



NEW ZEALAND  
ARCHAEOLOGICAL  
ASSOCIATION

**NEW ZEALAND ARCHAEOLOGICAL ASSOCIATION NEWSLETTER**



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## RADIOCARBON ANALYSIS

The Council of the Archaeological Association set up a subcommittee to report on the state of the radiocarbon analysis in New Zealand. Mr. L. Lockerbie presented his report, dated June, 1962, at the Science Congress. The report contained details of the amount of work done by the Institute of Nuclear Sciences over the past two years and the backlog which had accumulated up to April, 1962. This backlog represented approximately one year's work. Samples from the Geological Survey, the Oceanographic Inst., the Inst. of Nuclear Sciences, the Universities (which include archaeological samples), all await processing.

The Council has been concerned at the apparent lack of progress in processing samples from archaeological sites in New Zealand, and so it is perhaps a relief to know that a great many samples other than archaeological ones are on the waiting list. The report does not contain a detailed list of archaeological material in the backlog. Four suggestions were put forward by Mr. Lockerbie....

1. That the Council appoint a small committee of people who are likely to be able to assess the significance of archaeological samples submitted.
2. That it be suggested that the members of the Association submit C14 samples for analysis through the Association.
3. That the Committee report its opinions of the samples to N.Z. Geological Survey.
4. That Council appoint a representative who will meet representatives of the Geological Survey and the Institute of Nuclear Sciences to discuss the situation existing at that particular time, and report back to Council. These meetings should be held at least twice a year.

It is possible that Council will see fit to strengthen suggestion number 2 and that the Geological Survey will accept only those archaeological samples that have been approved by Council. This will relieve any individual of the embarrassment of being awarded the preponderance of dating runs.

Mr. Lockerbie concluded his address by repeating the advice given by the Geological Survey on the collection of samples.

Some forms of carbon are more suitable than others and an order of preference would be:- charcoal, charred wood, clean wood, putrified wood, shell, bone, grasses, cloth, marine sediment, peat and soils. The samples should be forwarded in a non-porous container viz. sealed tin, aluminium foil, plastic bag or sheet. Because of possible contamination sugar bags, cotton-wool, newspaper or other fibrous materials are unsuitable. Samples should, of course be identified by a stout label. To give the most accurate result, 12 Grammes of carbon are required.

<u>Material</u>	<u>Amount of dry material to give 12G of carbon</u>	
Wood	1 oz.	30 G
Shell	4½ oz.	125G
Bone	4½ lb.	2000G
Charcoal (pure)	1½ oz.	40G
Charcoal (average)	3½ oz.	100G
Peat	1-2 lb.	2500-7000G

Contamination must be avoided at all costs. Most contaminants are obvious but perhaps not so obvious, but unfortunately common enough to cause rejection of a sample, are plant or grass roots. Not only can extraneous carbon introduce an error but the carbon submitted for estimation may precede or be of more recent origin than the period under investigation. The inner heart wood of a tree may be hundreds of years older than the event that killed the tree, thus twigs, leaves, bark, shells etc., which have a shorter life span are better dating material.

Logs at present lying on the surface in some parts of New Zealand have given ages as great as 1330 years. A tree demonstrably in position of growth complete with bark, dates the overwhelming period of death rather better than a fallen log.

Mr. Lockerbie concluded his lecture with a further screening of his well-known colour slides, some of which showed very clearly the possibilities of contamination of carbon samples.

A. G. Buist

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Further notes on the collection of samples have been contributed by Mr T.L. Grant-Taylor, NZ Geological Survey, Wellington.....

Do not collect seal bone, whale bone, penguin bone or fish bone. These live in the open sea and will have a different C14/C12 ratio than those that live on shore or land. Standards for these bones cannot be given with nearly enough accuracy for archaeological dates. These dates are best done on bird bone, dog bone, twigs unburnt or charred, littoral shells - pipi, cockle, paua etc., - other materials may be suitable, but enquiries should be made before submission.

All samples must be thoroughly air dried and separately packed preferably in a heavyweight plastic bag with label enclosed and duplicate label stapled to the bag. Packing should be done in such a way that the sample cannot leak from the bag. Aluminium foil is not as good as plastic as the sample has to be repacked in the laboratory. Staple closure of the bag is best .. do not use selotape as the bags are usually destroyed when opened and then the sample has to be repacked. It is advisable to retain a duplicate sample. It is useful for the laboratory to have more than the required amount of sample, particularly of shell and bone which are now being x-rayed for re-crystallisation.

The NZ Fossil Record Form must be filled in. This gives a guide to proper location and recording of data. Three copies must be made ; one for the master file, one copy to retain and one copy to be forwarded with the sample.

All samples must be accompanied by a full statement of significance, both as an individual sample and as part of a sequence.

The Laboratory periodically published a complete list of dates, in the N.Z. Journal of Geology and Geophysics, together with a full statement of significance and locality. In the first instance all dates are personal to the collector or collectors and until this laboratory list is finally published the dates are not available for publication without the collector's permission. That permission must not be presumed. There is generally a lapse of about one year between dating and publication of the list, giving reasonable time for prior publication of the date by the collector. The date first reported should be confirmed from this office immediately before submitting a paper to the editor of a journal. All samples approved by the Geological Survey are dated free.

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The following NZ dates for archaeological material was published in the J. of Geology and Geophysics, Vol.5 no.2, May 1962...samples dated July '58 thro' 1959.

NZ C14 No.	Collector	Locality	Age in yrs. before 1950
354	J.Golson	Coromandel Peninsula, Mahinapua Bay.	640 ± 50
355	J.Golson	Coromandel Peninsula, Sarah's Gully.	600 ± 50
356	J.Golson	As above	200 or less
357	J.Golson	As above	590 ± 50
358	J.Golson	As above	810 ± 50
359	J.Golson	As above	650 ± 50

( Details of samples are omitted from this reprinting.)

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#### THE SITE RECORDING SCHEME

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By J.R.S. Daniels  
(Central Filekeeper)

An up-to-date list of local filekeepers is published at the end of this note. These filekeepers are responsible for processing all site recording done in their districts, and for sending the duplicate site records to Central Files in Wellington. All recording for the Site Recording Scheme must be sent to the local filekeeper of the area concerned.

#### Forms:

Forms for use in site recording are available from local filekeepers free of charge to all members wishing to record sites for the Site Recording Scheme. These include the Site Reference Form, Photograph Record Form, and the blank form which can be used for Site Description, Publication References, Traditional Information etc., and headed up appropriately. (See Vol. 3 No. 4 Newsletter)