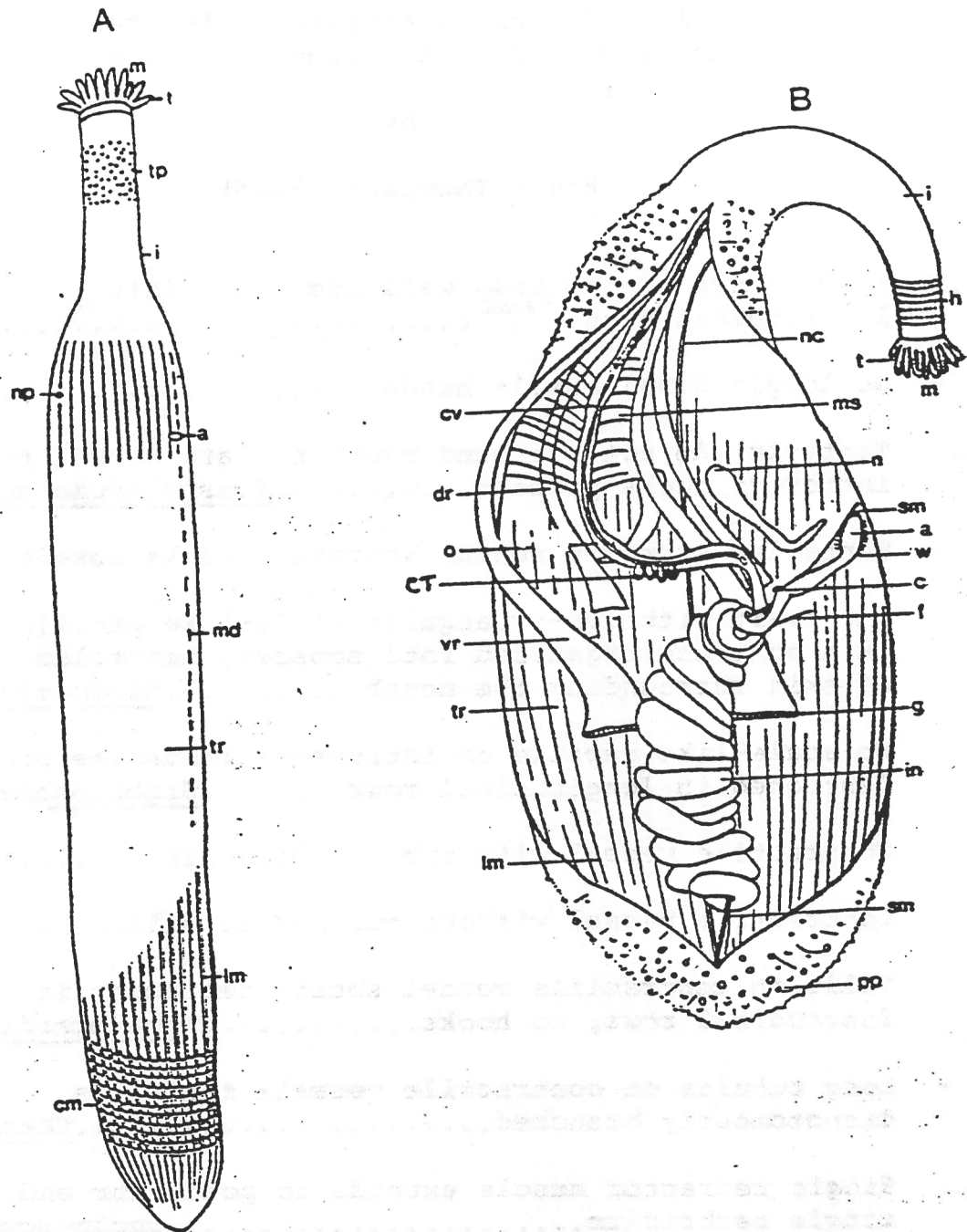


A Preliminary, Artificial Key to  
the Sipunculans of Southern California

by

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1. Musculature of the ~~body~~<sup>TRUNK</sup> 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
  - No scale-like papilla on introvert; tentacles are festooned in longitudinal rows.....Siphonosoma ingens
4. Contractile vessel with tubules or villi.....5
  - Contractile vessel without tubules or villi.....6
5. Villi on contractile vessel short; tentacles in longitudinal 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 nephridium.....Onchnesoma sp. A.
  - 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 muscle; 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
- 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 pellucida
- 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
- Retractors, insert in middle 1/3 of trunk; no rectal caecum.....Golfingia laetmophilia
- 12. Introvert shorter than trunk; posterior end of trunk extended to form a short "tail".....Golfingia sp. 1
- Introvert longer than trunk; no posterior tail.....13
- 13. Introvert up to 9x longer than trunk; a 4-6 digitate tentacles.....G. nicolasi
- Introvert less than 2x length of trunk; 20 digitate tentacles.....G. eremita
- 14. Tentacles surround mouth; spindle muscle not attached to posterior end on trunk; paired, single lobed nephridia .....G. marginatus  
MARGARITACEA
- 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.....G. misakiana
- Tentacles, hooks, papilla, absent.....G. trichocephala

