

GEOSCIENCE INFORMATION RESEARCH PROJECT: Access to Australian geoscientific information – a tragedy of the commons?
by Dr Kerry Smith, FALIA

Introduction

The minerals and petroleum industries in Australia form the backbone of the country's economic development and are seen as "critical to the Australian economy and way of life" (DITR, 2006, np). This economic development has been the situation in Australia for many years despite "the familiar perturbation or cyclical downturn driven by world economic conditions or poor commodity prices" (Leggo, 2002, p. 38), the unpredictable enrolments of students in geoscience courses, and "the delicate and highly emotional nature of the debate over native title" (Stevens, 1994, p. 43).

The work of the geoscientists in these industries is crucial to their success. Geoscientists normally base their theoretical understanding on field studies and the knowledge they derive from the geological data they compile, and use and the literature which reports research and practice that have been carried out before. The main contributors to this literature are those practicing geoscientists/geologists who often work for mining and petroleum companies, and geoscientific researchers. Thus there is a differentiation between the practicing geoscientist or geologist, and the researcher in geoscience/geology. Geoscience is an international science, yet the Australian condition has unique characteristics.

Background

Australian geoscience information is made available in a commons as well as a restricted information environment. Matters which come under the rubric of the information commons are deserving of much closer research attention than has been given them to date. These include the advent of changes of direction in many public policy and market forces which "have enclosed rather than expanded the commons" (Kranich, 2003, p. 2). The information commons is being defined in a variety of ways. For the purposes of this project two definitions are followed:

- "the imaginary "place" where works in the public domain and works affirmatively made under conditions less restrictive than full copyright "reside" (Campbell, 2005, p1.); and
- a commons, simply understood, is a resource, or a facility, "that is shared by a community of producers or consumers" (Oakerson, 1992 as quoted in Kranich 2004, np). The resources within a commons may be either "public goods" or "common pool resources" (Kranich, 2004, np).

Access to Australia's geoscience information is enabled through computerized databases and there was one such database in Australia, AESIS¹, which was maintained by the Australian Mineral Foundation (AMF) until its demise in 2002. The files of AESIS and more recent indexing of geoscience literature of relevance to Australia has since been taken over by AusGeoref² maintained by Geoscience Australia, the federal geoscientific agency. Access to the database is available via subscription. There is also considerable information available via the Internet.

However it is one thing to locate the relevant references and another to locate the information and data to which they refer. Geoscientific information occurs in many formats. Not only is there the formal published literature of monographs and journals, but there also exists many other collections which include rock specimens, petrographic slides, drill core, maps, photographs, field guide and notebooks, government, research and technical reports.

Library collections

In 1993, Hiller was among those who identified a paradigm shift in the traditional model of geoscientific research libraries and their collections. Among the influences for this shift were:

- Continued growth of scientific papers.
- Escalating costs of periodicals.
- Expanded access to geoscientific information through computerized networks.
- changes in patterns of scholarly communication, and
- new directions in policy and finance for libraries (Hiller, 1993, p. 1).

¹ Australian Earth Sciences Information System

² A bibliographic geoscience database drawn from GeoRef that covers Australian literature since 1933 (AGI, 2006).

This situation continues today and there are similar impacts on information provision in many other disciplines.

Dunn's (2001) observation in the US context was that the "traditional model of the organizational onsite geoscience library providing users with their primary information needs has been increasingly superseded by the new model of electronic access and shared offsite resources" (Dunn, 2001, p. 5). Dunn describes major changes in the availability and formats of geoscientific information in the US. Does a similar situation apply in Australia? How might the Australian geoscientist be accessing yesterday's and today's geoscientific information? There are a growing number of academic libraries using the term "information commons" to describe their way of doing business. Does this model fit the geoscientific information landscape?

Until its demise, the AMF not only held a significant geoscientific collection, but also kept a watchful eye on matters to do with geoscientific information in the Australian context. It created and maintained the AESIS database, represented the geoscientific information community on relevant bodies and committees and facilitated co-operation and collaboration in geoscientific information circles for the betterment of the industry that supported it. That the minerals and petroleum industries no longer support such an agency and that it was left to fall into receivership spelt doom for these initiatives.

Geoscientific library collections in Australia are assisted by the federated and systematic approach to geoscientific research and surveying in the country. This is carried out by the federally funded agency Geoscience Australia and at the state and territory levels by geological surveys often attached to a state/territory Department of Mines. Each agency has its own library and collections. As well, of the 39 federally funded universities in Australia, the teaching of geoscience is currently represented in some. It would therefore be expected that those universities would have geoscience represented in their university library collections. The National Library of Australia is "Australia's largest reference library enhances learning, creativity and intellectual endeavour. Through its collections and services it supports the dissemination of knowledge, ideas and information" (National Library, 2006). How is geoscience represented in its collections and services? Additionally geoscientific research is carried out by some areas within the nations' national scientific agency, the CSIRO, and geoscience would be represented in their library collections.

In 1983 Wallcott undertook a survey of major library collections in the geosciences in Victoria. The results of a recent literature search reveal that such a survey has not been repeated for the other states in Australia nor indeed for the country as a whole.

The Research Issues

A number of geoscience information research issues arise from the situations earlier described. Those identified to date broadly include access to and availability of geoscientific library and physical collections, and Australian geoscientific knowledge diffusion. It is proposed that each of these topics be investigated in turn as resources become available.

The first project to be undertaken is that on the current status of Australia's *geoscientific library collections*. The questions which arise here are:

- How well do Australia's geoscience collections facilitate national and global geoscientific endeavour, discovery and capacity?
- Has the structural change within CSIRO and other government agencies impacted on the stability, maintenance and growth of their geoscience library collections?
- What is the impact of industry library closures and re-births?

This component of the research will be divided into sub projects, the first of which is to assess the above questions at the national and Western Australian levels. This approach will enable testing of the research methodology and the size of the undertaking. The significant issues to be investigated will be:

- Analysis of 2 methodologies (conspectus and audit) to decide the best approach;
- what is a geoscience library? and
- are physical libraries necessary?

It will also be necessary to find out:

- Where are Australia's geoscientific library collections?
- What do they hold? – National and WA.
- Are these holdings considered significant by the Australian geoscience community?
- Who has access to them?
- How are they accessed?
- Is there a collection of "last resort"? – Once *library* project completed.

Future projects, underpinned by information use and user analysis, include:

- a state by state analysis of the status of Australia's geoscientific library collections with recommendations for ways forward in the national interest.
- An analysis of the relevance of the "information commons" as described in this report and also as used in a different manner in the provision of library services³, for the provision of information for the geoscientific information landscape, including:
 - an investigation of the location, maintenance and access to, of physical collections which include samples, core, petrographic slides,
 - an investigation of issues raised by the generation and ownership of and access to geoscientific data. This will also have an impact on geoscientific knowledge diffusion,
 - The role of the geoscientific researcher in information production and access to that information. It is commonly believed that with the advent of the Internet, science will be revolutionized by the increased ability to communicate through this electronic medium. Have "advances in Internet searching – such as simultaneous ranked searching of distributed digital collections made broadly available via the Internet – [speeded] up the diffusion of scientific knowledge?" (Wojick, Warnick, Carroll & Crowe, 2006, p. 1). Smith (2004) found that in the realm of geoscience, its researchers were not heavy Internet users when it came to disseminating their research. Rather, if their work was to reach the public domain, they preferred the more traditional route of the published journal. Yet there were groups of researchers whose work did not get to this stage; they had prepared technical reports and found themselves on a research funding treadmill of working on the next project with little to no time to write up earlier work for the published literature. The general research questions posed in this context is: Have these trends changed? How does such geoscientific research reach the public domain?

Benefits Statement

The search for funding for this project has alerted geoscience associations and professionals to what is now termed a 'sleeping giant.' It is evident that many presumptions have been made that certain geoscience government agency libraries have 'the responsibility' to collect widely and in depth in geoscience. Yet this may not be the case. Government agency libraries collect for their agency geoscientific programs and activities. That they might also hold a broader range of material is accidental rather than planned.

The industries which support geoscience in Australia are economically driven and their presence in Australia waxes and wanes. So does their commitment to the information which underpins all of this activity, with library closures and re-births being a fact of life. When it became evident that the AMF was to cease operations, there was no strategic action with regard to what might happen to its substantial collection and its whereabouts need investigation. Such situations indicate a reliance on what are perceived to be the more stable library collections of government agencies and universities. Yet the CSIRO and universities in Australia have been in a situation of structural change for several years. We need to ascertain if such restructures impacted on the stability, maintenance and growth of their geoscience library collections.

Conclusion

Australia depends on geoscience and its industries for economic growth and if some of the crucial but often unnoticed support mechanisms are difficult to access or even at risk, then this will impact on the capacity of the industry. A small amount of start-up funding for the project has been provided by the Australian Geoscience Information Association (Inc) – AGIA – see: <http://agia.org.au/>, but if the projects are to advance in an orderly and timely manner, more funding is required. Please contact the project's chief investigator: Dr Kerry Smith if you are able to assist:

Dr Kerry Smith, FALIA
Coordinator - Information Studies
Faculty of Media, Society & Culture
Curtin University of Technology
GPO Box U1987
Perth WESTERN AUSTRALIA 6845
ph: 61 8 9266 7217
fx 61 8 9266 3166
email: K.Smith@curtin.edu.au
web: <http://humanities.curtin.edu.au/staff.cfm?id=MIOJMGd> and: <http://infocommons.curtin.edu.au/>

³ In the library context the approach tends to be where the information commons offers shared spaces, real and virtual, where communities with common interests and concerns gather (Kranich, 2004, np).

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