

There is no doubt that the isolation of these northern and southern populations has resulted in generic differences of a magnitude approaching those necessary for specific distinction. A statistical analysis of a sample of 312 specimens from Kahuterawa confirms significant bimodality (Chi sq. = 119.0 for 23. d.f. *** p. less than 0.001: normal distributions satisfactorily fit the separate distributions). It may be that the separation has been sufficient to produce reproductive isolation and that in fact two species do now co-exist. Only experiment will clear this point. However, the extreme variability of the species throughout its range and the moderately large number of intermediate forms in the zone of mingling suggest that isolation does at least not exist for proportions of the populations. The widely-spaced riblet form from the Southern Ruahines and Northern Tararuas may well qualify for subspecific distinction in future revision of the genus.

Solem (1959) reviewing the question of the age of land Mollusca concludes that "in the Tertiary only minor evolutionary changes took place . . . Modern families were present in the Cretaceous and Paleocene; modern genera in the Eocene; modern subgenera in at least the Miocene; and modern species in the Pliocene." On this basis large populations of a species which become separated may attain specific rank after a period of 10 million years. It is reasonable to suppose that similar populations might attain subspecific rank in a period of 2-5 million years. These conclusions would appear to fit the present case very nicely. Assuming that the Cook Strait breaching occurred about two million years ago, one would expect to find subspecific differences on either side of this break, and this does in fact occur in the present species. The subspecies *C. coma globosa* recognised by Suter in 1892 occurs in the southernmost parts of the North Island in contrast to the more typical *C. coma coma* occurring in the north of the South Island. There is further evidence in the species *Phenacohelix stokesi* (E. A. Smith). Cumber (1961) shows that the Cook Strait break has been in existence for a period sufficient to produce differences of subspecific rank in this species.

It is generally true today that the majority of our terrestrial Mollusca are associated with substantial bush coverage. In attempting to fit the distribution of these animals into Pleistocene geographic history, it should not be assumed, however, that these have always been their requirements. The question of humidity is all important. Sparse vegetation at 4,000ft today is doubtless a far better habitat than the same degree of vegetation near sea-level in most areas. There are few detailed studies on the food requirements of snails, but it seems probable that with the exception of a relatively few carnivorous species, most browse on decaying vegetation, fungae, algae, lichens, mosses, and perhaps ferns. The association of the different species with different plants may well be due to the epiphytes on these plants, which are dependent upon conditions of humidity. Some species today live beneath moss and lichen covered rock well above the bush line, just as successfully as do others beneath logs in the densely wooded areas of the genus.

New Zealand possesses a large and varied fauna of terrestrial Mollusca. Close studies of distribution and variation in other species will certainly yield information of great interest to both geographer and biologist, and will place our systematics on a firm basis. There is an urgency to collect adequately our fast dwindling areas of original vegetation before the opportunities for such studies are lost for all time.