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A BIBLIOGRAPHIC DATABASE FOR NEW ZEALAND ARCHAEOLOGY

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Introduction

The Centre for Archaeological Research (CAR) is developing a database of bibliographic references relating to Archaeology in New Zealand (hereafter ARCHBIB). At present this does not contain all of the material that will eventually be available, however ARCHBIB now contains sufficient material for the database to represent a useful resource for New Zealand archaeologists. The intention of this article is to alert the archaeological community to the presence of this resource along with details on how to use the system.

Content

The intention is that ARCHBIB will eventually incorporate all literature relevant to New Zealand Archaeology. This includes 'grey literature' such as theses and reports as well as more formally published material. In addition to strictly archaeological literature ARCHBIB will contain relevant references to associated subjects such as palynology, Palaeo-fauna etc.

At present ARCHBIB contains references to the *New Zealand Archaeological Association Newsletter* (NZAAN), *Archaeology in New Zealand* (AINZ) and *New Zealand Journal of Archaeology* (NZJA) plus relevant archaeological articles from *Records of the Auckland Institute and Museum* (RAIM) and *Records of the Canterbury Museum* (RCM). The available references cover the entire publication history of these journals and are kept up to date on an ongoing basis, as will be the case for all other material that is supported by ARCHBIB.

In addition to these journals it is intended to include the *Journal of the Polynesian Society* and *Records of the Otago Museum*. Eventually we hope to

include references to Theses located at Otago and Auckland Universities, NZHPT reports and other unpublished results and reports. Additionally ARCHBIB will contain bibliographic reference material for the following specific topics: Amino Acid Racemization, Bayesian Chronometrics, Obsidian Research, Molecular Archaeology and Palaeo-environment.

An up-to-date content list for ARCHBIB is published on the web site.

Searching

The primary user interface to ARCHBIB is through the WWW, and is located at the CAR website (<http://www.car.auckland.ac.nz/>). This interface provides a simple means of searching the available literature (Figure 1). Two types of search are possible, text and SQL. The simplest type of search is to search on Author, Title or key words. Under this type of search it is simply necessary to input the search text as described below and the matching results will be returned. Additionally it is possible to perform more complex searches using a direct SQL query.

Standard Search

To search on **Author**, **Title** or **Keyword** select the appropriate search type (i.e., Author, Title or Keyword) from the search type selection box and input the search text. The search is not case sensitive and will return all matches to the search pattern. This means that any references that contain the search pattern will be returned. So for example, searching for all references that deal with obsidian we would select a search by keyword and input "obsidian" as the search pattern. This will return all references which have obsidian in their keywords (e.g., obsidian, obsidian hydration, obsidian sourcing). Using the search pattern "obs" would return all of the same references though may return references to other keywords such as "observations". Thus as a more specific search pattern is specified the result set will become more restricted. Effectively, the search operates as if the % wildcard (see below) had been pre-pended and appended to the entered search text (which is in fact exactly what happens behind the scenes).

Two wildcards can be included in the search text, the symbol % refers to a wildcard of any number of characters whereas the ? symbol refers to a single character wildcard. Wild cards are probably of most use in searching for Author names or in cases where the exact spelling of a keyword is not known. As an example, wildcards are necessary to effectively search on the **Author** "Douglas Sutton". In various cases this author may be input as D. Sutton, D.G.

Sutton, Douglas Sutton or possibly Douglas G. Sutton. Thus a search on "D. Sutton" may exclude relevant references. In this case a wild card is useful. A search on D%Sutton will match any author whose name begins in d and ends in sutton and thus all forms of Doug Sutton will be matched by this search. Thus the advice for searching on **Author** names is to make a search in the format First initial last name separated by the % wildcard (e.g. a%anderson for Athol Anderson, r%green for R.C. Green, j%Davidson for Janet Davidson etc, again remembering that the searches are not case sensitive). Other uses of Wildcards may arise where spelling is uncertain. For example to search for references relevant to Harataonga it is possible to make the search as Hara%onga (or Hara or %onga etc) or if the only source of confusion is the order of a couple of characters the search could be Harat??nga which would match both Harataonga and Haratoanga.

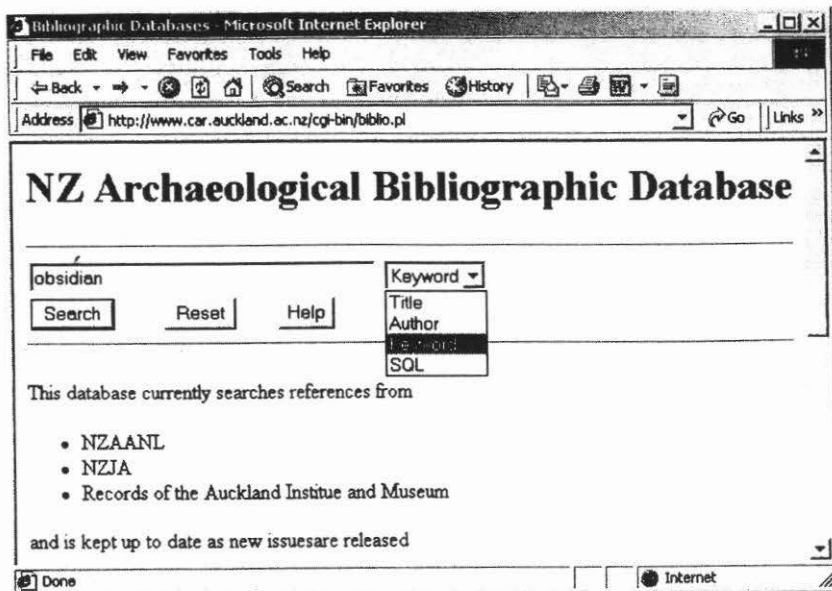


Figure 1. The Archbib WWW interface.

SQL Searches

SQL searches are slightly more complex, however they are fairly straight forward with a little experience, and as SQL is THE standard database query language there are many good introductory texts on SQL. SQL queries are typically of the following form:

SELECT vars FROM table [*optionally* WHERE conditions ORDER BY vars]

With ARCHBIB the Vars available for selection are:

1. type varchar(14)
2. ref varchar(30)
3. Author varchar(255)
4. title varchar(255)
5. year integer unsigned
6. pages varchar(25)
7. volume varchar(10)
8. number varchar(10)
9. editor varchar(255)
10. volname varchar(255)
11. volkey varchar(6)
12. edition varchar(10)
13. series varchar(255)
14. chapter varchar(10)
15. publisher varchar(60)
16. address varchar(80)
17. institution varchar(80)
18. keywords text

The primary data-table for ARCHBIB is nzarch (lower case). Using the template given above, relatively complex searches can be easily performed. For example to retrieve the titles of all articles that refer to obsidian we could use the SQL query:

```
SELECT title FROM nzarch WHERE keywords LIKE "%obsidian%"
```

If we wanted to spruce this up a bit and select references that date to some particular time period, say 1988-1998, we would simply add the extra conditions in the WHERE clause of the statement as follows:

```
SELECT title FROM nzarch WHERE keywords like "%obsidian%" and year > 1978 and year < 1988
```

We can further extend this search to only look at the subset of these references in which D.G. Sutton was an author, in this case we would again simply add the extra condition to the WHERE statement as follows:

```
SELECT title FROM nzarch WHERE keywords like "%obsidian%" and year > 1978 and year < 1988 and author like "%D%Sutton%"
```

All terms except SELECT and FROM are optional. So it is quite possible to issue the query:

```
SELECT title FROM nzarch  
which will simply return a listing of all titles in the database.
```

The final statement that may be of some use is ORDER BY. This statement allows the order of the output to be specified. For example to sort the output by year of publication simply use the **ORDER BY year** statement. Multiple variables can be used to order the output and this gives rise to nested orders. So to sort the output by Author, then by date simply use the **ORDER BY author, date** statement. In this manner it is possible to specify any ordering scheme desired. Returning to the obsidian example again our search query could be:

```
SELECT * FROM nzarch WHERE keywords LIKE "%obsidian%" AND author LIKE "%sutton%" AND year > 1990 ORDER BY author, year
```

Which would return the following references

D. Sutton and P. Sheppard.1994. Dating New Zealand prehistory using obsidian hydration. *Archaeology in New Zealand* 37(4):272-281.

M. Jones and D. Sutton and G. Jones and C. McLeod.1995.Measuring soil temperatures for obsidian hydration dating in northern New Zealand. *Archaeology in New Zealand* 38(1):9-16.

M. Jones and P. Sheppard and D. Sutton.1997. Sample collecting and submission for obsidian hydration dating. *Archaeology in New Zealand* 40(2):136-142.

P. Sheppard and P. Barker and G. Irwin and M. Jones and C. Stevenson and D. Sutton.1996.The development and application of New Zealand obsidian hydration dating, 1996-1998. *Archaeology in New Zealand* 39(1):16-29.

Output

Currently the sole output available from ARCHBIB is as the HTML file displaying search results. In the (hopefully near) future we intend to make a

link to an Endnote or BibTeX file of the search results available so that the search results can be directly incorporated into reference formatting programs such as Endnote for use in packages such as Word or BibTeX for LaTeX.

Future

ARCHBIB actually exists as a MySQL database on a Linux server and the current web interface is built using DBI/DBD in Perl CGI scripts. In the near future a JAVA client for the database will also become available which will provide added functionality over the current style of 'static' web interface. The link will also be made available to other interfaces wishing to search ARCHBIB. This will be useful for integrating with other search engines, resources etc..

At present we have only included bibliographic reference material in the database. Eventually we would like to include abstracts and in some cases full text of referenced material as permissions allow.

Acknowledgements

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