

broadleaved species and podocarps along the streams. Investigations in the field in Northland have shown that these forest types (particularly kauri) are mor-forming. Laboratory work by Bloomfield (1953) on kauri litter shows that this is extremely acid and, acting in the same manner as the litter of Scots Pine, is conducive to podzolisation. The National Resources Survey (Northland Region, 1964) specifically lists kauri as a mor-forming species and indicates that "with a similar rainfall, there is an intensification of strong leaching under mor-forming species and a retardation of this tendency under the mull-forming trees". On the other hand, the red earths, which display no evidence of clay translocation, were developed under a "primitive vegetation" of broadleaf-dominant forest or a mixed broadleaf-podocarp forest where broadleaved trees were dominant. These species are mull-forming (Northland Region, 1964).

The natural or indigenous vegetation of the krasnozems of the Dorrigo area is thought to have been broadleaved tropical rain forest with *Argyrodendron* as the dominant tree (Baur, 1957). As in the Bay of Islands the vegetation was not similar over the entire krasnozemic area, and small areas of natural grassland occurred, but it seems that the dominant species were everywhere broadleaved trees or grassland. The humus form developing under such a vegetation would be a mull. As the red-yellow podzolic soils of the Bay of Islands, which have marked textural differentiation in the profile and a *Lehm* fabric in the B horizon, developed under a mor humus form, and in a similar climatic and lithologic environment on the Dorrigo Plateau, krasnozems with no textural differentiation in the profile and an *Erde* fabric developed under a mull humus form, the writer favours the hypothesis that it is the nature of the humus form that it is mainly responsible for the development of differing soil types in these similar environments.

In the Dorrigo area the humus form of the present disclimax vegetation, paspalum and white-clover dominant pasture, is a mull. It therefore perpetuates the influence of the mull humus form of the original vegetation. In the Bay of Islands the present vegetation pattern on both the red-yellow podzolics and red earths is complex, but it is predominantly white clover, paspalum, cocksfoot, and/or rats-tail pasture, which is mull-forming, and in the case of red-yellow podzolics must to some extent ameliorate the effect of the mor humus form produced under the natural vegetation. This raises the problem of whether a mor humus form is necessary only to initiate clay translocation, which once begun continues, or alternatively whether clay movement occurs in the Bay of Islands only under a mor humus form and whether in many of the red-yellow podzolic soils now under a pasture-grass disclimax vegetation and a mull humus form translocation is no longer operative, and in fact these are to this extent fossil soils related to the natural vegetation cover.

SIMILAR SOIL TYPES IN DISSIMILAR ENVIRONMENTS

A marked morphological similarity exists between the red earths of the Bay of Islands and the chocolate, especially the reddish-chocolate, soils of the Northern Tablelands. Both soil types have a shallow, yellow-brown to dark-brown, silty clay loam A₁ horizon with well-developed crumb structures. These are finely porous when dry. With the exception of one red-earth profile, the pH of the A horizon at all sites varied only from 5.8 to 6.0. The (B) horizon varies in colour in both but it is usually a clay-loam with small to medium subangular blocky structures and a pH varying from 5.9 to 6.6 in the red earths and from 5.7 to 6.2 in the reddish-chocolate soils. Both soil types often contain numerous basaltic "floaters". In order to substantiate this apparent similarity, the red earths were studied in relation to the comparative table of diagnostic properties of the euzozem, chernozem, reddish-chocolate, and krasnozem soil types in Hallsworth *et al.* (1953, p. 324). This demonstrated that in every detail except handling consistency the red earths closely