A Preliminary, Artificial Key to the Sipunculans of Southern California

by

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1. Musculature of the ~~body~~ TRUNK wall organized into longitudinal bands.....2

   - No longitudinal muscle bands.....4

2. Tentacles do not surround mouth but are dorsal to it; introvert hooks present.....*Phascolosoma agassizii*

   - Tentacles surround mouth; introvert hooks absent.....3

3. Introvert with sub-triangular scale-like papilla; skin on trunk organized into squares; tentacles on flaps of skin surrounding the mouth.....*Sipunculus nudus* 28-33 bands

   - No scale-like papilla on introvert; tentacles are festooned in longitudinal rows.....*Siphonosoma ingens* 20-25 bands

4. Contractile vessel with tubules or villi.....5

   - Contractile vessel without tubules or villi.....6

5. Villi on contraclile vessel short; tentacles in longtudinal rows; no hooks.....*Thysanocardia nigra*

   - Long tubules on contractile vessel; tentacles dichotomously branched.....*Themiste* sp.

6. Single retractor muscle extends to posterior end of body; single nepbridium.....*Onchnesoma* sp. A. Phascolion

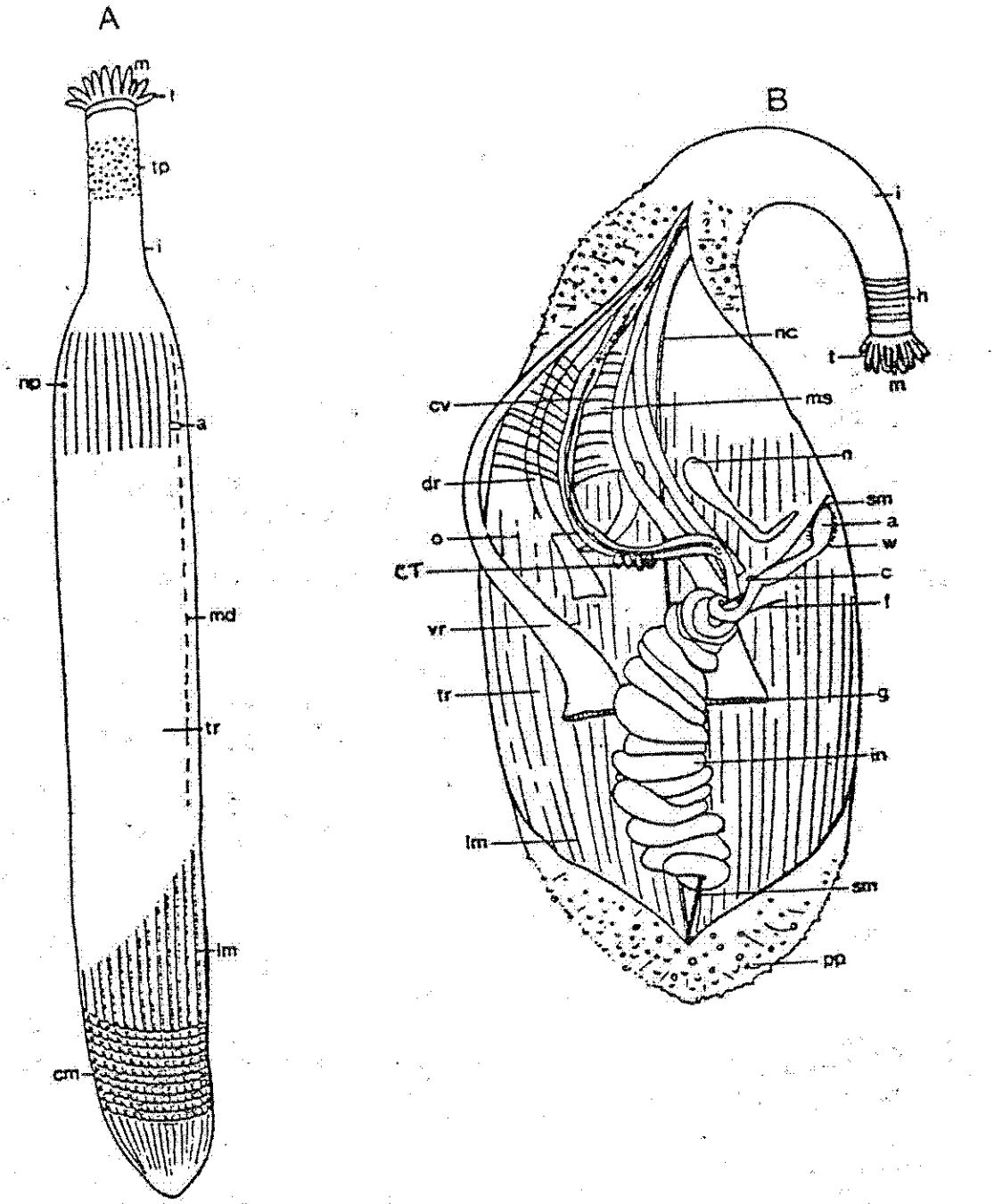
   - 2 or 4 retractor muscles; paired nephridia .....*Golfingia* sp....7

7. 2 retractor muscles.....8

   - 4 retractor muscles.....14

8. Hooks present an introvert.....9

   - Hooks absent from introvert.....12



Diagrams of Sipunculan anatomy (after Stephen and Edmonds 1972). A. Entire organism; B. Internal structure. a, anus; as, anal shield; c, caecum; cs, caudal shields; cm, circular muscle; cv, contractile vessel; ct, contractile tubules; dr, dorsal retractor; f, fastening muscle; g, gonad· h, hooks; i, introvert; in, intestine; lm, longitudinal mus m, mouth; md, mid-dorsal line; ms, mesentery; n, nephridium; nc, nerve cord; np, nephridiopore; o, oesophagus; pp, papillae; sm, spindle muscle; t, tentacles; tp, triangular papillae; tr, trunk; vr, ventral retractor; w, wing muscle.

9. Introvert slightly longer than trunk; tentacles reduced to small lobes.....~~Golfingia minuta~~ Nephasoma diaphanes diaphanes common

- Introvert shorter than trunk; tentacles digitate.....10

10. Double circle of tentacles around mouth; introvert hooks slightly bent and awl like; yellow, wart-like papillae.....Golfingia pellucidum Nephasoma pellucidum not common

- Single circle of tentacles around mouth, introvert hooks and papilla not as above.....11

11. Retractors insert in posterior 1/2 of trunk, rectal caecum present; posterior end of trunk dark brown .....Golfingia sp. 2

- Rectractors, insert in middle 1/3 of trunk; no rectal caecum.....~~Golfingia laetmophilum~~ Nephasoma deep slope outer basin

12. Introvert shorter than trunk; posterior end of trunk extened to form a short "tail".....Golfingia sp. 1 deep slope

- Introvert longer than trunk; no posterior tail.....13

13. Introvert up to 9x longer than trunk; a 4-6 digitate tentacles.....~~G.~~ nicolasi deep basin

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- Introvert less than 2x length of trunk; 20 digitate tentacles.....~~G.~~ eremita Nephasoma wodjanizkai wodjanizkai not common (rare)

14. Tentacles surround mouth; spindle muscle not attached to posterior end on trunk; paired, single lobed nephridia .....~~G. marginatus~~ outer shelf margaritaceum not common

- Tentacles, if present, do not surround mouth, but are dorsal to it; spindle muscle attached to posterior end of trunk, paired, bilobed nephridia.....15

15. Introvert shorter than trunk; ventral retractors originate from the posterior 1/2 of the trunk .....G. capitata

- Introvert 5-10 times length of trunk.....16

16. Tentacles, hooks, papilla present.....Apionsoma G. misakiana

- Tentacles, hooks, papilla, absent.....G. trichocephala Apionsoma

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