

(Fig. 20, a-c.)

Stations : 39, 40, 41, 42, 90, 105, 106.

Male (2x) : L = 3.3-3.8 mm. ;  $\alpha$  = 22.3-47.5 ;  $\beta$  = 4 ;  $\gamma$  = 28-50.Male (10x) : L = 4.5-8.1 mm. :  $\alpha$  = 43-66 ;  $\beta$  = 3.8-4.8 ;  $\gamma$  = 50-66.Female (3x) : L = 4.9-7.7 mm. ;  $\alpha$  = 41-47 ;  $\beta$  = 4.5-4.7 ;  $\gamma$  = 46-64 ; V = 63-67%.Juv. (1x, exsheathing) : L = 4.5 mm. ;  $\alpha$  = 41 ;  $\beta$  = 4.1 ;  $\gamma$  = 50.*Allgen* 1927, 300 (from Campbell Is.).Male (1x) : L = 2.2 mm. ;  $\alpha$  = 33.8 ;  $\beta$  = 3.67 ;  $\gamma$  = 29.3.Female (1x) : L = 2.4 mm. ;  $\alpha$  = 33.3 ;  $\beta$  = 4 ;  $\gamma$  = 36.9 ; V = ? (behind middle).*Allgen* 1947, 92 (from La Jolla).Male : L = 2.34 mm. ;  $\alpha$  = 31.2 ;  $\beta$  = 2.9 ;  $\gamma$  = 39.0.Female : L = 3.45 mm. ;  $\alpha$  = 26.54 ;  $\beta$  = 3.45 ;  $\gamma$  = 46 ; V = 65%.*Wieser* 1953, 51 (from Chile).Male : L = 3.15 mm. ;  $\alpha$  = 30.5 ;  $\beta$  = 3.7 ;  $\gamma$  = 36.5.Female : L = 3.37 mm. ;  $\alpha$  = 25.3 ;  $\beta$  = 4.2 ;  $\gamma$  = 41.9 ; V = 64.8%.

It will be seen from the figures given above that the Antarctic specimens assigned to *P. campbelli* do not agree in  $\alpha$ ,  $\beta$  and  $\gamma$  indices with any described by Allgen, and that they are very much larger worms. Nevertheless, the appearance of our specimens is identical with the figures drawn by Allgen 1927. The shape of the male tail, the position of the caudal glands, of the eyes and of the excretory pore, and the form of the head, are so similar as to make it most unlikely that another species is in question. It is probable that the original Campbell Island material, one male and one female, was young. The figures given by Allgen (1947, 93) based on material from La Jolla, California, show a variation in the shape of the male tail, and in the position of the ring of cephalic setae. Allgen compares his species with *P. steineri* Micol. ; in almost all points of difference our specimens agree with *P. campbelli* ; the exception is in the  $\alpha$  value. Other, probably incorrect, records of *P. campbelli* are discussed by Wieser. A short description is given here of the Antarctic specimens, mentioning the points of difference with earlier descriptions of *P. campbelli*.

The cephalic setae number ten, a pair in each submedian position, 10-11 $\mu$  long, 1/1.8-1/2.6 of the cephalic diameter, and, slightly anterior to these, a pair of shorter lateral setae, 8-9 $\mu$  long. The opening of the amphid is very small, and lies on a level with the submedian setae. The eye is not always distinct ; in some specimens which were first classed as eyeless, closer examination showed that lenses were present, with or without faint traces of pigment. The excretory pore lies just in front of the eyes. The nerve ring lies at 1/3.3-1/4 of the length of the oesophagus from the anterior end.

The range of body size of the males is great ; it will be noted in the measurements given at the head of this description, the  $\alpha$  and  $\gamma$  values are very much lower for the shorter than for the longer worms. In all other points the agreement between the sizes is close, so it is thought that these smaller specimens are younger.

The tail of the male agrees in shape absolutely with Allgen's figure of 1927 (p. 301 f. 25) ; its length is 1.0-1.4 times the anal diameter, this figure is given by Allgen as 1.2, and seems by measurement on his figure to be 1.4. The spicule is 1-1.3 times the anal breadth in our specimens. A very small gubernacular sheath is seen in some specimens, in the form of a ring around each spicule ; it appears most clearly in a dorsal view of the tail. The preanal organ is 15-20 $\mu$  long.

Up to 10 pairs of setae lie between the anus and the preanal organ, and in front of the preanal organ are two rows of setigerous papillae. The papillae are more distinct in some specimens than others, but the setae are clearly seen under the high power in all cases.

In the female the tail is slightly different in shape, lacking the ventral concavity remarked on by Allgen, and present in the male specimens. The female tail is 1.3-1.5 times the anal diameter. Subterminal setae are present as in the male, and the caudal glands of both sexes lie anterior to the preanal organ. The eggs are 100 $\mu$  by 200  $\mu$ .

## COLLECTING STATIONS CONCERNED IN THIS REPORT

In Volume I, Pt. 1, of this series (Biological Organization and Station List) the type of fauna and the nature of the sea-floor at each station are not mentioned. The following amplifying notes deal with all stations south of the sixtieth degree of south latitude which yielded nematodes for examination. This information has been compiled from the Biological Log kept during the period concerned. An attempt was made to ascertain the names of the species of marine life recorded as most numerous at the various stations, but since many groups have not yet been reported on, this was not possible.

STATION 29 : 66° 28' S., 72° 41' E., T M L (Large Monagasque Trawl) : 1,266 m.

Good haul, large numbers of stones (erratics), some large. Animals suffered from milling of stones. No mention of predominant fauna. Forams and nematodes "many".

STATION 39 : 66° 10' S., 49° 41' E., T M L : 300 m.

Big haul characterized by silicious sponges with glass rope spicules. *Synapta*—like Holothurian common ; many Polyzoa of different species.

STATION 40 : 66° 12' S., 49° 37' E., T M L : 300 m.

Good clean haul ; Polyzoa and crinoids abundant.

STATION 41 : 65° 48' S., 53° 16' E., T M L : 193 m.

Large haul. Trawl full of sponges and sponge mud : glass rope sponge predominant. Much mud with very many molluscs : many ophiuroids. Later, operating at this station with the Large Otter Trawl (O.T.L.), the catch comprised a striking haul of alcyonarians, holothurians "many", compound ascidians "common".

STATION 42 : 65° 50' S., 54° 23' E., T M L : 220 m.

Haul essentially as at Station 41, T M L.

STATION 88 : 67° 008 S., 142° 36' E. At Commonwealth Bay, King George V. Land.

Collections ashore on rocks and in ice at Cape Denison, also dredging (DRS) from motor boat in Boat Harbour, and between the latter and the Mackellar Islets amongst kelp, 2-7 fathoms. Red and brown algae, nematodes in holdfast, &c. 3.5-4.5 m

STATION 90 : 66° 21' S., 138° 28' E., D R L : 640 m.

While being hauled, dredge following the sea-floor came suddenly into shallower water, so may contain specimens from various depths. Coralline bottom with small stones : small amount of grey sandy mud on lip of dredge.

STATION 100 : 65° 48' S., 89° 49' E., D R L : 393 m.

Representatives of most groups present. No note as to bottom, or predominance of any fauna.

STATION 103 : 67° 03' S., 74° 29' E., D R L : 437 m.

Mud bottom (ooze). All groups represented, none referred to as abundant.

STATION 105 : 67° 46' S., 67° 03' E., D R L : 163 m.

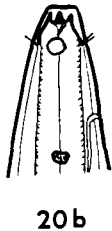
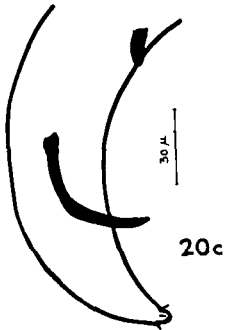
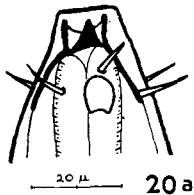
No mud, only a few small erratics. Dominant forms listed as :—(1) Large club-like compound ascidians ; (2) Large simple free ascidians with hairy test ; (3) Transparent ascidian-like *Clavellina* ; (4) Several spp. of sponges. Pycnogonids, asteroids, and ophiuroids abundant. Nematodes very abundant in test of a large ascidian.

STATION 106 : 67° 38' S., 64° 52' E., D R L : 210-17 m.

Very little taken as dredge struck rock bottom. Kelp, *Lithothamnion* ; nematodes in holdfasts, also polychaetes and nemerteans.

STATION 107 : 66° 45' S., 62° 03' E., D R L : 219 m.

Dredging on an off-shore submarine bank. Fine grey mud. Ophiuroids and Polyzoa chief animals. Nematodes among sponge spicules. Later the Large Otter Trawl brought up a catch with Polyzoa as the dominant group : calcareous and chitinous species.



20. *P. campbelli* :

(a) head ; (b) anterior end ; (c) posterior end of male, b and c to same scale.