

Atkins (1958) reports ova present in the ventral gonads of specimens measuring 1.7mm and 1.95mm in length. These were collected in July and therefore must have been at least one year old. The recorded egg sizes are $70 \times 100\mu\text{m}$ and $70 \times 80\mu\text{m}$ respectively, and it is likely that they were immature because from my observations mature eggs were of the range 150–200 μm . Also fully developed gonads were not consistently observed until animals were more than 2.5mm in length, and that is probably during their second year of life (Table I).

Using the 860 specimen population previously mentioned, a graph was made of shell length/dry weight of all specimens greater than 2mm in length. The graph was contoured in a manner based on a method used in structural geology (Schmidt, 1925; Mellis, 1942; Flinn, 1958). A one inch square was taken which was about 0.64 per cent of the total area of the graph. It was moved over the graph so that its centre lay in turn, at points spaced 0.5 inches apart. Thus the entire area was covered by a system of overlapping squares. At each position the number of specimen points falling entirely within the square were counted, those on the boundaries counted as half units, but those at the corners counted for quarter units. The total number of units was marked at the centre of each square. Then by arbitrary means the points of similar concentration of animals, i.e., units, were contoured.

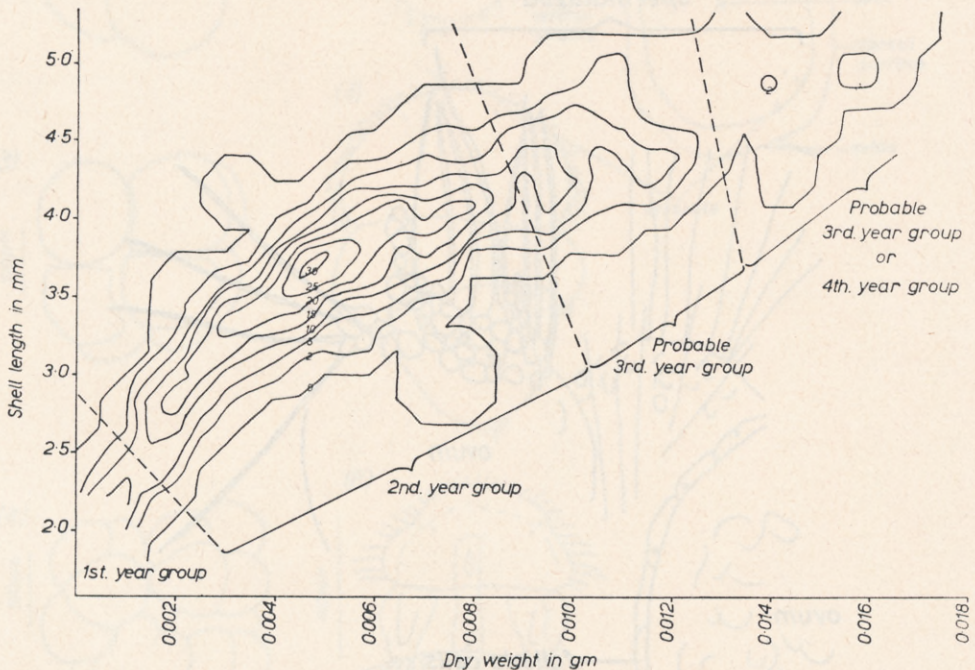


FIG. 3.—Contoured graph of shell length/dry weight of *Pumilus antiquatus*. (390 specimens of shell length $>2.00\text{mm}$, weight $>0.0009\text{gm}$. Collected from Otago Harbour, August, 1964.

The contoured graph obtained is shown in Figure 3, and three groups can be distinguished as indicated by lines drawn at right angles to the curve through the following points, 2.4mm \times 0.0013gm, 4.3mm \times 0.0088gm, and 4.9mm \times 0.0138gm.

This and earlier mentioned evidence suggests that *Pumilus antiquatus* in Otago Harbour lives for three years and possibly four.