



NEW ZEALAND
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NEW ZEALAND ARCHAEOLOGICAL ASSOCIATION NEWSLETTER



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LETTER TO THE EDITOR

Dear Sir,

I am not as sanguine as B. G. McFadgen (1974) hopes to be in unravelling climate change over the last 1,000 years solely on the basis of stratigraphic interpretation of archaeological sites. My principal reason is that the number of widespread marker beds is insufficient to distinguish between local happenings and the more important regional events.

In my opinion, stratigraphical interpretation will have to be set within the chronological framework provided by the climatologist such as H. H. Lamb (1966), who perhaps might be better described as a climate historian. His temperature curve for England over the last 1,000 years has been reproduced in the main by Wilson *et al* (1973) from temperature data obtained from New Zealand cave formations. From a comparison of these curves the latter authors conclude that the little optimum or medieval warm period culminating between AD 1000 and AD 1300 and the little ice age culminating between AD 1550 and AD 1850 "were not just a European climatic fluctuation but also occurred in the South Pacific and were probably of global extent....".

What interests me as a pedologist is why we don't use the soil profiles with A (B) horizons as a marker bed to indicate soils formed during the little optimum period. Such profiles occur on former flood plains of the Gisborne and Rangitaiki Plains where Kaharoa Ash erupted 930 + 70 years B.P. is present within a metre of the surface. Furthermore, soils with A (B) horizons are buried by alluvium thought to have been deposited as a result of catastrophic erosion and sedimentation about AD 1600. Thus it seems reasonable to assume that soil formation with A (B) horizons took place 700 to 800 years ago and this assumption is independent of climatological information.

Wilson and Hendy (1971) infer that the little ice age was a period of increased storminess in the South Pacific region. The effects of such storms should be reflected in the soils of the flood plains where humified and partly humified flood layers should occur above the buried soil with an A (B) profile. In my experience of detailed soil surveys of flood plains there is a continuum of soils with flood layers from c. AD 1600 to the present day. Some layers are more humified than others and this darkening indicates a hiatus in flooding. Such a layer could be used as a marker bed (Pullar, 1970).

I think case studies should be made of individual flood plains to try and reconcile flood layers with the historical record (Pullar, 1965). I am glad to see that studies are now being made on the effects of storms on the landscape (Selby, 1967; Pain, 1968; Eyles, 1971).

Surely Mr McFadgen would not wish all archaeological excavation to be stopped until the site is examined by a competent soil stratigrapher? People with such skill are few and far between. As a compromise, representative baulks could be selected for later stratigraphic examination.

W. A. Pullar,
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