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LITUARIA PHALLOIDES (Pallas).

A single specimen of this, labelled "Dutch Bay, Ceylon," was sent along with the *Cavernularia* just described. It presented no features of special interest, and differed from other specimens which have already passed through my hands (Marshall and Fowler, "Pennatulida of the Mergui Archipelago," Journ. Linn. Soc., Zool. xxi.) only in the point that the siphonozooids practically filled all the space between the autozooids, instead of forming rings round them. A plane of bilateral symmetry, mentioned in the paper quoted, was also indicated here. The specimen, as so often happens with Pennatulids, had been apparently truncated above and scarred over; a new autozooid and several siphonozooids had been formed on the scar.

EXPLANATION OF PLATE XXII.

Fig. 1. *Cavernularia malabarica*, sp. n.; view of the colony.
Fig. 2. Surface of the cœnosarc, showing the siphonozooids filling up the space between the bases of three autozooids.
Fig. 3. Spicules of the rhachis.
Fig. 4. Spicules of the stalk.

3. On Two new Genera, comprising Three new Species, of Earthworms from Western Tropical Africa. By FRANK E. BEDDARD, M.A., F.R.S., Prosector to the Society.

[Received April 2, 1894.]

The specimens of worms now described I owe to the kindness of Mr. Alvan Millson, Assistant Colonial Secretary at Lagos, to whom I have frequently had to express my indebtedness for material. Within the last few weeks I have received from him a number of tubes containing a large number of specimens of Earthworms, which proved to be referable to four species. Of these I only describe three in the present communication; the fourth was not new, but was found to be a particularly fine specimen of my species *Siphonogaster millsoni*; this specimen I have sent to the Oxford Museum. The remaining species belong to the family Cryptodrilidæ, which is not well represented on the African continent, so far as our present knowledge enables a judgment to be formed. The most characteristic family of Earthworms of the Ethiopian region are unquestionably the Eudrilidæ, which are indeed limited to that continent, with the sole exception of the almost ubiquitous genus *Eudrilus*. So abundant are the members of this family that it is really a remarkable fact to receive a collection of Earthworms from that part of the world which does not include representatives of that family. Such, however, is the case with the collection upon which I report here. It may be noted, however, that the Cryptodrilidæ are rather more abundant in

Western than in Eastern Africa. I have already described several species of a genus nearly confined to Western Africa, viz. *Gordiodrilus*; and at Lagos a species of *Pygmæodrilus* also exists. The same two genera also occur on the West Coast, but the former is there not nearly so common. The present paper increases the number of West-African Cryptodrilids by three; and I refer these worms to two new genera. *Nannodrilus africanus* seems, from the large number of specimens sent to me, to be an exceedingly common species.

It is a curious fact that both of the two genera show certain resemblances to the Eudrilidæ: there is, in my opinion, little doubt but that the Eudrilidæ are derivatives of the Cryptodrilidæ; but I cannot agree with those who would unite two such extremely diverse types in one family. I shall now direct attention to the anatomical characters of the new species, beginning with a definition of the first genus, which I propose to call after Mr. Alvan Millson.

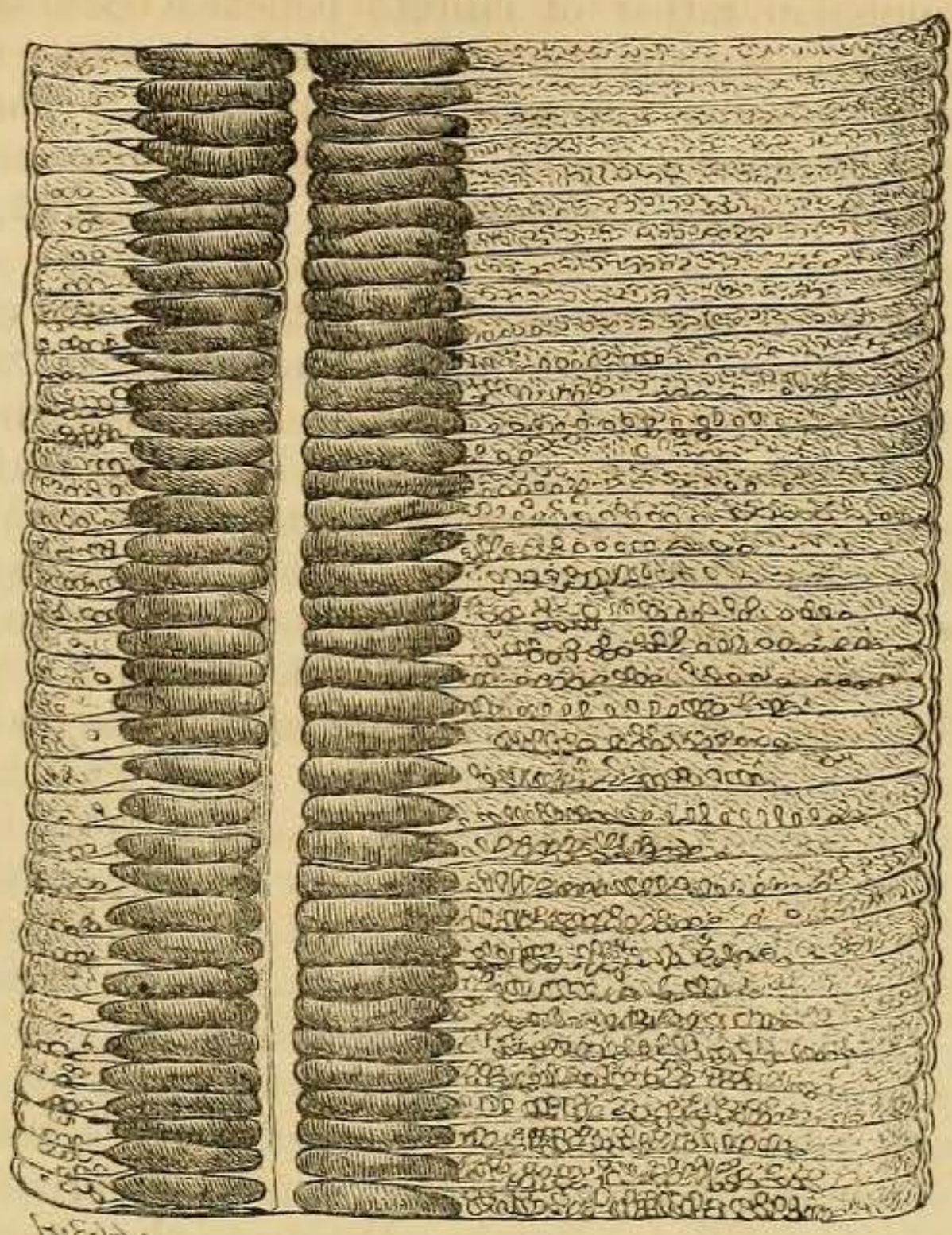
Millsonia, gen. nov.

DEF. *Large worms with strictly paired setæ. Male pores (single or paired) upon xvii. Two gizzards in v., vi.; calciferous glands, three pairs in xv.–xvii.; intestine with about 30 pairs of cæca, a pair to each segment. Nephridia diffuse. One pair of spermathecæ without diverticula; spermiducal glands tubular; no penial setæ.—Hab. West Africa.*

This definition will differentiate the present genus from any other Cryptodrilid at present known. The two most salient characters of the genus which are peculiar to itself concern the nephridia and the intestinal cæca. These alone would serve to distinguish the genus; it is principally on account of them that I unite the two species, which I shall describe, into a single genus. These two species, as will be seen in the course of the following pages, differ from each other in a good many points of, as I believe, subsidiary importance. The two matters referred to are not exactly novelties of structure in the group, but they are exaggerations, so to speak, of characters already found in allied forms. The cæca are precisely like those of the genus *Perichæta* only that there are so many of them. In *Perichæta sieboldi* and in one or two other species there are, it is true, six or seven pairs of these appendages of the intestine; but then they are all contained in one segment; whereas in the genus *Millsonia* they are contained in as many segments as there are pairs of cæca. The existence of these cæca is interesting as tending to knit still closer together the, in other ways not very remote, Cryptodrilidæ and Perichætidæ.

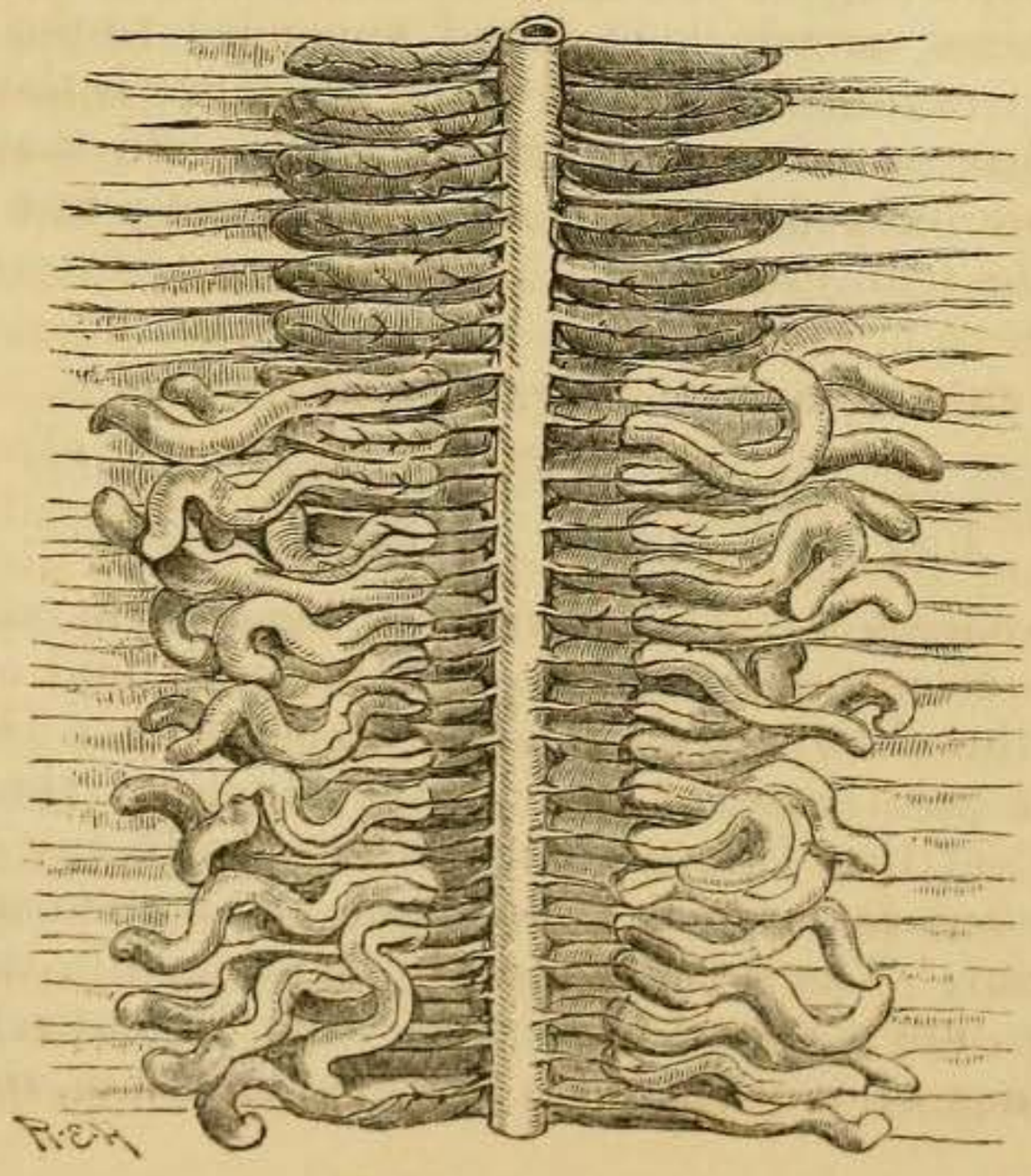
The second peculiarity of this genus concerns the nephridia. The structure of these organs will be described more at length immediately; but in the meantime attention may be directed to the fact that they present the curious appearance illustrated in the accompanying drawing (fig. 1, p. 381). The excretory tubes of the posterior segments of the body have ceased altogether to look

Fig. 1.



Millsonia nigra.
Part of the posterior region of the body cut open to display the excretory system.

Fig. 2.



Millsonia rubens.
Intestinal cæca.

like excretory tubes in the usual "plectonephric" genera; they give the impression rather of minute pouches opening on to the exterior. A closer survey, however, of their structure shows that there is really nothing anomalous about them. The vesicular layer of cells commonly found attached to the exterior of the tubules is here so largely developed that the appearance referred to is produced.

Most of the other characters of the genus are such as are to be met with in other Cryptodrilids. The affinities which they indicate are, however, not very plain. The presence of two gizzards—to commence with perhaps the least important of these characters—is found in the genera *Digaster* (with which I unite *Didymogaster* and *Perrisogaster* of Fletcher), *Dichogaster*, and *Microdrilus*. All of the genera mentioned also agree with *Millsonia* in the diffuse nephridial system. The last two Cryptodrilids, as well as *Typhæus*, agree with *Millsonia* in that the male pores are upon the xviith instead of the more usual xviiith segment. Finally the calciferous glands are, as in *Microdrilus*, in segments xv.–xvii. The absence of the penial setæ distinguishes *Millsonia* from all the Cryptodrilids mentioned except *Dichogaster*. *Millsonia* shows, as I have already intimated, some likeness to the Eudrilids. This likeness, however, is shown only by the species *Millsonia nigra*. The resemblance consists first of all in the unpaired male pore; the unpaired genital orifices are not absolutely unknown in the Cryptodrilidæ, since they are met with in the genus *Fletcherodrilus*. But in addition to their being unpaired in the worm now under discussion, there are a pair of terminal muscular sacs which are like the bursa copulatrix of many Eudrilids. The genus *Nannodrilus* which I describe in the present paper is the only other Cryptodrilid in which there is a similar bursa or rather a pair of them. But I am disposed to consider that the terminal sac which is found appended to the end of the duct of the spermiducal glands in many *Perichætæ* is the homologue of the structure so universal in the Eudrilids. So that the existence of well-developed bursæ in *Millsonia* is not a fact of absolute novelty for the family.

Millsonia rubens, n. sp. (Fig. 2, p. 381.)

DEF. *Length* 320 *mm.*; *diameter* 12 *mm.* *Number of segments* 363. *Male pores paired.* *No bursa copulatrix.*

External characters.—This worm was remarkable on account of its peculiar coloration. In alcohol the front end of the body, in front of the clitellum, is of a pale violet-grey. The clitellum itself is of a pale brown. Behind the clitellum the colour is a brick-red, a tint that I have never before seen in any Earthworm. The prostomium is large and does not at all encroach upon the buccal segment. The setæ, as already mentioned in the definition of the genus, are very strictly paired; they lie entirely upon the ventral surface of the body. A distance of 2 mm. separates the

two couples of each side, while the ventral couple of one side is separated from its fellow of the other side by a distance of 2·5 mm. I could not find any trace of setæ at all upon the first five segments of the body. If this absence of setæ upon the head end be confirmed it is of interest, as this cephalization is rare among the Cryptodrilidæ, though a common character in the family Geoscolicidæ. *Geodrilus* in fact is the only Cryptodrilid in which I can recall anything of the kind. Segments vii.–xii. are bi-annulate. The dorsal pores are very obvious. They commence on the borderline of segments x./xi., possibly one or two segments earlier. There are three of these pores upon the clitellum—one marks its posterior boundary, while two lie on the first two segments. The clitellum is rather extensive, occupying segments xiii.–xxii. The median ventral region behind the male pores seems to be free, at any rate to a large extent, of glandular tissue. The two male pores lie upon segment xvii.; they are highly conspicuous and are transversely elongated orifices, which correspond in position to the missing ventral setæ of the segment. Neither the oviducal nor the spermathecal pores were visible. The body-wall of both the present species and *Millsonia nigra* is exceedingly tough. Mr. Millson informs me that this was also the case during life.

Vascular system.—The dorsal blood-vessel of the worm is single from end to end of the body. In segments xvi. and xvii. it is distinctly dilated, forming thus a kind of heart. A local dilatation of the dorsal vessel is not unknown, though rare, among the Oligochæta. In the Geoscolecid *Microchæta* I and Benham have described the same kind of thing, while many Enchytræids also show a dilatation of the dorsal blood-vessel just after its emergence from the peri-intestinal sinus (or plexus). I regard all these local expansions of the dorsal blood-vessel as having some relation to the heart of the Arthropods. The last pair of circumœsophageal trunks are in segment xii.; the five pairs which lie in front of these are equally large.

Intersegmental Septa.—The first distinguishable septum lies between segments iv./v. It is tolerably stout and runs in a straight course across the body. The four following septa are excessively delicate and are pushed back by the stout gizzards so as to have lost their definite relation to the segments which they separate. After these thin septa come a number which are very strong and muscular. The septa dividing segments ix./xvii. are stout, diminishing in thickness posteriorly. The anterior of these and those which lie in front of them as far back as septum xiv./xv. are traversed by or give rise to muscular straps which are also attached to the parietes and to the alimentary canal.

Nephridia.—I do not give a long account of the nephridia under the present species as they are constructed upon the same plan as those of *Millsonia nigra*, in which species it so happens that I investigated them more closely. The peculiarity of the nephridia of this genus, to which I have already referred, is not quite so strongly marked in the present species as it is in the next to be described.

In the middle region of the body the nephridia form a denser coating of the parietes than I have before noticed in any worm with plectonephric excretory organs.

Alimentary Canal.—The pharynx of *Millsonia rubens* ends with the fourth segment; in each of segments v. and vi. is a strong gizzard which measures about 7 mm. in length and not less in breadth. The two gizzards are separated by an interval of soft walled œsophagus. Calciferous glands are present and show a rather unusual appearance. There are three pairs of them, which lie in segments xv., xvi., and xvii. These segments, be it noted, are the same in which the calciferous glands of the Acanthodrid genus *Benhamia* lie. I have already pointed out that another Cryptodrilid, viz. *Microdrilus*, is distinguished by the same position of its calciferous glands. These glands in *Millsonia rubens* have a very remarkable appearance; the surface is so much furrowed as to give them the look of a small though highly convoluted mammalian brain. In microscopic examination they are seen to present the characters usually found in these glands; the interior is occupied by numerous long folds of the lining epithelium, whose cells are rather flattened. The intestine begins in segment xviii. This part of the gut is most remarkable for a long series of cæca, which I have already referred to as a character of the genus. I counted altogether 32 pairs of these cæca, which begin at about the 28th segment. They begin and end abruptly; the first pair and the last are neither larger nor smaller than those which precede and follow them. The shape of the cæca is precisely that of the cæca of the genus *Perichæta*. They taper gradually towards the free extremity and are in fact exactly like the finger of a glove. The length averages some 6 mm. In the region of the intestine occupied by these cæca, the dorsal blood-vessel gives off in each segment two equi-sized trunks; one of these—the most anterior—is entirely concerned with the blood-supply of the cæcum of its side. The other supplies the walls of the intestine and appears not to run over the cæcum; in the section of intestine in front of the region where the cæca are I only noticed a single pair of intestinal trunks in each segment. It will be understood that these cæca are entirely metameric in arrangement—that is to say, there is a pair to each segment; they arise at first more laterally in position, afterwards their origin is nearer to the dorsal line.

Reproductive Organs.—There are two pairs of testes and of sperm-duct funnels, which occupy the usual segments, *i. e.*, segments x., xi. The sperm-sacs are in segments xi., xii. attached to the front walls of these segments; the sacs are not particularly large and do not stray beyond their segments. The spermiducal glands lie entirely within the xviith segment; they are coiled into a compact mass. The muscular duct is of a moderate length and has a nacreous appearance. I am unable to state what is the relation between the gland and the sperm-ducts. The ovaries are large and occupy the xiiith segment. There are only a single pair of spermathecæ; these lie in the viiith segment. The sacs are

rather thin-walled, but have a stout duct leading to the exterior. I could not see the least trace of a diverticulum. It is rare for the members of the family Cryptodrilidæ, indeed for any worm belonging to the Megascolicidæ, to be without diverticula to the spermatheca. There are here and there a few cases, but these are mostly of worms which have a simple structure and are perhaps rather degenerate in their organization. Examples are furnished by the genera *Gordiodrilus* and *Ocnerodrilus*. I know of no large and well-developed genus like *Millsonia* in which the spermathecæ are devoid of diverticula. It may of course be that there are really diverticula, but that they are concealed in the thickness of the muscular walls of the duct of the spermatheca.

Millsonia nigra, n. sp. (Fig. 1, p. 381.)

DEF. *Length* 230 *mm.; diameter* 7 *mm. Male pore single. Spermiducal glands open each into a bursa copulatrix.*

External characters.—This species, judging from the single specimen at my disposal, is rather smaller than the last. It is also rather different in colour, being of a dark brown thoughout, almost black in parts. The setæ, dorsal pores, and prostomium are as in the last species; the clitellum was undeveloped. The most salient external difference, apart from colour, that distinguishes this species from the last is in the orifices of the male organs. The male pore, as stated in the definition of the species, is single and median. It is of some size and occupies an area equal to that which would be occupied by the missing ventral setæ of its segment. It is surrounded by a smooth area of skin, doubtless the commencement of the otherwise wanting clitellum. The spermathecal pores are also fairly conspicuous, but they are paired, though the orifices are very close together. These orifices correspond in position to the ventral setæ. They are on the boundary line of segments viii./ix., though, as will be pointed out later, the pouches themselves lie principally in the viith segment.

Intersegmental Septa.—The character of the septa plainly distinguishes this species from the last. They commence at the same segment, *i. e.*, between segments iv./v., but they are from the first thickened; the last of the series of thickened septa separates segments xiii./xiv. Numerous stout muscular strands tie them together and to the parietes. These bands are found also attached to the septa separating segments xiv./xvi.

Nephridia.—This species shows the peculiar character of the nephridia better than does the last. On opening the body the nephridia of the anterior segments were seen to present the usual characters of the diffuse nephridia; those of the fourth and fifth segments seemed to be a little thicker than the others, but whether these formed a compact "peptonephridium" I am unable to say. Elsewhere (in the anterior segments) the nephridia were scattered tubules not quite so densely packed as in *Millsonia rubens*. Further back the coiled masses of tubes seem to disappear and to be

replaced by flattened oval vesicles of various sizes, which have much the look of small spermathecæ, such as characterize many Geoscolicidæ, e. g. *Microchæta*. The transition is not abrupt, but gradual. By the thirteenth segment, or even a little before, the transition is accomplished and the nephridial system has the curious appearance indicated in the accompanying drawing (wood-cut, fig. 1). When the vesicles are removed separately and examined in glycerine they are seen to be sacs with excessively delicate walls and crammed with cells. These cells are oval to rounded in shape and are sometimes granular, sometimes homogeneous in appearance. In transverse sections these globular sacs were seen to overlie the nephridial tubes. I am of opinion that they are merely an exaggeration of the covering of peritoneal cells, which often take on a glandular appearance and give to the nephridia which they cover a white colour, owing to the granules with which they are laden. The cells are very differently acted upon by the borax carmine which was used as the staining reagent. The homogeneous cells were very deeply stained; the more granular cells were not at all stained. In these sections the masses appeared oval or circular; at the side nearest to the body-wall were one or two nephridial tubules cut transversely.

Alimentary Canal.—As in the last species, there are two stout gizzards in segments v. and vi. The calciferous glands also occupy the same segments as in *Millsonia rubens*; they are perhaps a little less furrowed and appear to be smaller. The intestine has a moderate typhlosole and also the cæca of the last species. I counted the same number of these and they begin at the same point; their commencement is indicated by the dark pigmentation of the intestine. The posterior set of cæca are rather shorter.

Reproductive Organs.—The testes are two pairs of little white tufted bodies, which lie on the anterior septa of segments x. and xi. The ovaries are rather larger, but occupy an exactly similar position in the xiiith segment. There are three pairs of sperm-sacs in segments xi., xii., xiii.; they are attached in every case to the anterior walls of their respective segments. Only those of segment xiii. are of any size, and they are not very large. The terminal part of the male efferent apparatus has a very unusual structure. It has been already mentioned that the external pore is single; the internal organs, however, are double, only uniting just at the pore. When the worm is dissected and the intestine removed, two large elevations, one on either side of the nerve-cord, are exposed. Each of these is about five millimetres long and is quite conspicuous. They are tied down to the parietes by thin straps of muscle, which doubtless serve to retract them after protrusion. The nerve-cord sends to each two nerves on either side, which are the ordinary nerves of the segment. These nerves, instead of coming off at right angles to the cord, run, the anterior pair forwards, the posterior pair backwards. The terminal chamber of the efferent apparatus bears a close resemblance to the

terminal chamber of the efferent apparatus in the genus *Geoscolex*, and it is of course also comparable, as I have already mentioned, to the bursa copulatrix of the Eudrilidæ. The walls are thick and muscular and of a spongy texture. At the posterior inner boundary of each sac opens the spermiducal gland. The gland has the tubular character of that of the last species, but it is decidedly more slender; it is, as usual, divisible into two parts—the non-glandular duct, and the glandular portion. The former is of a fair length and slender. It widens out at its actual orifice into the terminal sac. The glandular part of the tube is long and coiled and slender; it is attached to the posterior border of the bursa by a mesentery, which supports it and gives to it somewhat the appearance of a minute vertebrate intestinal tract. The sperm-ducts cross the sac towards the outer border; they are enclosed in a muscular sheath, as is the case with the sperm-ducts of *Microdrilus* and *Pygmæodrilus*. The thickness of this muscular coat makes the sperm-ducts hardly, if at all, thinner than the duct of the spermiducal gland. The sperm-ducts pass beneath the terminal sac, so that it is just hidden on a superficial view and opens into it at the posterior outer border, at the opposite "corner," as it were, to that occupied by the orifice of the spermiducal gland. There is, as in the last species, no trace whatever of penial setæ.

There are but a single pair of spermathecæ, which have moved a segment further in front and lie in the viith instead of the viiith segment. They have a remarkable arrangement which I have not seen paralleled elsewhere. The two spermathecæ are very close together; in fact they are in actual contact above, but they are separated below by the nerve-cord which runs between them. The area in which the two pouches lie is walled off from the surrounding space by a perfectly circular fold of muscle, which arises posteriorly from the septum, but anteriorly from the ventral parietes. This is really produced by a perforation of the septum to let the spermathecæ pass through it. Each spermatheca passes through a foramen, so that it lies in segment vii. to a great extent, but opens on to the exterior between segments viii./ix. The spermatheca itself is the shape of a sock with a very short foot; the toe is directed backwards. The spermatheca is thick-walled but very soft; there is nothing apparent in the shape of a diverticulum.

The following is a table of the differences between the species:—

	Millsonia rubens.	*Millsonia nigra.*
Male pores	Paired.	Unpaired.
Spermathecal pores . .	VII./VIII.	VIII./IX.
Stout septa	IX./XVII.	IV./XIV.
Sperm-sacs	in XI., XIII.	in XI., XII., XIII.
Bursa copulatrix	Absent.	Present.

Nannodrilus, nov. gen.

DEF. *Small worms with paired setæ. Nephridia paired. Calciferous gland in ix. Spermiducal glands two pairs lined by a single layer of glandular cells, opening on to exterior in xvii., xviii.; the anterior pair open in a bursa copulatrix with, but independently of, sperm-ducts. Spermathecæ without diverticula.—Hab. West Africa.*

This new genus evidently belongs to that group of small-sized Cryptodrilidæ which includes the genera *Ocnerodrilus*, *Gordiodrilus*, and *Pygmæodrilus*. They all agree in the fact that the spermiducal glands are lined by a single layer only of glandular cells, a character not found anywhere else except in the Acanthodrilid genus *Kerria*. The present genus comes nearest to *Gordiodrilus*; but it should be, I think, regarded as the type of a new genus on account of the bursa copulatrix. In other respects it agrees fairly closely with *Gordiodrilus*.

Nannodrilus africanus, n. sp.

DEF. *Length an inch to two inches. Clitellum xiii.–xvii. Two rudimentary gizzards in vii., viii. Nephridia begin in v. Spermathecæ two pairs in viii., ix.*

As the present is the only species of the genus, the above definition of the species is of course only very tentatively put forward.

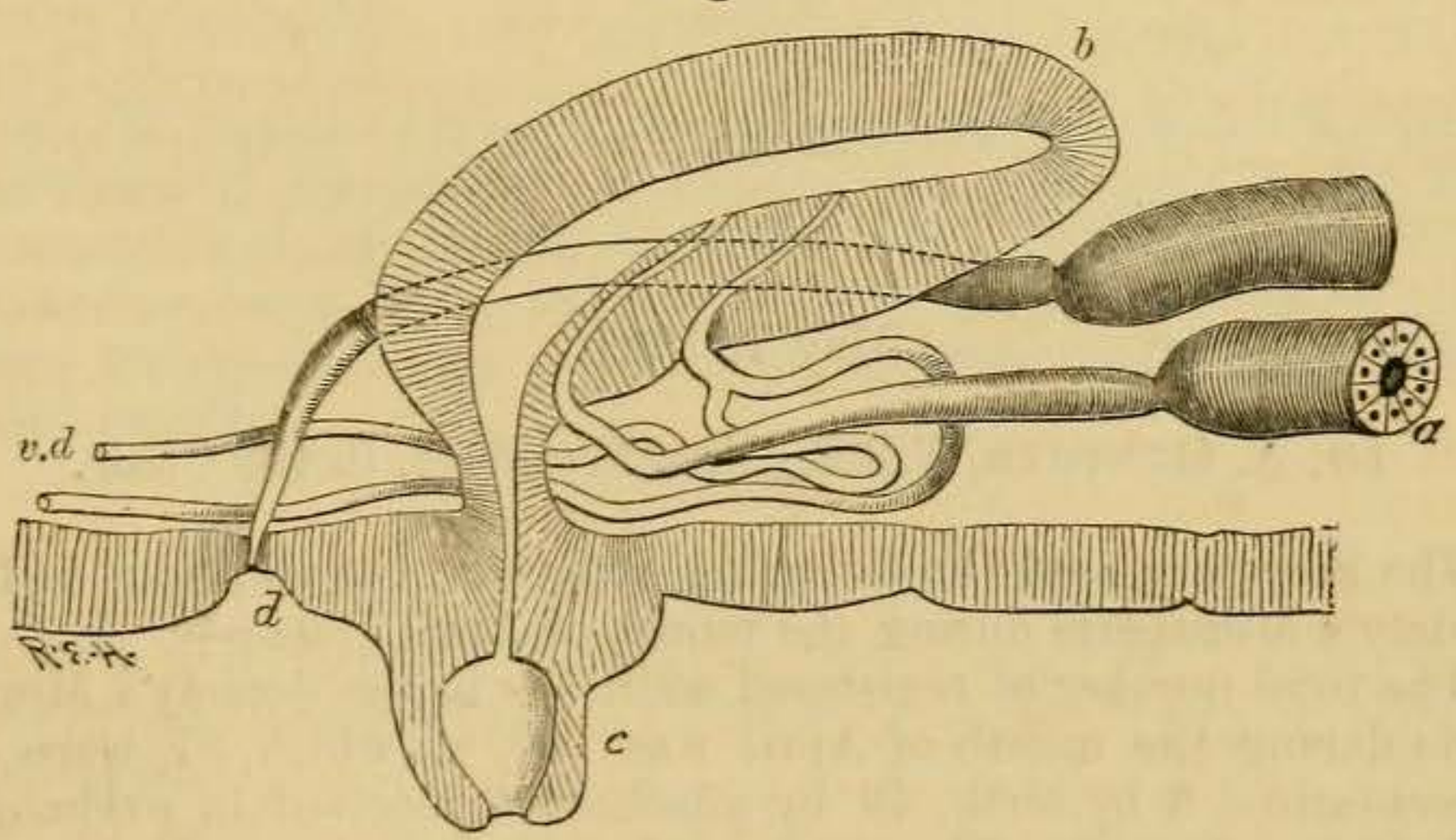
The clitellum occupies the segments stated in the definition; it extends right round the body and is conspicuous in mature specimens. Such specimens are also always obvious on account of the protruded penes. These are as long as the diameter of the body. Their structure will be more conveniently deferred until the description of that of the efferent apparatus in general. The intersegmental septa in the anterior region of the body are much prolonged backwards and lie within each other like a series of cups; those separating segments v./ix. are particularly thickened. The œsophagus runs in a perfectly straight uniform way without dilatations from the pharynx to segment ix; in segments vii. and viii. it is furnished with rudimentary gizzards, whose calibre is not greater than that of the œsophagus.

On a dissection these gizzards would be hardly recognizable; the increased thickness of their muscular walls entitles this section of the œsophagus to be termed gizzard, but the epithelium has no trace of the thick chitinous lining so constantly associated with the gizzard. In the ninth segment is the calciferous gland, which appears to be an unpaired structure. It is constricted in the middle, dividing it into an anterior and a posterior section. The minute anatomy appears to be most like that of *Gordiodrilus*. The mass of the gland has a granular structure and contains numerous nuclei; but in spite of the undoubted nuclei no cell-boundaries could be detected. The tissue is in fact quite like that which

makes up the greater part of the calciferous gland of *Gordiodrilus*. Through this tissue pass numerous small blood-vessels of equal calibre, which radiate out from the top of the gland but run parallel through its substance. A single diverticulum from the œsophagus dips down into it, but appears to end cæcally and not to be continued on into a few intracellular tubes such as I have described in *Gordiodrilus*. In the xth and xith segments the œsophagus to some extent retains the structure of the calciferous gland; outside the lining epithelium of the tube is a granular and nucleated mass which is precisely like the glandular mass of the calciferous gland; outside of this are the muscular layers and the peritoneal covering of the gut; it seems therefore probable that the granular tissue of the calciferous gland is of hypodermic origin and is not formed out of the modification of the peritoneum. The intestine begins in the xiith segment. The nephridia commence in segment v.; they have no muscular end sac. The last heart is in segment xi.

The reproductive organs are constituted upon the plan of those of *Gordiodrilus*, but there are differences of detail. The testes and sperm-duct funnels are in x. and xi. The two sperm-ducts run side by side along the ventral body-wall until about the xvith segment; after this they get to lie in the body-cavity and are to some extent coiled; they pass back beyond the point where they open on to the exterior, which is no doubt correlated with the protrusible termination of the efferent apparatus. When the worm is dissected the most obvious part—indeed practically the only part to be seen on account of the small size of the worm—of the efferent apparatus is a pair of oval or pear-shaped sacs; these

Fig. 3.



Nannodrilus.

Male efferent apparatus.

a. Spermiducal glands.
b. Bursa copulatrix.
c. Penis.
d. Orifice of one of the spermiducal glands.
v.d. Sperm-ducts.

have a nacreous appearance on account of the thickness of their muscular walls. These sacs end blindly and are not, as I at first thought them, the dilated ends of the muscular duct of the spermiducal glands. They occupy two or three segments and open on to the exterior in the xviiith segment through the penes. Their walls are excessively thick and the lumen therefore is not wide. The penis on to which each of them opens is a portion of the body-wall which projects; it does not appear to be simply the everted portion of the sacs. The extremity of the organ is vascular and has a wide lumen; but where it traverses the body-wall the lumen of the bursa is narrow. The two sperm-ducts become united just where they dip into the thickness of the walls of the bursa; they are ciliated on their passage through the bursa and open into its interior. The spermiducal glands have the structure which has been referred to in the definition of the genus. One pair of them opens into the bursa near to, but quite independently of, the orifice of the sperm-ducts; the other opens in front of this on to the xviith segment. The accompanying diagram (woodcut, fig. 3) shows the relations of the different parts of the male efferent apparatus. The ovaries and oviducts are in the usual places for these organs to occupy. There is a single pair of spermathecæ in the viith segment; they are long and tubular without a diverticulum. The very extremity of the pouch differs from the rest in that its walls are very thin; this is brought about by the absence or very slight development of the muscular layers and the thinness of the epithelium. Elsewhere the epithelium is tall and folded. The pouch was filled with spermatozoa, arranged in a peculiar fashion. The heads of the spermatozoa were attached to the cells lining the pouch and presented quite a regular appearance, so much so that they might easily be mistaken for cilia.

May 1, 1894.

Dr. A. Günther, F.R.S., Vice-President, in the Chair.

The Secretary read the following report on the additions to the Society's Menagerie during the month of April 1894:—

The total number of registered additions to the Society's Menagerie during the month of April was 160, of which 87 were by presentation, 6 by birth, 49 by purchase, 2 received in exchange, and 16 on deposit. The total number of departures during the same period, by death and removals, was 83.

Amongst these I wish to call particular attention to the collection of Mammals and Reptiles sent to us by Dr. J. Anderson, F.R.S., being the proceeds of his recent expedition to Egypt and Suakim.