



NEW ZEALAND
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NEW ZEALAND ARCHAEOLOGICAL ASSOCIATION NEWSLETTER



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CLIMATIC INTERPRETATION IN NEW ZEALAND ARCHAEOLOGY

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In a review of Monograph No. 2, N.Z. Archaeological Association (Green, 1963), Simmons (1965: 17) makes the observation...

"The climatic interpretation is rather interesting in that as far as any geographers I have consulted are aware only one portion of it, that relating to the hypothetical climatic deterioration which affected forest cover about 1200 A.D. is commonly known...."

Now Green based his climatic interpretation on that of Cumberland (1962) who in turn has examined concepts of the newer dynamic meteorology advocated by Willett and Lamb (see Cumberland, 1962: 111 and 112 for references). Green also adopts the work of Yen (1961) for his views on kumara agriculture, but in the matter of changes of climate, the latter leans heavily on the findings of Raeside (1948) and Holloway (1954), who based their field observations on soils and forests respectively. But Cumberland (1962: 114), has questioned the "validity of the 'increasing dessication' after 1200 a.d., postulated by both Holloway and Raeside..." and so we have a conflict of views on climatic change during the earlier part of the last millenium.

If we examine the original texts of these authors we have the following:

Raeside: (p. 170) "... It may be taken therefore as a safe working hypothesis that the warm forest period in Canterbury coincided with the warm period in the northern hemisphere between the seventh and the fourteenth centuries. The transition to the cooler grassland period probably corresponded with the change from the warm period in the northern hemisphere to the colder period which began about the fourteenth century..."

Holloway: (1954: 373) "... The probable latest date for the change of climate would lie somewhere between the beginning of the 11th and the close of the 14th centuries A.D..."

(1954: 374) "...that all evidence to hand strongly suggests that there was a major change in climate and that this change occurred somewhere within the period from the end of the 10th to the beginning of the 14th centuries, most probably about the year 1200 A.D.....the change itself may have been an abrupt one and was possibly initiated by a period of markedly severe (drought) weather..."

(1964: 8, in reply to Cumberland's critique) "...Many peculiarities (but not all peculiarities) in the composition and behaviour of South Island forests are readily explicable in terms of an hypothesis stating that there was a significant change in climate about the years 1200 - 1400 A.D. This change was generally in the direction of increasing cold...."

Cumberland (1962: 113) presents a table showing 400 A.D. - 1000 A.D. as warm and dry; 1200 A.D. - 1900 A.D. as cool and wet; and 1900 A.D. + as warm and dry.

(1962: 139) "...the suggestion here is that weather and climate may have been a little warmer and drier than at present in the centuries preceding, and overlapping shortly into, the era of human occupation in New Zealand ... After about 1200 A.D.... weather conditions may have been cooler and damper than they are commonly at present. There is evidence since 1885 of some slight but general amelioration of our weather...."

A mixture of these views seeps into the writings of Green and Yen. For example, Green (1963: 99) postulates that the climate during the proto (pa or village) Maori phase, C. 1450-1650 A.D., was somewhat cooler and damper than today which statement may be at variance with that of Yen (1961: 341) ... "there was probably a short period, even with a 14th century introduction, when the climate was considerably more suited to the growth of tropical plants than now..." Furthermore, Yen's statement is immediately preceded by... "If the temperature drop between 1200-1600 A.D. postulated by Brooks for Europe may be applied to New Zealand..." and would appear to be a non sequitur.

En passant the word "deterioration" in reference to climate is used frequently in archaeological literature. What does this mean? It would have little meaning to climate as qua climate but a great deal to living conditions of people - strong winds blowing sand off the beach, flooding rivers, and the incidence and degree of frosts. To be fair, the latter has been mentioned by Green (1963:58). Nevertheless, "deterioration" should be qualified and not left as a vague loose connotation.

The best summing-up of climatic changes in the last two millennia is by Fleming (1963: 50, 51):

1. Warm episode - 1000 to 1300 A.D.
2. "Little Ice Age" - 1650 to 1850 A.D. with maximum about 1800 A.D.; it is a reflection of a world ice budget and a temperature difference somewhere in the world may not necessarily be reflected in local New Zealand temperatures. But climatic fluctuations are considered to be in "phase" in the two hemispheres, so that trends in New Zealand must have been parallel with those in the north.
3. The Trade Wind belt moved south in warm periods and the West Wind belt moved north in cool periods. Local effects in New Zealand could well result in the east coasts receiving more rainfall and humidity during the trade wind phases than during the west wind phases when accentuated Fohn winds operated.

4. "...From Wellman's interpretation of Late Holocene sections, mainly in the North Island, little of climatic significance emerges except that any temperature changes in the past 2000 years have been less than a degree in mean temperature..."

Archaeology has necessarily to borrow heavily from other disciplines, but wherever possible, "borrowing" should be examined critically as otherwise a superstructure may be erected on unsound foundations. To secure the underpinning, archaeology should try to test hypotheses from "borrowed" information by cross checking in its own right and not follow an attitude too prevalent in New Zealand of "it doesn't matter where we are going as long as we all keep together".

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