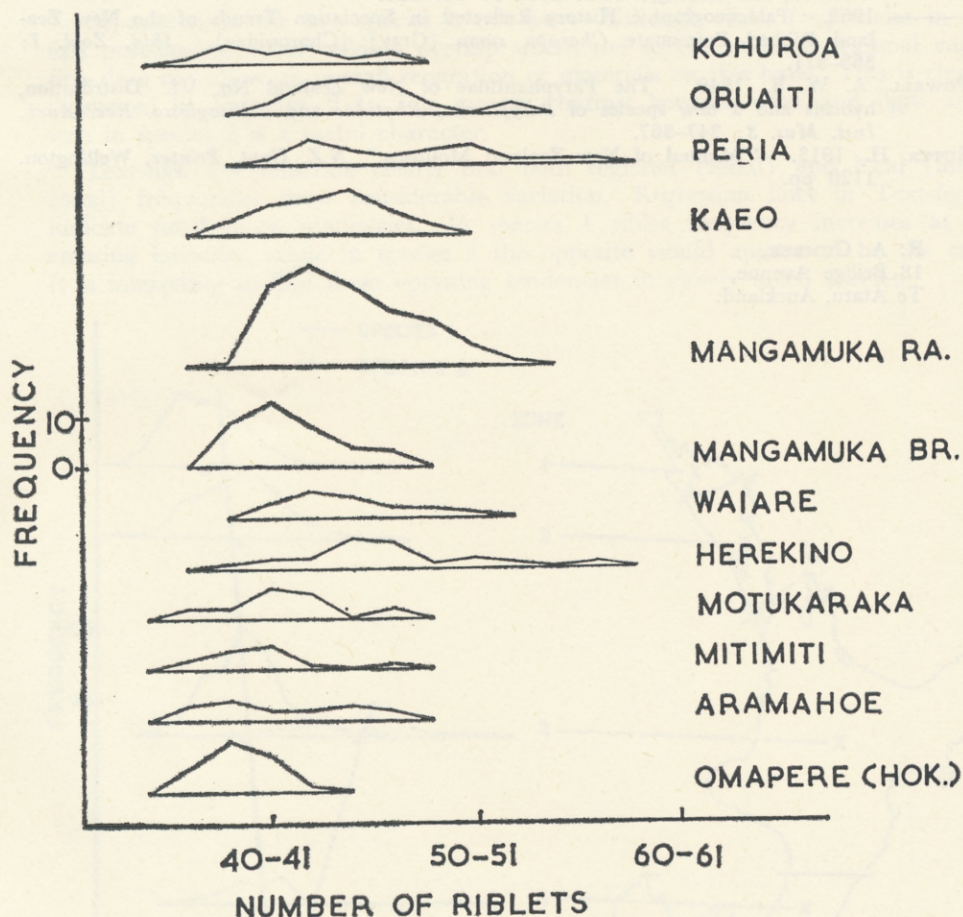


In zonal considerations, boundaries have purposely been sited to give maximum scope to paleogeographic isolation. Despite this, the clinal tendency in species 1 for increasing frequency in progressing southwards is over-riding. The opposite tendency in species 2 is present but less convincing because of the smaller latitudinal range.

The distribution of species 2 suggests that a further zonal boundary running from the mid-Bay of Plenty region to Wanganui may well separate an essentially northern and north-western region to the west, from an essentially south-eastern and southern region to the east, the latter extending to include northern parts of the South Island. Distributions of other pulmonate species support this.



TEXT-FIG. 4.—Frequency distributions of first post-nuclear whorl riblet counts in samples from zone 1 (species 1).

In attempting to reconstruct past land frontiers from present distributions of pulmonates, the principle of the relatively rapid colonization of lower areas and slow colonization of higher areas is all important. The point is well illustrated by Powell (1949), who indicates the importance of moving fresh water as an agent of pulmonate dispersion. There are, especially in the Paryphantidae (*Delos*, *Rhytida*, *Schizoglossa*) numbers of paired species differing little in physical characteristics, but having very significant areas of co-existence and non-co-existence.