

Presumed notes for the Description of Plates for the Anatomy of Serpentaria, Nemertes & Forbesia article by Harry D.S. Goodsir, June 1845.

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Transcribed by Jill Walthew, 14 July 2026.

Transcription marks:

[del] - text crossed out

[ss] – superscript added

[illeg] – illegible

[?] – unclear, my guess based on context

All spelling and grammar as in original. Paragraph breaks are mine. He uses two dots or lines for line breaks in words, as was common at the time. The pages are numbered, presumably by the author.

Any mistakes that aren't otherwise noted are mine!

Notes

Page 5 is extremely difficult to read as the ink on the other side of the paper has bled through, it being a thinner sheet than the others, so there are more words that were illegible/guessed from context.

Page 9: writes ~ to signify a ditto mark (in place of Fig). From Page 9 he appears to be rushing somewhat; there are more spelling mistakes and missing words and the writing appears more rushed.

Page 1

[in pencil] Plate II Serpentaria

[transcriber's note: presumably this begins 'Fig: 1' but the page is curled over at the top left corner]

[in ink] The Annulus of Serpentaria with the external layer of skin [del: laid] difsected off + laid over for the purpose of showing the [del: internal] [ss: middle] membrane of the skin + Internal [del: bundle of muscular fibres] longitudinal muscle of the [del: left] [ss: right] side. It will be observed that the [ss: stronger] fibres of the external layer are longitudinal whereas the middle are transverse + are much stronger. The lateral longitudinal muscle is very [del: thick +] strong + the portion of integument which covers it has the fibres arranged in a different manner from those other parts namely in a transverse direction. From this mode of arrangement it will be seen that the integument, as is the case in all the lower animals, acts to a certain extent as a muscular apparatus, [ss: (compreffors)] an action particularly required in this animal for the proper fulfillment [sic] of the function of separation as will be more fully described under fig. 3.

Fig: 2. Same annulus as that just described with the [ss: external] middle + internal layering of [de: membranes][ss: integument of one side] laid over to show the ovaries in situ

a. Integument covering the lateral longitudinal muscles – the fibres it will be observed are transverse.

b. Integument external larger – the fibres are longitudinal with

b¹. weaker transverse fibres interwoven.

c. Middle [ss: + internal] layers of integument [ss. Laid over] – the fibres [ss: of the former] are transverse with a few weaker longitudinal fibres interwoven on the internal surface

d.d.d.d. Ovar[del: y]lies contained in separate bunches, within chambers formed by reduplications of the internal layer of integument

e.e.e. The biliary apparatus which is arranged in transverse rows between each bundle of ovary.

When the middle + internal layers of integument are raised the liver is generally taken up with it + remains in ridges on the internal surface of the integument as may be seen at [illeg.] b. b.

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Fig: 3. Small portion of *Serpentaria* showing the manner in which the animal throws off separate portions of the body. The component annuli of the part figured, are in the act of separation.

a. Is a portion composed of two annuli in the act of separating from b. which is also composed of two annuli.

c. [sic] Is one annulus separated almost altogether.

This is a most illustrative specimen. The segment at [del: fig.c] c shows the peculiar structure which enables the animal, without great risk, to throw off easily the various annuli of which it is composed. The conjoined surfaces of each segment have a layer of fibres the long axes of which run from within outwards. These may be seen quite easily with the naked eye + they appear to be so arranged as to dovetail or fit into one another. They are probably muscular. Each [del: of these] annulus may be looked on in this [del: animal] [ss and del: species] [del: to be] [ss: as] a separate altho not an independent being consequently [ss: (such being the case)] each must be endowed with all the organic structure of the perfect form – this accordingly we find the case + in no instance so much so as in the muscular apparatus, or to use terms similar to those already made use of in the former part of this description, the cuticular apparatus. [del: This is so constructed as upon the slightest exertion of will in the animal.] [*transcriber's note: this sentence is crossed out partly in ink and partly in pencil*] This acts as a comprefsor muscle + if at the will of the animal it is used in any particular annulus it acts so much as to cause a total separation. The particular arrangement of the fibres on the sutural surfaces of each annulus also, offers no resistance to such a separation.

a. two [ss: perfect] annuli separating from b.

a.¹ The rupture caused by the separation

b. two annuli.

b.¹ The rupture between b+ c

b.² The peculiar arrangement of the sutural fibres

c One annulus almost separated

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Fig 4 Transverse [del: view] terminal view of one of the anterior annuli of *Serpentaria*

a Is the lateral portion of the integument beyond the lateral muscles where the dorsal folds in + becomes abdominal integument.

b. is the lateral longitudinal muscle.

c. is the integument showing the peculiar arrangement of the fibres at the suture

d. is the interovarian membrane or reduplication of the internal layer of integument.

e. is the common central cavity of the body.

f. is the atrophied intestinal canal.

Fig: 5. Is a transverse section of the continuous portion of the body of *Serpentaria* magnified two diameters. This view shows the enormous increase in thicknefs (in this [ss: 2] portion of the body

[del:)] of the integument. [del: No separation takes place in this portion of the body] which as already described is only one annulus enormously enlarged

- a. external layer of integument
- b. [del: male] testis of left side of body
- c. middle layer of integument
- d. Internal layer of integument
- e. lining membrane of common cavity which is very much granulated + corrugated.
- f. Intestinal canal.
- g. Common cavity of the body. This cavity is generally filled more or less with mucus + what appears to be rejected portions of nourishment

Fig: 6 longitudinal section of body of *Serpentaria* of natural size. This section is made right through the mesial line

- a. Rostrum
- b. Receptacle for the proboscis during the time it is retracted. In this species however it has been already remarked that the proboscis is by no means large – if it is formed at all
- c. Integument
- d. aperture to the common cavity.
- e. Intestinal canal.
- f. Integument of abdominal surface.
- g. Common cavity

Fig 7. Enlarged view of proboscidean cavity.

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Fig: 8. Showing the common cavity of the body laid open through the extent of its continuous portion. Natural size. The integument has been dissected off + laid over at g [*transcriber's note: there is no g in this section*].

- a. is the origin of [sic] anterior extremity of ovary
- b. is one of the offshoots of the ovary before it has arrived to any size
- c. is the portion of ovary projecting into the continuous portion of common cavity
- d. is common cavity
- e. is the aperture to the cavity
- f. is the extremity of the rostrum

Fig: 9. Is a magnified view of the biliary apparatus. This section is taken in the longitudinal direction as regards the long axis of the animal but transverse as regards the organ itself.

- a. shows some fibres proceeding from the structure d. for the purpose of forming the walls of the formative apparatus.
- b. is a peculiar structure which intervenes between each of the cellular structures
- c. a peculiar structure composed of parallel [sic] fibres
- d. a fibrous structure from which is derived the structure which forms the walls of the formative apparatus.
- e. The formative apparatus consisting of cells.
- f. Oil globules tinged with bile which have been forced out of the mother cell in consequence of rupture produced by the pressure between the glass plates.

Fig: 10. [del: Testes] Minute structure of testes, which as already described consist of a tubular apparatus running along each side of the body external to the common cavity. This differs [del: from] in its physiological action from that of *Nemertes* inasmuch as the [de: illeg., possibly

primary] [ss: formative] cells [del: appear to be] are much smaller + lie irregularly in the tube whereas they are arranged regularly in that animal

Fig: 11 Anterior extremity of body

a Extremity of rostrum

b excretory apparatus of Testes c Aperture of common cavity

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Fig: 12. Anterior portion of ovary of *Serpentaria*

a.a.a.a. offshoots from ovary which at first are small but increase in size as the organ [illeg. word] back

b. the mæsial portion of ovary.

c. that portion of ovary which projects into the continuous portion of common cavity.

d. the sac which contains it.

e. the common cavity itself.

Fig: 13 The anterior portion in [?] ovary removed from the body.

a. The portion which projects into the continuous portion of common cavity

Fig: 14 Small portion of ovary from its anterior extremely highly magnified showing the gradual development of the ovary, likewise the arrangement of the immature ova in paralell [sic] rows.

Fig: 15 Transverse terminal view of one of the posterior annuli of *Serpentaria*, showing the mode in which the separated portion is reproduced

Immediately upon the terminal segment or segments are thrown off a portion of the ovary from each side of the body is forced out through the opening left in consequence of the common central cavity, which produces two little holes in the centre of the new surface In these the ova, or what in such a case may be considered nucleated cells, are being constantly reproduced so that these [? nubs] increase gradually in size until the animal becomes again perfect. They all have the pedicule organs[del: along with organs of reproduction of lost parts as well as] performing to a certain extent a double action

These facts point out a peculiar circumstance [del: which takes place] in the generative system of this animal which in a physiological point is very interesting, + which it may be well to mention in this place. In the difsection of this animal I remarked that the testes did not recede so far as the middle of the body

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+ that in the female apparatus the ova were not active behind the posterior part of the testes beyond which there were no vestiges whatever of active ova, whereas in *Nemertes* the testes extend [ss: almost] throughout the whole length of the animal as well as the ovaries in which the ova are active throughout the whole length of [del: the] + more particularly so at the posterior extremity [del: the] – the reverse of this is the case in *Serpentaria* –

From these facts we are confirmed in the opinions already formed regarding the [del: flu] functions of reproduct[del: tion of lost part]ive organs * [sic – this asterisk isn't picked up anywhere] + for the following reasons [del: in]

Serpentaria [del: the whole of] that portion [ss: in] which the power of separation is not much developed the ova are active, [del: + in the] likewise [del: the testes do not extend beyond it.] the testes do not extend beyond that portion in which the power of separation is limited + in that portion the ovarian cells are being develloped [sic] + thrown off [ss: where the power of separation is

[illeg.] are at] as ova only. Whereas in the posterior part the[del: y] [ss: cells] are neither impregnated by the testes nor are they thrown off as ova but simply developed [sic] [de: in the [illeg.]] as formative cells for the purpose of reproducing the part lost. It is to be observed but that [del: neither] under [del: the] such circumstance, when an animal is able to [del: separate else] throw off fragments of its body so easily + so entirely a complicated generative apparatus would be of little or no use, as the ova would never be enabled to come to perfection, + especially since the separated fragments [ss: eventually] become perfect animals. In Nemertes we find the structure rather different. The power of separation is very much limited consequently the organs of generation not being required, at least very little, as [del: organs] reproducing organs, [del: we find the [ss: ovarian] cells being thrown off throughout the whole extent of the organ as ova only]**, at the same time [del: for this] the testes extend as far back as the ovaries. From this

*** Transcriber's note: it is not clear how much of this line was intended for deletion; in the original it's struck out with one long slanted line going up from left to right across the page.*

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Plate II Serpentaria

then it will be seen that the circumstance of Serpentaria throwing off portions of its body is as much a part of the economy of its generative system as the normal ovarian act of generation.

Fig: 16. Transverse section of integument of Serpentaria very highly magnified.

a. external surface of cuticle

[del: b. external surface of dermis]

Fig: 17. Longitudinal section of integument

Fig: 18. Superficial view of internal layer of integument [ss: taken] from between [sic] the lateral bundles of ovary.

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Plate IV Nemertes

Fig: 1 Anterior portion of the body of Nemertes with the continuous part of the common cavity laid open + the walls of the cavity laid over. Within the cavity is displayed on either side the free or anterior extremity of ovaries + the intestinal canal in the mærial line

a. proboscis

b. integuments laid laid [sic] over

c. anterior extremity of ovary which floats loose in the continuous part of common cavity

d. walls of cavity which contain the intestinal canal

e. intestinal canal

f. commencement of the septa for the separation of the lateral bundles of ova.

g. commencement of puckered portion of intestine

Fig 2 Anterior portion f Nemertes of nat. size showing the proboscis extended

a. proboscis

b. aperture of male organs

c. aperture of common cavity

Fig: 3. Internal structure as the animal is laid open

Fig: 4. Internal structure showing the relative position of intestinal canal + ovaries

- a. ovaries
- b.b. intestinal canal puckered up and bound down by [del:] the mesentery
- c.c. mesentery
- d. one of the sides body cleared of ovary.

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Fig: 5 Small portion of [ss: the internal surface of] intestinal canal highly magnified, showing the transverse disposition for the mucus folds

Fig: 6 Small portion of mesentery, highly magnified

~ 7 Transverse section of Nemertes showing the relative position of ovaries + intestine magnified

- a. integuments
- b. Intestinal canal which appears to be double in consequence of the two foldins [sic] having been cut acrofs in the section
- c.c Ovaries of both sides
- d. testicle of one side.

~ 8 Longitudinal view of small portion of the body of Nemertes magnified 2 diameters A portion of cuticle has been difsected off and laid over upon one side.

- a. cuticle difsected off + laid over.
- b.b. ovaries of both sides.
- c.c. testes of both sides.
- D. Intestine.

~ 9 Portion of skin highly magnified

~ 10 Portion of substance contained in common cavity – continuous portion – highly mag^d

~ 11 Small portion of testes of Nemertes highly magnified.

- A primary cells
- b. secondary
- c tertiary.

Notes, corrections, instructions in pencil on separate sheet at end

1st In page 4 of the manuscript now sent it is stated that a layer of strong fibro-muscular fibres lie below the skin, in the Description of the Plates this was looked on as layer of the skin which is erroneous.

2^d The lining membrane of the common cavity was also stated in the Description of the Plates to be a layer of the skin but truly it is not so. Both of these latter tifsues however may be considered as parts of the skin.

3 The organ described in the Plate + its description of Serpentaria describes the Bepproductive [sic] Organs between each annulus as the biliary, please correct this