LIBER QUARTERLY, ISSN 1435-5205

K.G. Saur, Munich. Printed in Germany

Where are Map Libraries Heading? Some Route Maps for the Digital Future

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INTRODUCTION

The metaphorical route maps I shall be offering will be highly selective, and sometimes personal. But I shall try to raise fundamental issues that I believe are relevant for all map libraries. Given the mixed nature of this audience, I hope that what I have to say may have some interest for those who are deprived of the enjoyment of handling maps.

Much of what I say will relate to the Internet. ‚Maps and the Internet' is the focus for a growing number of symposia. Recently, the British Ordnance Survey hosted a three-day meeting of 25 European countries on just this subject. We have, quite rightly, talked a lot about the Web this week.

In a little over a year's time I shall take scheduled retirement from the British Library. The thoughts I shall be offering here - both personal and, at times, unfashionable - reflect an audacious attempt to glimpse a distant horizon. They are my own, not necessarily those of the British Library.

The splendid title that our President, Jan Smits, devised for this week's Groupe des Cartothécaires meeting starts, ‚Caught in the Web or spinning it?'. ‚Spin' has come, in colloquial English, to mean the distortion of reality for public relations purposes. I shall explore that new meaning in a series of paired statements that will punctuate this talk. The first of each pair, labelled ‚Media', represents my ‚spin' on what is popularly (and sometimes professionally) believed. The counter-balancing ‚Reality' is a rather grand way of presenting my own view. From time to time, I will add in real quotes from real people.

Herewith, the first pair:

Media: *„The future will be digital"*
Reality: *„The only certainty about the future is its uncertainty"*

For those with memories as well as vision, the most obvious thing about technological progress is the vast gap between what is promised and what is actually delivered. This ‚technological crevasse' swallows up those who ignore the psychological dimension. Will people want this new device or functionality; will enough people be prepared to pay enough for that one?

At the LIBER Map Curators' group meetings in 1994 and 1996, it was taken for granted that the future would be largely, if not entirely, digital and that map librarians would need to start re-training. By the Krakow meeting in 1998, a far more complex reality was becoming clear. I will return to this point later.

Here is a comment from a recent Director General of Ordnance Survey, David Rhind, speaking at last year's International Cartographic Association conference in Ottawa:

> *‚Money and politics are embedded in decision-making ... Technology is not a ‚given' which changes the world in a predictable fashion: human beings change the world when they have the necessary incentives, skills and technologies'.*

Media: *„We should draw up a single design for the map library of the future"*
Reality: *„The digital revolution will affect different map libraries in different ways"*

The map libraries of today already have very different priorities, depending, for example, on whether they are academic, commercial, legal deposit, public or research libraries, or if they function as archives. The digital revolution will deepen the differences between types of libraries, particularly between those which are largely historical in content and usage, on the one hand, and those firmly focused on current mapping, on the other. Conversely, the internationalism that is so essential a part of the digital revolution will lead, naturally, to a world-wide community of digital map libraries. So, within a country, libraries will further diverge by type. While, globally, libraries of similar types could be pulled together by digital initiatives.

Many libraries are, of course, in various ways, multi-type. Similarly, all (or almost all) have a continuing concern for their existing paper collections, while all (or almost all) must devise acquisitions strategies for the future. However, it is convenient, for the purpose of analysis, to separate out existing paper collections from future digital acquisitions. Those will form two of my three sections. In the final part, I will look at the Web.

A. Existing Holdings

Media: *„It is the responsibility of each library to digitise its map holdings and provide the images (free) over the web"*
Reality: *„It would take an estimated 25 person-years to scan the British Library's pre-1900 maps"*

The ‚technologically correct' (the TC tendency), for whom any digital solution *has* to be preferable to an analogue alternative, have long urged that book collections should be digitised. Learning that the scanning of the British Library's collections would cost an estimated four times the bill for our marvellous new building dampened their enthusiasm - a little. So, too, for maps. Those who would not be involved in the work or expense frequently urge us to scan our map collection. Because a small number of libraries have put a small number of images on the Web, this is now what is expected. After all, the Web is the new frontier, where everything must be shared, and everything free.

The calculation that such a task, if restricted to the pre-20th century maps in the British Library, would take 25 person-years is based on estimates and guesses. The estimate (a colleague's) is that 12,500 maps could be scanned in a year. The guess is as to the number of pre-1900 maps in the collection (300,000?). And no account was taken of the time needed to identify them (since most are not separately catalogued), to provide metadata, and to mount the images on the Web.

Who should pay for such an operation? And, a less obvious question: what would be the purpose? It has been estimated that there are no more than 15,000 images of early maps on the Web at present, even though these are spread over a wide range of sites. While the question of cataloguing these images to Dublin Core standards, or even just indexing them, has been much discussed on the Internet, no action has yet been taken. The Web *could* provide a global image bank for out-of-copyright maps. Right now, it actually

works as a series of unconnected shop windows, whose purpose is more to promote the institution concerned than to serve the international community.

Media: *„If we cannot digitise all the maps, we should at least scan those people want"*
Reality: *„Researchers seek new material. Predicting future topics is therefore impossible"*

Since I will probably not be around then to be challenged - and who reads old prophecies anyway? - I make the confident prediction that, in twenty years' time, usage in map reading rooms such as mine in the British Library will still largely concern paper maps. There are various reasons for this.

- On the whole, the paper used for maps was better than that employed in books, and there is therefore little conservation need for surrogacy.
- It is impossible to predict future use. The only way to identify subjects for scanning is to take the picture-postcard approach. It is not the attractive or well-known maps, however, that researchers call for. Therefore, if a necessarily limited scanning programme was carried out, and the results mounted on the Web, it would not provide researchers with remote access. Nor would it help the general public, since each person wants a map of a different place.
- Early retirement and longevity are increasing the number of researchers, and the range of topics they study.
- A map collection is a ‚topographical dictionary'. Just as it is impossible to predict which words will be wanted next year, so there is no way of knowing if Kansas, Kosovo or Kuala Lumpur will be next in the news.

Historians are coming to realise that maps are about much more than geography, that they carry cultural messages found nowhere else. Such people need to see an entire map in its context. Many enquirers, however, seek to compare through time a small part of the earth's surface. It has been said that what they want can be fitted under a coin. For them, remote digital delivery - perhaps by means of comparative details of their small area of interest - would create an entirely new user community. But again, one has to ask: who will pay for the manual selection of the relevant sheets, as well as their scanning and delivery?

B. Future Acquisitions

We now turn to the question of future acquisitions.

> Media: *„The book is dead, so presumably the map is dead as well"*
> Reality: *„It is, indeed, likely that large scale maps will cease to be printed"*

Much has been written about digital alternatives to books. Clearly a revolution *is* taking place here, but how widespread it will be, and how successful electronic devices will be in mimicking the codex, remains to be seen. I offer three conflicting comments on the ‚book is dead' theme:

> *‚It is also a fact, possibly an unexpected one, that advances in information technology have meant that more books are now being published than ever before in history'.*[1]

> *‚No one will read on screen in comfort, anything much longer than 800 words. About 250 to 400 words seems more realistic'.*[2]

> *‚I even wondered if I could read a book this way [on a mobile phone]'*[3]

It is quite likely that in-car navigation aids will replace the road atlas, and that future hikers may prefer a hand-held, scrolling map linked to a Global Positioning System. But neither of these activities is currently of much relevance to libraries.

Where a revolution *is* definitely taking place is in the provision of large-scale mapping. Here, the predictions of media gurus *do* seem believable. Ordnance Survey's move away from printed (or microfiche) editions to on-demand plots taken from a dynamic database - or even direct access to the database itself - is a clear sign of the direction in which other national agencies will move.

I will not stray into the complex area of the legal deposit of non-print materials, or the minefield of copyright, but the nature of the voluntary agreement reached between the UK legal deposit libraries and Ordnance Survey (OS) may prove to be a pointer to the future. National mapping agencies were set up as public services but, at least with OS, they are now required to recover their costs. OS are depositing an annual snapshot of their entire database with the libraries. However, to protect real, or perceived, revenue,

OS are insisting on non-commercial use in the libraries, the removal of all GIS functionality, and a veto on digital downloading.

The ‚technological crevasse' again. OS *could* offer online access to the digital equivalents of all the 230,000 sheets covering mainland Britain. They already deliver digitally to their agents. I do not intend any criticism of OS here, but it is money and politics that are holding back this revolution, not technology.

OS large-scale mapping is held in a dynamic database. Other publishers are increasingly distributing their maps digitally. Yet, in our map library, the projection for the next decade is based on the assumption that we shall still acquire most of our maps in paper form. Why? Because the Ministry of Defence, from whom the British Library receives its non-UK sheets, tries to avoid taking in mapping in digital form. This is up to six times as expensive and requires staff to master a succession of new interfaces. Although the British military *distributes* mapping to their users via CD, it still prefers to *receive* the mapping in paper form. In time, those sheets will come to us.

Media: *„Map libraries of the future will be Geographic Information System laboratories"*
Reality: *„Publishers' cost-recovery needs will mean that library-laboratories have to be fully commercial"*

I have talked so far about Ordnance Survey and developments in Britain. Widening the view to take in the rest of Europe suggests a broadly similar situation. At the last meeting of the Groupe des Cartothécaires, in 1998, we discovered that only one of the countries represented was receiving free access to any digital cartographic data. Just as OS now provides free Web access to small-scale maps[4] but protects its income from mapping at medium and large scales, so the equivalent agency in Finland offers free mapping down to 1:50,000 on the ‚Citizens' map site[5] but charges ‚Professional' map users for larger scales. Again, a comment from our former Chief Executive:

> *‚It is not the technology that is the problem; it is the fact that the legal structures, financial provision and various cultural quirks are in the way … broadly speaking, copyright still favours the owner rather than the user'.*[6]

As in most matters relating to data, the situation in the United States is quite different. There, our colleagues are flooded with free data, distributed to the deposit libraries on a ‚public good' basis, which rejects charging for what has already been paid for in taxation. It is thus possible to go to the Web, select a

map via any one of two million names, and print off the result. All of the United States Geological Survey's 57,000 sheets covering the 48 coterminous States at their largest scale (1:24,000) are offered without charge in this way.[7]

Outside the United States - whose generosity with data one hopes might spread to Europe - it seems clear that the general public will not be granted free access to the cartographic or geo-referenced data required for a GIS laboratory. Such an operation will have to be run either on purely commercial lines, or - as with the supply by OS of Digimap data to British universities - within a tightly controlled academic environment.

Media: *„Unless libraries actually receive current maps, what purpose will they have?"*
Reality: *„Should libraries take on the task of digital archiving?"*

‚We shall no longer provide the users with someone else's selection and presentation of data, but with the data itself and with the means by which the users can make their own selection and presentation of this data'. ‚Does the map curator ... want to deal in information or in artefacts?'.[8]

This statement by our LIBER colleague, Andrew Tatham, reflected an earlier optimism, before the restrictions on access became apparent. Over the intervening six years - an eternity in terms of digital history - we have come to realise that access to cartographic data is more likely to be via the Web or by means of online delivery than through a hand-held object, such as a CD. Providing just what is required, and in a form that might have been updated yesterday, has advantages for producer and user alike. But, if that is the case, what will libraries actually ‚own'? Increasingly, I suggest, map libraries will provide non-exclusive access to data which is held elsewhere.

If that happens, what special or unique functions will map libraries be able to carry out? The answer may lie in an area to which little attention has been directed: archiving. In the UK, archiving is the role of the Public Record Office. Since the Ordnance Survey database has been classified as a public record, its preservation has been assured. But what of other, wholly commercial, publishers? When they decide to cease print publication, who will preserve the successive forms of their cartographic database? Legal deposit libraries, at least, would seem the obvious repositories of what will later become valuable historical data. It is unlikely that the publisher will have the resource, or inclination, to do this. Might libraries perhaps revive their earlier

‚copyright' function, preserving secure, dated copies of digital data that producers could refer to when there are disputes about ownership or originality?

C. The Web

For the final third of this talk, we turn to the Web.

Media: *„Now that there are hundreds of search engines, it is easy to find what you want on the web"*
Reality: *„Have you tried it?"*

Web searching is improving all the time. However, it is estimated that even the best search engines miss over three-quarters of the sites. Given that there are thought to be a billion pages, with around 10,000 sites added daily, this is not surprising.

In my experience, most of the relevant pages are found via gateway sites or through recommendations, often, ironically, in printed sources. Responding to a situation of ‚too much quantity, and no guarantee of quality', the British Library finds it necessary to run a Web search service for Science, Technology and Medicine professionals.

Media: *„Map librarians must become experts in GIS software"*
Reality: *„The map librarian of the future will be a web information scientist"*

First, four statements that support, in different ways, what I shall be saying.

‚The ordering of information is at the heart of librarianship'.[9]

‚I think the Internet will come of age when we not only find and/or create finding tools, but also when we help to integrate the sources available'.[10]

'The vision goes back to the Enlightenment. It was the dream of the scholar to go to one place and find out what exists, where it is, and what they need to get access'.[11]

‚Internet subject gateways are steadily rising as a prominent means for delivering information ... Other National Libraries, especially the

National Library of Medicine in the USA have grasped this and provide free subject databases and information portals'.[12]

Faced with a situation where map libraries (outside the United States) will no longer provide access to material not readily available elsewhere, I have suggested they might take on the role of archivists to the commercial map producers. That would be an institutional role. As individuals, I hope some will become a new breed of ‚Web librarian'.

The Web needs guides. In particular, it needs subject specialists with experience in gathering, ordering and presenting information. In the cartographic field, who better to do this than map librarians? They are firmly embedded in their subject, supported by a network of colleagues, and experienced in their specialist information sources. The growth in Internet discussion lists has transformed the flow of information. Though only a few years old, the two main map Internet lists are now an integral part of our working lives.

I will finish by briefly mentioning two of the main information portals for maps. I am delighted that Roelof Oddens is with us today. His celebrated ‚Bookmarks', now running to over 10,500 links, is a deservedly famous list of links.[13] There are doubtless a few obscure sites he has not yet found but, essentially, he has trawled up all the Web addresses relating to maps.

The other portal (less modestly) is my own ‚Map History' site.[14] It is run in my own time and forms part of ‚History', the site of the Institute of Historical Research in London. ‚Map History' complements Oddens' Bookmarks by focusing on non-current cartography, which represents about 10 % of Oddens' total. The purpose and arrangement of the two sites, however, are quite different. ‚Map History' is a ‚gateway' site, running to about 100 separate ‚pages'. Its boast is that ‚all the worthwhile information about old maps can be found here, directly or indirectly'. For those who already know the site, I show a preview of its re-design, to mark its forthcoming incorporation into the WWW-Virtual Library.

I look forward to continuing with the expansion and updating of ‚Map History' in retirement. The work-load is quite manageable. Maintaining Oddens' Bookmarks, though, is a very different operation. The work of searching out new sites, checking their relevance and incorporating them is continuous and unrelenting. Twenty new sites are added in a typical day. Roelof Oddens is Utrecht University's map librarian and does much of the work in his own time.

One person's initiative has grown into a resource on which hundreds of people around the world now depend. Such an operation cannot continue for ever as the voluntary work of one man. It is too important. We must be sure that it will continue indefinitely. My final comment - part prediction and part hope - is that the gathering of specialist subject information into listings and gateway sites, and their continuous amendment, will be put onto a more formal basis. Web librarians, or teams of specialist Web information scientists, will need to be specifically employed for this purpose. They could well be based in different countries. Only in that way can the Web hope to reach its full potential as the true ‚information Superhighway'.

REFERENCES

1 Dr Brian Lang, Chief Executive, British Library - address to Online Conference December 1999

2 Giles Foden. *The Guardian*, 22 January 2000

3 Jack Schofield. *The Guardian* Online, 16 December 1999

4 <http://www.ordsvy.gov.uk/>

5 <http://www.nls.fi/>

6 Brian Lang, Chief Executive British Library, address to Online Conference December 1999.

7 <http://topozone.com/>

8 Andrew Tatham, 1994 LIBER paper, ‚Can the map curator adapt?' <http://www.konbib.nl/kb/skd/liber/articles/2tatham.htm>

9 Chris Fleet, 1996 LIBER paper: ‚The role of computer technology in the future map library'. <http://www.konbib.nl/kb/skd/liber/articles/fleet10.htm>

10 Jan Smits, message to MapHist Internet discussion list, 12 February 1999.

11 Daniel V. Pitti, Institute for Advanced Technology in the Humanities at the University of Virginia, quoted in *The New York Times*, 29 November 1998.

12 Cholad Pojke, contribution to the British Library Forum: Annual Report Open Meeting, 1 March 2000.

13 <http://oddens.geog.uu.nl/index.html>

14 <http://ihr.sas.ac.uk/maps/>