A second principle concerns generic diversity. Faunas found in sequences that include glacigene rock types are individually numerous, generically few. Faunas found in coral reefs or other warm-rock types were individually more or less numerous, and generically numerous as well. Geographical plots of rock types and genera clearly show an increase in generic diversity away (e.g., northwards) from glacigene regions. In the case of eastern Australia the Permian faunas increased northward in diversity, implying that the south pole lay nearer to Tasmania than to New South Wales (Figs. 1, 2).

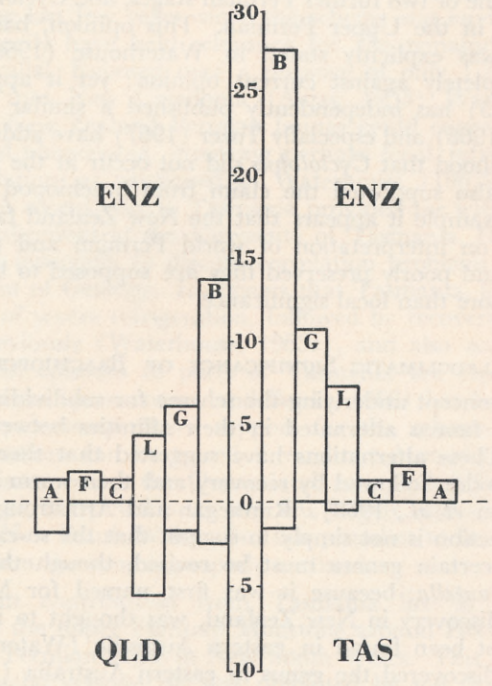

FIG. 1.—Numbers of Permian genera in Queensland, Tasmania and New Zealand, excluding West Nelson, which has a Tasmanian fauna (Waterhouse and Vella, 1965). On the left side the number of genera in various phyla and classes found in eastern New Zealand (ENZ) but not in Queensland (QLD) are compared with those found in Queensland but not in eastern New Zealand. On the right side the numbers of genera found in east New Zealand (ENZ) are compared with numbers found in Tasmania (TAS) but not in east New Zealand. To judge from data so far published, east New Zealand and Queensland had somewhat comparable diversities, whereas Tasmania was generically impoverished.

A, cephalopods; B, brachiopods; C, "warm-water" reef-building corals; F, fusulines; G, gastropods; L, bivalves.

These concepts find two independent lines of support. The first is that modern distributions of biota show the same increase in diversity away from the poles, culminating in the warmest region at the equator (Stehli *et al.*, 1967). The second is that paleomagnetic evidence shows that the Permian paleomagnetic pole lay essentially south of eastern Australia (Irving, 1964), as confirmed by more recent work. Combining these principles, Waterhouse (1969b) has plotted the distribution of productaceans in the Permian of eastern Australia to show how Queensland to the north possessed more genera than New South Wales and Tasmania. For instance Fauna II of Queensland includes *Taeniothaerus, Aulosteges, Krotovia, Horridonia, Cancrinella, Terrakea,* and *Anidanthus. Aulosteges, Krotovia* and *Horridonia* certainly did not penetrate Tasmania, where the only common productaceans were *Taeniothaerus* and *Terrakea* (Fig. 2). Although some genera were highly variable in toleration, most exhibited consistent tolerances with marked thresholds. *Cancri-*