NEW ZEALAND ARCHAEOLOGICAL ASSOCIATION

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RADIOCARBON DATING AND THE NEW ZEALAND ARCHAEOLOGICAL ASSOCIATION

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and
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For many years the New Zealand Archaeological Association has had a special relationship with the Institute of Nuclear Sciences regarding C14 dating. This note describes this relationship so that members of N.Z.A.A. wishing to submit samples for dating will know how best to go about this.

NZAA C14 screening committee.

This committee consists of Foss Leach and Garry Law who were appointed by N.Z.A.A. Council in 1975. The Institute of Nuclear Sciences has agreed to accept archaeological samples for dating free of charge (commercial rates are about $150 per sample) so long as these have been first screened by the committee. This procedure is to try and ensure that the service is not misused in any way and that suitable samples are submitted. Sometimes in the past, samples have been submitted personally to the Institute or through Geological Survey - this is no longer possible. Archaeological samples which arrive at the Institute and are not countersigned by either Garry or Foss are put in a box and are not considered until the next meeting of the Radiocarbon Committee (see below). This group meets only twice a year: consequently a sample submitted any other way than through this screening committee will simply take longer to process.

The purpose of the screening committee is to check that all the necessary details are provided on the sample forms, and that the samples themselves are generally satisfactory - for instance that they do not contain obvious contaminants such as rootlets. If there is any problem, the committee will help to put matters right. For example, sometimes it is difficult to know how much bone sample to submit for dating and a nitrogen determination may be necessary before submission for radiocarbon dating. The screening committee can arrange this. In addition, charcoal samples should be assessed for species composition. It is also necessary to find out if the sample comes from the heart of a large tree; if it does, the C14 age may be several hundred years too old. The screening committee ensures that such preliminary work is undertaken before samples actually arrive for dating. The purpose, then, of the committee is to ensure the highest possible standard of dating archaeological samples. This New Zealand system is unique and is intended to contribute to the high international reputation enjoyed by dates from the Institute of Nuclear Sciences.

As in the past some intending users will have special problems such as unusual samples or possible contaminants. The people best able to advise on these are the laboratory staff. Such users should feel free to consult directly with them on such matters.

What is an archaeological sample?

If the sample comes from an archaeological site within the meaning of the Historic Places Amendment Act 1975, then it must have been collected by permit from the Historic Places Trust. Consequently, samples submitted for dating must state the relevant Permit Number. Samples collected before the permit system was introduced (such as Museum specimens) should clearly state this.

Archaeological samples from outside New Zealand will usually be subject to the same screening, though charcoal identification cannot be offered in this case.

Priority on dating samples

Priority is not given to any one sample over another. The order of dating is strictly on a first come first served basis.

The Radiocarbon Committee

This committee meets at the Institute of Nuclear Sciences twice a year and consists of Hank Jansen and staff from the C14 laboratory, the N.Z.A.A. screening committee, Jim McKinlay, representing the Historic Places Trust, and Les Lockerbie. The latter two members are present by request from the Institute. Jim McKinlay is present because of the necessity to check that samples have been collected with proper authorisation. Les Lockerbie has been active on the radiocarbon committee for many years and oontinues by special invitation from the Institute.

How to submit an archaeological sample

If you are in doubt over anything connected with sample preparation or submission contact either Garry or Foss for advice and assistance. They will provide you with copies of the Archaeological C14 Sample Form (a reduced copy of which is shown here). They are in the process of compiling a pamphlet on the collection and preparation of samples which contains information on sample sizes and so forth.

1. Fill out the Archaeological C14 Sample Form and the N.Z.A.A. Publication Form (see below). Retain a copy of both of these for yourself and send one copy of each along with the sample to either Foss or Garry.

ARCHAEOLOGICAL ^{14}C SAMPLE FORM

N Z Archaeological Association for Institute of Nuclear Science

1 COLLECTORS SAMPLE NO ..... LAB R ..... CR ..... NZ ..... PR .....

2 COLLECTOR Name

Address

Date of Collection

3 SUBMITTER

Address:

Date of submission

4A SITE INFORMATION – New Zealand Samples

Site name: ..... District: .....

Site number in Site Recording Scheme: .....

NZHPT excavation permit number: .....

LOCATION (fill in both columns if possible)

NATIONAL YARD GRID

NZMS1 Map name:

Map number:

Edition:

Grid Ref. E:

(6 figures) N:

N.Z. MAP GRID (Metric)

NZMS260 Map name:

Map number:

Edition:

Grid Ref. E:

(7 figures) N:

4B SITE INFORMATION – non-New Zealand Samples

(Please give fullest possible details of site name and location, including recognised national site numbers if appropriate.)

Site Latitude: ..... Longitude: .....

5 SAMPLE LOCATION IN SITE Relate to site grids, site stratigraphy and to other samples.

STRATIGRAPHIC COLUMN

Layer No.	Drawing	Description and Notes

Printed by Otago University

6 SAMPLE MATERIAL (See 13 for charcoal samples)

Dried weight ..... grams

7 TREATMENT OF SAMPLE (please note details of excavation, treatment and storage since collection.)

8 POSSIBLE CONTAMINANTS

9 DUPLICATE SAMPLES

10 COLLECTORS AGE ESTIMATE Give a date *range* you would find acceptable both in absolute time and relative to other samples.

Basis of the estimate:

11 SIGNIFICANCE What do you wish the sample to date? Specify events in the site history and/or associated cultural and biological information. Why is this sample of importance?

12 ADDITIONAL COMMENTS

13 CHARCOAL IDENTIFICATION Give any information on local Vegetation which may be relevant.

LAB USE	Species	Comments
		Identifier:.....

14 NZAA Use Verified: ....
Comments

2. In due course you will receive a postcard from the Institute which tells you the Run Number your sample has been given, and this confirms that everything is in order and that the sample is in the pipeline. Should this postcard not arrive for any reason you should contact either Foss or Garry promptly.

3. You will also receive information about species composition and whereabouts in a tree your sample comes from if it was charcoal. In the case of bone samples you may receive information on strontium levels.

4. After a period you should receive the radiocarbon age of your sample. This period is normally about six months but on occasions, other priorities intrude on the work done by the radiocarbon laboratory and results can take a little longer.

Publication

In return for providing this screening service N.Z.A.A. has the right to publish the raw results of archaeological sample dating after 12 months has elapsed since the results have been reported to the person submitting the sample. These will be reported in the Newsletter in a simple list with the bare details. In the past some sample ages have never been published properly and misinformation has been circulated. This system gives adequate time for anybody to publish themselves beforehand as well.