somites II, III and IV bear short oblique lines of small setæ on the highest part of the lateral ridge, on the medial side of which and just posterior and lateral to the branchiæ, there is on each side of III a single very large claw-like spine. On V and all succeeding thoracic somites the setæ are in small tufts borne on truncate papillæ having the usual position. Each tuft contains about eleven or twelve setæ in two rows. Thoracic tori are constricted at the base, broad, truncate and beveled at the end. The uncini are borne on the thickest portion of the bevel, so that the free, thin margin projects a considerable distance beyond them. On somite X there are 63 uncini. Abdominal tori are narrow but much longer and of uniform width throughout, and the uncini are borne on the extreme unbeveled end. Somite XXV bears 36 uncini. The notopodial eirri are small and not conspicuously enlarged distally.

The setæ are all arranged in two equal rows. Those in one are larger, stouter and more broadly winged. Otherwise they are similar in both rows, and all have the stems slightly curved and strongly striated with the ends very acute and tapering. The isolated postbranchial spine is large and stout and has exactly the form figured by McIntosh for *M. cristata*.

The uncini (figs. 9 and 10) also resemble those of that species. Usually they have three teeth above the ligament process, but occasionally

there is a fourth small or even well-developed one at the apex. Abdominal uncini differ from the thoracic only in their small size.

The tube measures 5 mm. in diameter with a lumen of half that size. The lining is a tough mucous membrane and the exterior a thick brittle coat of dark gray mud.

The type and only specimen was taken at station 4,258, in Lynn Canal, on a muddy bottom at a depth of 300 fathoms.

Artacama coniferi sp. nov. (Plate XLIV, figs. 11 to 13.)

This species is established upon two specimens measuring 22 and 45 mm. long respectively and neither of which is complete. The small one consists of 20 thoracic and 17 abdominal segments, is 3.5 mm. wide in the anterior part of the thorax and 2.2 mm. wide in the abdomen and posterior half of the thorax, and has the proboscis protruded for 3 mm. The larger example has 20 thoracic and 35 abdominal segments, with the caudal end still lacking. The proboscis is 6 mm. long, the thorax 17 mm. long, and its anterior half 6 mm. wide, while its posterior half tapers into the abdomen, which has a diameter of 2.5 mm.

The form is club-shaped with the first ten or eleven thoracic segments much enlarged, the middle of the thorax more or less abruptly contracted and the posterior portion tapered to the abdomen which continues to diminish to the posterior end.

The proboscis, which protrudes ventral to the mouth, is a large sugar-loaf-shaped organ as long as the first nine or ten segments, and has a basal diameter nearly equaling these. At the apex is a slender conical process about three times as long as thick, with its end rounded. Into it the retractor muscle is inserted, and it stands out prominently when the proboscis is extended. At the base the proboscis is somewhat rugous like the peristomium, with which it is continuous. Except for the rugosities the basal one-third is smooth, but the remainder bears small, low, rounded papillae arranged in irregular rows, at first distant, but converging distally to the apical process, where they are more crowded, being separated by at most their own diameter.

The prostomium is folded into a double horseshoe-shaped oral fold with a broad, thin, median plate or membrane above the mouth, and behind this a pair of thick reflexed pads which become wider dorsally and nearly meet in the median line, and which bear the very numerous and much crowded tentacles. From the ventral end of the group, where they are mere papillae, the latter increase until they almost equal the branchial filaments. Usually they are very slender with the ends enlarged.

The peristomium is longer dorsally than ventrally and is marked with longitudinal creases which are continued on to the base of the proboscis. Somite II is as long as the prostomium and equals the combined length of III and IV. Succeeding segments are again slightly longer and are distinctly annulated. In the posterior thoracic region the segments are divided by the setigerous tubercles into dorsal and ventral halves, the latter being again divided into a posterior larger and two anterior smaller annuli. Abdominal segments are annulated both dorsally and ventrally.

Three pairs of branchiæ occur on somites II, III and IV. Each is composed of numerous slender filaments having a length about one-third of the diameter of the body and sessile in a close tuft. The first contains about thirty, the second twenty-five and the third fifteen, but the number in each is probably greater in perfect specimens.

Ten ventral plates occur on the somites IV to XIII; the anterior ones are obscure, the posterior distinct. All are very short, about one-fourth to one-sixth as long as wide.

Setigerous tubercles number seventeen, and occur on somites IV to XX inclusive; though connected with the side of the body by an integumental fold they are very mobile, and the flattened, oblique tufts of setæ project prominently in various directions from near the dorsal end of the uncingerous tori. Posterior tufts are broader and more mobile.

Anterior uncingerous tori are long and narrow, extending over about one-sixth of the circumference of the body and separated ventrally by twice their length. Without becoming shorter they gradually approach ventrally until the intervening space is less than one-third their length. On the abdominal segments the tori are much more prominent and have a free ventral angle and a thin membranous wing arising from the dorsal border. This wing is gradually reduced posteriorly coincidentally with a decrease in the size of the parapodium, but remains fairly prominent to the last.

What appears to be a slit-like sense organ is present on somite III below the gill. Small papillæ occur ventral to the setæ tufts of VI, VII, VIII and IX.

The setæ are all slender, nearly colorless, longitudinally striated, slightly curved and winged, and taper to very acute tips. In each tuft they are arranged in two rows of twelve to fifteen each, those in one row having longer and narrower wings (fig. 12), the others having them shorter and broader (fig. 11).

The uncini are arranged in a single series on the tori of somites V to X, are partly doubled on XI and completely in two series on XII to

XX. They are small and their number rather large, about 140-150 on V, 116 to 120 on X, about 110 in each series on XX and about 50 to 60 on the middle abdominal tori. They have the general form described for other species of the genus (fig. 13). The base is small and oblique, strongly convex below and with a prominent anterior angle, above which is a deep narrow sinus from which a slender process bearing the delicate, scarcely visible guard arises. There is no distinct neck, but a large head with a slender, acute, strongly decurved and slightly reflected beak, above which is the high, full crest with four cross rows of teeth.

No color remains.

The type comes from station 4,194, in the Gulf of Georgia, the depth being 111 fathoms and the bottom of soft green mud. The station from which the second specimen was taken is unknown.

Læna nuda sp. nov. (Plate XLIV, figs. 14, 15.)

This is another imperfectly known species, the only specimen available being a fragment of the anterior end measuring 21 mm. long and 1.5 mm. across the thorax, and comprising 28 anterior segments.

Projecting prominently from the anterior end is a broad, unfolded, scoop-like prostomial membrane curving gently and regularly upward from beside and above the mouth. Apparently the tentacles formed a complete series around the margin of the posterior limb of the prostomial membrane, but in this specimen most of them are gone and the three or four remaining are short and thick, and scarcely reach beyond the free border of the anterior prostomial membrane. Behind the tentacles the posterior prostomial fold is low and thick and at the dorsum nearly obsolete. On its posterior face are traces of a few eyes.

The mouth is a large, wide, transverse slit slightly bent down at the margins, and is bounded below by a low thick lip, and a prominent, broad, truncate process with slightly fimbriated margin springing from the middle of the peristomium.

Anterior somites are irregularly developed, the second being much larger than the adjacent ones. The second to eleventh somites inclusive have ventral plates, the glandular areas extending upward to include the setæ tufts. The third to the seventh have dorsal glandular areas also, which are separated on each side from the setigerous tubercles by a narrow non-glandular space. On the eighth also is a trace of a glandular region with a median break.

Not the slightest trace of gills exists. At the dorsal margin of III,

in line with the setæ bundles of the following somites, is a prominent, stiff, erect cirrus on each side.

Behind the glandular region the segments become much longer, equaling or exceeding their diameter. These walls are very smooth and thin, highly arched above and nearly flat below, with thick longitudinal muscle bands along the ventro-lateral angles.

There are eleven setigerous somites, IV to XIV inclusive, but on the left side the bundle of IV is missing. Owing to the flatness of the dorsum of the region back to X the setæ tufts rise up nearly erect from the dorso-lateral margins. Though few, the setæ are long and, except on XII to XIV, conspicuous. Uncinigerous tori begin on V and are short and inconspicuous anteriorly, but about XV begin to increase in prominence, and on the posterior segments, while remaining short, project freely from the ventro-lateral longitudinal muscle bands. On the tori of somites V to X the uncini are arranged in one series, on XI to XIV in two apposed series. Each series on the thoracic somites contains about 55 uncini, while on posterior somites (XXX) only 40 occur.

The setæ (fig. 14) are slightly curved, delicate, with narrow wings, almost obsolete on one side and on the other frayed out and then abruptly ceasing, leaving a very acute almost whiplash-like tip. The uncini (fig. 15) have the base broadly rounded in front and provided with a prominent triangular process behind. The sinus is narrow, and from its bottom rises a slender process bearing a very indistinct guard. The beak is rather slender and strongly curved, and above it is a very high crest composed usually of five or sometimes of six transverse rows, of about six or seven each, of long curved spines. The abdominal uncini have six or seven transverse rows.

The single specimen is a female filled with large eggs, and is preserved with a fragment of a soft mucous tube with a slight coating of foreign material.

It was taken at station 4,279, at Kadiak Island, at a depth of 29 fathoms and on a bottom of dark gray mud.

Thelepus hamatus sp. nov. (Plate XLIV, figs. 16 to 18.)

An apparently small species known only from the type, an incomplete specimen consisting of 31 anterior segments, and measuring 21 mm. long and 2.5 mm. in diameter at III, thence gradually diminishing caudally.

The tentacles number very few, less than 15 on each side, but are so fragile that they could not be safely untangled and the exact number ascertained. In the specimen the longest are 13 mm. long, coarse, thick

and deeply folded longitudinally. The prostomial membrane forms a prominent horseshoe-shaped fold or upper lip above the mouth, while its tentacular fold is narrower and bears the tentacles in a nearly continuous band around its entire margin. On its posterior face are right and left groups of numerous, rather large, conspicuous, nearly black eyes arranged for the most part in one row and separated by a narrow dorsal space.

The large mouth is covered by the upper lip, the inner surface of which bears a prominent grooved longitudinal ridge on each side of the middle line, and is bounded below by a thick slightly bilobed pad within the membranous anterior margin of the peristomium.

As far as about XX the anterior somites are short, the length not exceeding one-fourth or one-fifth of the width; those following are about two-thirds as long as wide, none is distinctly annulated, but all are rough and furrowed both above and below. The first four segments are glandular all round; the others have the thick glandular layer confined to the ventral half, but covering their entire length and extending to and including the setæ tufts. At about XVIII the glands disappear from the anterior one-third of the ventral surface also. The dorsum is thin-walled but rugous and constitutes less than one-third of the circumference.

Two pairs of branchiæ are developed and are situated dorso-laterally on II and III. The first consists of six and the second of three detached and independent filaments about as long as the diameter of the body; the area of attachment of the former extending over the entire length of the second segment, while that of the latter is limited to the anterior margin of the same dorso-lateral level of the third segment.

Setæ tufts begin on III and continue on all succeeding segments throughout the length of the specimen. All are small but prominent, little flattened and oblique, and are retractile within pits in the glandular layer of the skin. Throughout they are situated at a high level. Uncinigerous tori begin at V. They are all short, never exceeding one-sixth of the ventral interspace, and are separated from the corresponding setæ tufts by nearly their length. Posteriorly they grow smaller but more prominent. Like the setigerous tubercles they are situated in thin-walled, sunken spots within the glandular area.

The first seta tuft includes about twelve rather short, acute, slightly curved setæ with very narrow wings. In others the setæ (fig. 16) are more numerous, longer and more strongly curved. Still farther back in the posterior region they again become fewer. The uncini are arranged in a single series on all somites and number from 40 to 60.

They bear a close resemblance to Marenzeller's figures of the uncini of *T. cincinnatus* (Fabricius), but the height is greater in proportion to the length and the body and beak are more nearly equal in length. Those on the anterior segments usually have two teeth on the vertex of the crest above the beak (fig. 17*b*), but frequently there are three (fig. 17*c*) or even a fourth small one. The exact arrangement of the teeth in the crest varies, two of the varieties being shown in fig. 17*a*. Posteriorly the uncini (fig. 18) are smaller and the number of teeth in a transverse row of the crest usually more numerous.

No color remains in the specimen and no ova or sperm to indicate the sex. The fragment of tube present is membranous with scattered fragments of stone and siliceous sponge spicules.

The single specimen comes from station 4,235, at Yes Bay, in Behm Canal, at a depth of 181 fathoms and on a bottom of green mud.

Amphitrite palmata sp. nov. (Plate XLIV, figs. 19 to 22.)

Several specimens of this species occur in the collection. They resemble *A. affinus* very closely in most respects, but differ decidedly from that species in the form of the branchiae, which have no elevated and branched base and no indication of dichotomy among the branches.

Complete specimens measure from 40 mm. to 88 mm. long, the last being 5 mm. wide across the thorax. The segments number from 62 to 64, those from V to XX being setigerous.

The general form is almost exactly as figured for *A. affinus* by Malmgren. Somites II, III and IV present similar slight lateral wings in successively ascending positions. The tentacles are moderately numerous and have a length of about five times the diameter of the thorax. No eyes can be detected on any of the specimens. The lower lip is square and rather prominent. Swollen glandular areas occur intersegmentally at the level of the gills on somites V to XIII; and ventral plates extend from III to XIII inclusive, the first three being very short. All of the segments are rugous and biannulate and taper gradually to the pygidium. The anus is a vertical slit surrounded by papillae.

Most characteristic are the gills (fig. 22) which occur in three pairs on somites II, III and IV. Their bases are exceedingly short, so that the filaments are nearly sessile. They are expanded and flattened and the filaments spread regularly in a palmate fashion. The filaments are slender and when contracted are thrown into tight spiral coils. Full-grown specimens have 13 to 18 on the first, 10 to 12 on the second and 7 to 9 on the third gill.

Small papilke or cirri are found just beneath the setigerous tubercles of somites VI, VII and VIII.

Setæ (fig. 19) have very short wings and a prominent fringed terminal pennant with a distinct knee at the place of its origin from the body of the seta. Abdominal uncini (fig. 21) resemble those of *A. affinus* quite closely, but those of thoracic tori (fig. 20) differ decidedly in the shape and proportions of the base and the number and arrangement of the teeth on the crest.

Some of the specimens are colored a nearly uniform reddish-brown, absent, however, from the gills and tentacles; and two are accompanied by portions of rather fragile tubes of fine mud.

This species was taken at the following stations: 4,227, Naha Bay, Behm Canal, 62-65 fathoms and on a bottom of dark green mud and fine sand; type locality 4,245, Kasaan Bay, Prince of Wales Island, 95-98 fathoms, dark green mud with fragments of shell, rock and sand; 4,253, Stephens Passage, 131 fathoms, rock and broken shells.

EXPLANATION OF PLATE XLVI.

Amphicteis alaskensis—figs. 1 to 4.

- Fig. 1.—Anterior end of type seen from the dorsum. $\times 7$.
 Fig. 2.—Parapodium of XXV. $\times 32$.
 Fig. 3.—Middle-sized paleolus; *a*, tip of another. $\times 32$.
 Fig. 4.—Three uncini from X; *a*, dorsal, *b*, middle (somewhat foreshortened), and *c*, ventral. $\times 585$.

Amphicteis glabra—figs. 5 to 8.

- Fig. 5.—Dorsal view of anterior end of eotype. $\times 12$.
 Fig. 6.—Parapodium of XXV. $\times 32$.
 Fig. 7.—Middle-sized paleolus. $\times 45$.
 Fig. 8.—Uncinus from X. $\times 585$.

Melinna denticulata—figs. 9 and 10.

- Fig. 9.—Uncinus with 3 teeth above the ligament process from X. $\times 585$.
 Fig. 10.—Uncinus with 4 teeth from the same torus; the anterior end of the base is broken. $\times 585$.

Artacama conifera—figs. 11 to 13.

- Fig. 11.—A broad-bladed seta from X. $\times 585$.
 Fig. 12.—A narrow-bladed seta from X. $\times 585$.
 Fig. 13.—An uncinus from X. $\times 800$.

Læna nuda—figs. 14 and 15.

- Fig. 14.—Seta from X. $\times 585$.
 Fig. 15.—Uncinus from X. $\times 800$.

Thelepus hamatus—figs. 16 to 18.

Fig. 16.—Seta from X. $\times 585$.

Fig. 17.—Two forms of uncini from X; *a*, front views of two similar ones showing different arrangements of the teeth. $\times 585$.

Fig. 18.—Uncinus from XXX; *a*, front view of another. $\times 585$.

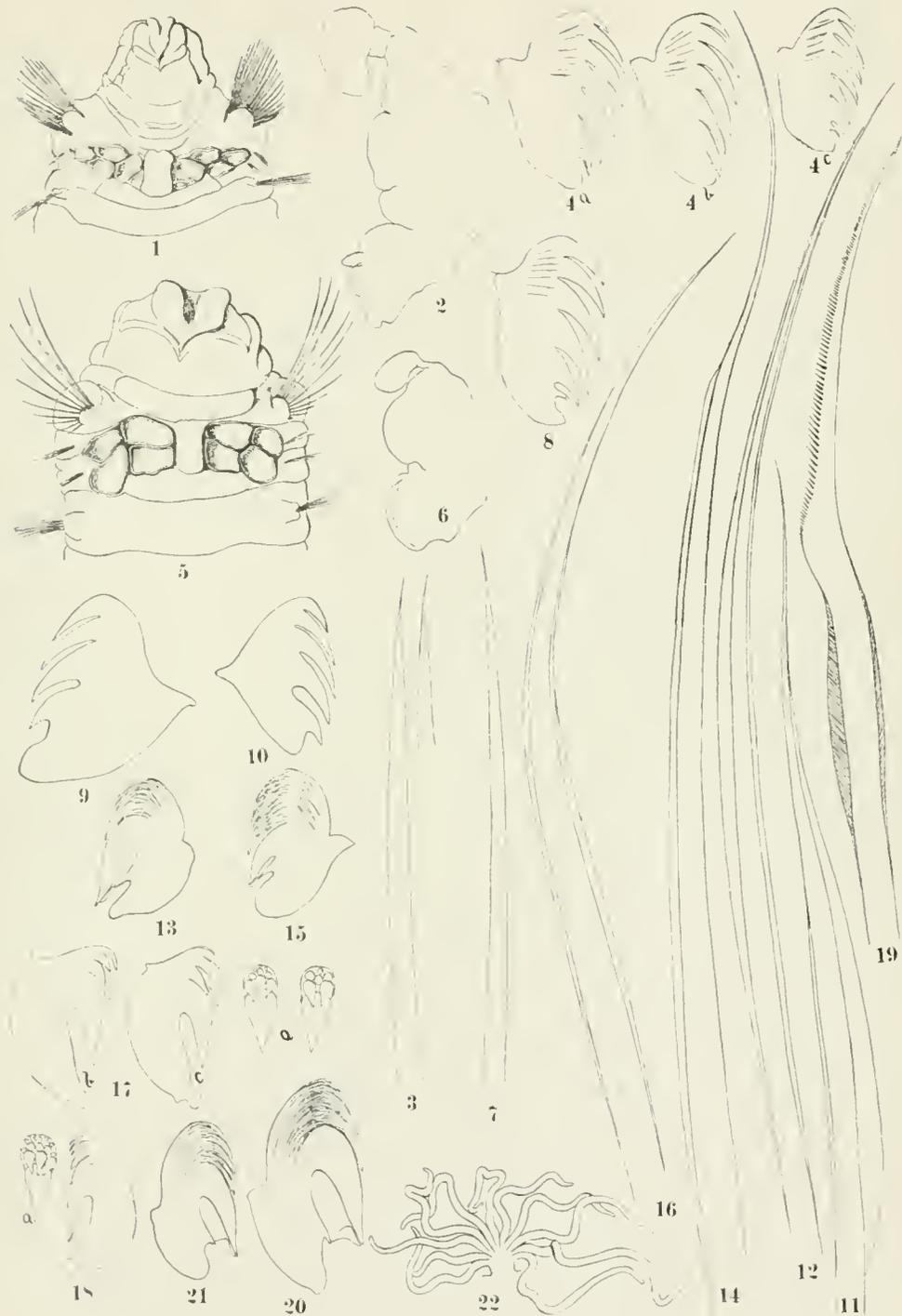
Amphitrite palmata—figs. 19 to 22.

Fig. 19.—Seta from VII. $\times 335$.

Fig. 20.—Uncinus from XX. $\times 480$.

Fig. 21.—Uncinus from L. $\times 480$.

Fig. 22.—One of the second pair of gills. $\times 8$.



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