NEW ZEALAND ARCHAEOLOGICAL ASSOCIATION NEWSLETTER

PHYSICS AND ARCHAEOLOGY. M.J. Aitken. New York and London, Interscience, 1961. 181 pp. Illus. Price (N.Z.) : 60/-.

Physical methods are being applied to archaeological investigations with ever increasing frequency and in this book Dr. Aitken discusses the tools and techniques which the physicist can place at the services of the archaeologist.

The first four chapters deal with techniques for locating objects of archaeological interest on a site already discovered by the more conventional methods of aerial photography, visual exploration at ground level or fortuitous exposure by human or natural agencies. This section deals with magnetic and resistivity surveying. Each chapter begins with a lucid summary of the physical principles involved, and then discusses types of feature detectable and possible sources of error. Walls, ditches and pits, of importance in New Zealand, can be detected by these methods.

Magnetic surveying is the quickest and surest technique but the equipment is expensive (in New Zealand I suggest an outlay of about £100. - £150. and the results are easily affected by interference from buried iron, wire fencing and underlying igneous rocks. Resistivity surveying is more tedious, but the only important source of interference here is changes in ground resistance brought about by high rainfall. Just how time-consuming the method may be is shown by a note in a recent issue of Antiquity (1962, 36 : 134.) where a 100 ft. square at a Roman Villa site "was covered by two men in four days. The data were afterwards processed by a standard method involving several hours of computation."

In a similar fashion the physical methods of dating are covered in the next three chapters. The theory of radiocarbon dating is well treated, but as readers of the Newsletter know the dates available in this country are undergoing close scrutiny in the light of the discrepancy between kauri ring-dating and C14 dating announced by H.S. Jansen, and until the anomaly is resolved all chronological inferences based on C14 data must remain suspect.

The other method of dating dealt with in detail is that based on remanent magnetism. The direction of the earth's magnetic field in the past is retained as a permanent record in baked earth or clay. Unfortunately, the variations of the earth's field are not predictable, and calibration

from objects of known date is necessary within each region before absolute dates can be obtained. Contemporaneity of occupation at adjacent sites could, however, be determined by this method. The equipment requires laboratory facilities and is relatively expensive.

The book is well bound and printed, but for its size is expensive. The references cover the literature up to late 1960, and are printed in the fashion demanded by most scientific journals, though unfortunately not by most archaeological ones.

The Author states that he has emphasised quantitative methods, and in keeping with this he avoids making archaeological inferences. Within his self-imposed limits, he has written an impressive book, stimulating both to the physical scientist and the archaeologist. The subject is so presented that the more complex technical sections may be omitted without losing the main thread in any chapter.

E. L. Phelan.

STRATIFICATION FOR THE ARCHAEOLOGIST. Edward Pyddoke, Phoenix Houst Ltd., London, 1961.

This is a companion volume to the Phoenix House textbooks "Soils for the Archaeologist" and "Bones for the Archaeologist", both by I.W. Cornwall, but unfortunately does not maintain their standard of usefulness.

The Author points out that "the word 'stratification' has been chosen for inclusion in the title so as to lay stress upon the difference between this - the making of strata - and 'stratigraphy' the drawing or description of strata." The restriction of subject matter thus required by the title is adhered to throughout the book. Elementary explanations are given of the various geological processes such as sheetwash erosion, frost fracturing, delta formation and peat accumulation which build up the strata within which evidence of man's past existence is preserved. There is little description of the deposits so formed, and what description there is, is not diagnostic, i.e. there are no criteria given for deducing the process which has given rise to a particular deposit. "Soils for the Archaeologist" enables the excavator to perform his own pedological investigations but "Stratification for the Archaeologist" does not show him how to interpret the stratigraphy of a section. The book provides background for an understanding of the methods and limitations of the geological adviser but does not reduce the amount of work to be passed onto the geologist.

Owen Wilkes.