

**A SUBMISSION  
TO  
THE INFORMATION FUTURES COMMISSION  
APRIL 2008**

**FROM  
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**AN INDIVIDUAL SUBMISSION**

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## **INFORMATION ACCESS**

### **MOTHERHOOD STATEMENT**

Research, teaching and learning, and knowledge transfer are dependent on the world's store of information. Free, ready, unlimited access to this store is essential if high levels of scholarship, teaching and research are to be achieved.

### **IMPORTANCE OF READY ACCESS**

Classical literature will always be relevant to students of literature, arts and sciences, often in unexpected ways, usually stumbled on by a browser. Access to such literature can help put modern concerns into different perspectives. For example, one trawling through some of Pliny's observations on Roman agriculture of his time might be struck by his comment that farmers of his day were complaining that their costs were rising at almost treble the rate of their returns. Since, the 1970s, Australian farmers have been conscious of the same discomfort, believing it a modern phenomenon. It is not. It probably has been an underlying pressure on farmers to increase their efficiency, over at least two millennia. While the industrial revolution may well have accelerated the trend in the 18<sup>th</sup> century, it may not have been the primary underlying reason for the rural social upheavals of the times!

For the most part, access to classical and most modern literature is through books, which is likely to remain the case for the foreseeable future. Much of the seminal scientific literature of the late 18<sup>th</sup> century, the 19<sup>th</sup> century and much of the 20<sup>th</sup> century is available only in printed form and is regularly accessed (Table 1). Within such books and journals there is much information of value in the form of historical record, that provides the context for current interest and sociological concern, and signals research directions only now possible as a result of advanced technologies. Old science is not necessarily bad science. For example, the Tulasne brothers' 1842 description of the process of infection of cereal rye by the highly toxic ergot fungus proved to be much more accurate than reports of the same process made in the 1950s and 1970s. The re-examination in the 1980s by a highly competent and respected mycologist revealed that the descriptions given in the 1950s and 1970s papers were inaccurate and that the 1842 study, conducted with much inferior microscopes to those used in the second half of the 20<sup>th</sup> century, was highly accurate.

### **THE GROWING COST OF INACTION**

Over the last four decades, the storage and distribution of information by electronic means has increased to a point where now, many scientific serials and journals can be accessed on the web. They are widely accessible to anyone with a computer, an appropriate search engine and a ready wallet! Most books even today and almost all literature, whether as books, journals or serials published prior to the 1980, however, are available only in hard copy. Many older books and most serials and journals more than

five years old, however are not readily available at Melbourne University in that they are seldom available within an hour or so of one needing them.

By the mid 1970s most people involved in the storage and retrieval of, or access to, science literature were acutely aware of burgeoning problems to be faced by an “information explosion”. This has been ongoing at an exponential rate. The Head University Librarian of the day worked hard to convince the University of an urgent need to address problems he foresaw. His warnings were unheeded, his urgings were resented and his applications for resources ignored. His persistence earned him only rancour among the Hierarchy. He was ignored as if in disgrace and resigned. Many regretted his loss and the library’s problems have never been adequately addressed. Since then many of the changes made to address problems have reduced ready access to a point where the mere checking of ones memory against an old reference is frustrated by delay in having a book brought to the University from out-of-the-way storage.

### **RELIABLE LONG-TERM ACCESSIBLE STORAGE**

Since the 1970s, some institutions here and overseas have handled their problems by reducing the numbers of journal and serial subscriptions, by neglecting to bind volumes and have turned increasingly to electronic media. This has relieved financial difficulties and those of space, but many such actions are only short term and often create other worse problems. For example, unbound parts of volumes are less secure than when bound together. While the many advantages of electronic access to recent literature are undeniable, we have only assurances about, but no first-hand knowledge about, the reliability of permanent long-term electronic storage. When we were first introduced to the “floppy disc” as an essential back-up tool in the early days of computer-use, we were told they were reliable. In fact few of them lasted more than a year or two and if one carried them over the motors in a tram, they did not last the journey! Computers have certainly improved since those days and back-up systems are much better than they were, but one still hears of hard disc and other failures resulting in the loss of valuable information, sometimes irrevocably! The question must therefore be asked, how reliable is the long-term storage of information by electronic means? No means of storage is completely secure. Fire destroyed the library of Alexandria and a large section of Lisbon’s map library. Much of the Herbarium and Botanical Library in Berlin suffered severe bomb damage during World War 2 and much of value was lost. No system is completely safe. Hard copy, however, is a reassuring back up!

### **FINDING THE WAY IN**

With the storage and retrieval of information, there is always a choice. Information may be put away quickly and cheaply and retrieved with some difficulty involving the expenditure of much time, expense and patience. Alternatively, it can be stored in a highly systematic manner, which is expensive in time and money, but it can be accessed rapidly and cheaply, depending on location. It immediately locates the book or journal and usually directs the browser to a body of related literature. When the storage of printed material is on hand, then providing it has been methodically stored it is readily accessible.

Competent, trained librarians can set this up. The same can't be claimed for electronic media. The keys to search are specific words, which are not always found in titles. Electronic storage depends heavily on the use of key words, rather than categories and reference catalogues. It is beyond the capability and training of a general librarian to know what the essential key words might be. The person arranging the storage would need to have an intimate knowledge of the subject and even then, two scientists relying on information in the same paper for different purposes may need to access it by means of two completely different sets of key words. Words, which if either of the two researchers had been storing the information, might not have been considered as key words by the other.

## **SHELF LIFE**

In the 1960s, it was common to find complete runs of journals on library shelves at Melbourne. As the years passed, this was reduced to twenty years for other than reference catalogues and by the turn of the millennium it was reduced to five years. By turning its back on the ever-increasing problem of library capacity the University is storing up an ever-increasing problem of dealing with space. There is undoubtedly an impelling argument for limiting the shelf life of serials and journals to a set number of years before putting them into a stack. However, available shelf space not inelastic and it should not be the final arbiter in the longer planning term, of what is on display. The library requires great expansion and the availability of nearby, readily accessible stack-style storage is essential. Any architect interested in planning a modern library that might service current needs might do well to visit the Library of the Philosophical Society in Cambridge. It has an extremely broad range of scientific and economic literature all very carefully catalogued but much of it in stack. Once a requisition slip is handed to the clerk who descends into the depths in an antiquated elevator, one seldom waits for more than 20 minutes, at most an hour before the book/journal is in one's hands. The storage space beneath that building must be enormous.

## **TIMELINES FOR SCIENCE LITERATURE**

While it is true that a proportion of current publications quote few references more than five to ten year old, there are many papers which quote papers printed in the 19<sup>th</sup> century, some more than 150 years old. Sometimes, the brief time range of references reflects a newly developing topic and some perhaps a total reliance on electronic access or short shelf-life library access. By and large, however, there is still need for ready access to science literature throughout the years to the early 19<sup>th</sup> century. This is reflected in the information provided in Table 1. Comparing the age of references given in publications in the 1968 with those in 2008, in each case less than half, 45% and 48% respectively were published in the citing decade, 74% and 77% respectively over the citing and preceding decades, 78 and 87% over the citing and two preceding decades and 85% and 93% over the citing and three preceding decades. Allowing for the fact that publications during the main decade of World War 2 were approximately 4% lower than might have been expected, the respective comparisons for the citing and three decades before publication may have been closer to 82% and 87% and 89% and 93%. Clearly too, interest

in the science literature well into the early years of the 19<sup>th</sup> century demonstrates its continuing relevance. This data indicates there is still a case for having science journals on shelves for much longer than five years. Opportunities to browse the older literature should also be made as available as possible, especially in a university.

### SHELF SPACE NOW AND IN FUTURE

While the need for shelf space on campus has been increasing, availability has shrunk. With the gradual closure of most branch libraries since the 1970s, not only has access to back runs of journals and other older literature been curtailed, but also valuable learning hubs, which the branch libraries provided, were lost. The branch libraries were well run, provided quiet, studious environments, which were much appreciated by staff and students alike. Attrition of space for books and journals has resulted from branch library closures without additional central library space having been found. Indeed, central library space has been eroded through book and journal space being sacrificed for other library and non-library purposes when it was clearly necessary to find additional space for all newly arising functions.

For the present, much longer runs of journals should be on display and available for browsing. In the future, however, as access to articles by electronic means increases, proves reliable and inexpensive, runs of some journals on display might be shortened, making space available for the likely continuing need for additional book space.

**Table 1.** Dates of references given in articles published in *Transactions of the British Mycological Society* in 1968 and preceding decades, compared with those published in *Mycological Research*\* and *Australasian Plant Pathology*\* in 2008.

<u>1960s</u>	<u>1950s</u>	<u>1940s<sup>1</sup></u>	<u>1930s</u>	<u>1920s to 1900</u>	<u>1800s</u>	<u>Total</u>	<u>Oldest Reference</u>
335	180	32	47	79	26	699	1842
48.0%	25.8%	4.6%	6.8%	11.1%	3.7%	100%	
<u>2000s</u>	<u>1990s</u>	<u>1980s</u>	<u>1970s</u>	<u>1960s to 1900</u>	<u>1800s</u>	<u>Total</u>	<u>Oldest Reference</u>
313	222	68	42	31	16	692	1829
45.2%	32.1%	9.8%	6.1%	4.5%	2.3%	100%	

\*Until 1989, when the *Transactions of the British Mycological Society* was renamed *Mycological Research*, it contained articles in applied fields such as biodeterioration and plant pathology. Since then, it has confined its coverage to more basic research. Thus in an effort to retain a similar mix of basic and applied articles in 1968 and 2008, I have extracted half the 2008 references from *Mycological Research* and half from *Australasian Plant Pathology*, in which the coverage includes both basic and applied work.

1, During World War 2, many scientists either enlisted or were diverted onto solving problems which were impeding the war effort, the results of which were published in classified reports. Thus the number of articles published in available literature fell substantially.