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Titel: Can the Map Curator Adapt?

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Ort: Graz

Jahr: 1995

PURL: https://resolver.sub.uni-goettingen.de/purl?514854804_0005|log76

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Can the Map Curator Adapt?

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Introduction

The technological changes at the present time, if not unparalleled in themselves, are at least occurring at an unparalleled speed. They affect all parts of cartography (as defined by the International Cartographic Association, 1991), including our part - the acquisition, preservation and dissemination of cartographic materials. The result of these technological changes is that a different response is required from map curators, a response that is itself subject to change. The question addressed in this paper is whether the map curator possesses the knowledge, the resources and the confidence to make this different and changing response.

One of the articles supplied by the organisers in their excellent 'reader', that by Mary Larsgaard, includes the following statement:

"How fortunate (it is) that we've been working with different formats for many years and therefore - accustomed as we are to concentrating on data and not just format - adding digital items to our collections does not require a massive change in mind set."[1]

This statement, at least from my perspective, seems to be almost totally unrealistic. It is the function of this paper to demonstrate why everything in the (cartographic) garden is not quite so rosy, and why Wong's analysis (also in the Reader) may be nearer the mark:

"However, the path of transition to digital cartographic materials libraries has many obstacles.... Until these obstacles can be overcome satisfactorily, we will be likely to remain confined by paper or printer products whose rich contents are extracted with trained eyes and competent map reading skills".[2]

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[1] Larsgaard, M., 1992; Accessing the world of Digital Spatial Data, W. Assn. Map Lib. Info. Bull., 23 (3) June 1992, p. 192.

[2] Wong, M. - K., 1993: Exploring the Impact of digital cartographic data on Map Librarianship using data use models, SLA Geography and Map Division Bulletin, No. 173, September 1993, p.14.

Were it simply a matter of a change of format, Larsgaard might be right, but even so it is a pretty extraordinary sort of change of format. Technological change in the past has certainly resulted in map curators now being responsible for a variety of formats (figure 1), and some of the 'electronic atlases' of the present are indeed, the same sort of data within a new format.

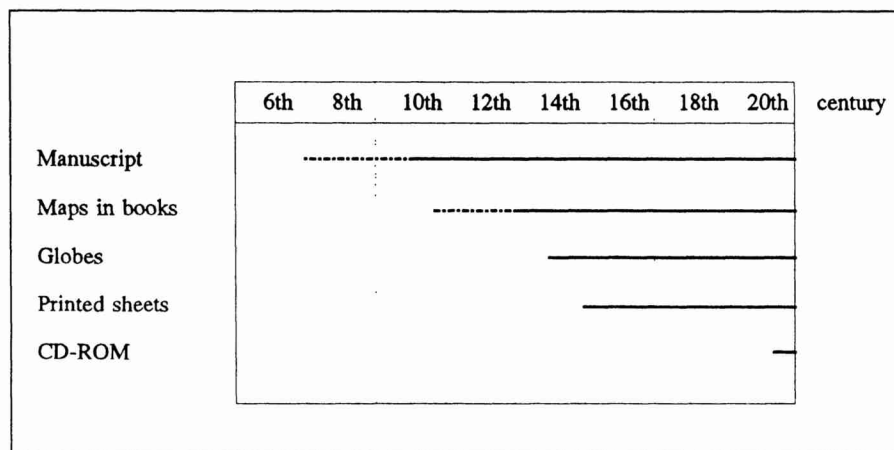|	6th	8th	10th	12th	14th	16th	18th	20th	century
Manuscript									
Maps in books									
Globes									
Printed sheets									
CD-ROM									

Figure 1: Changing formats of mapping

However we have seen the possibility of staff here at ETH being able to access, via the Internet, US mapping and statistical material to produce maps of population density within a 5 mile radius of protected sites in Prince George's County, Tolland Co, Conn, Maryland or use OSCAR to calculate lengths of different categories of roads in Wales, is to perform tasks not simply on a different format, but an entirely different order. One might as well expect Matthew Paris to produce UNICEF propaganda using Peter's projection.

Furthermore, this change has occurred in an extremely short time. 30 years ago I met one of the last copper engravers to be permanently employed by a British commercial publisher, the last of a profession that had survived for four hundred years. At about the same time, experiments in line-printer production of mapping were the cutting edge of research - now preserved as an example of a technology which barely lasted a hundredth of the life span of copper engraving.

I see no reason to suppose that this accelerating rate of change will rapidly diminish or even stabilise, but rather will continue to increase so that when we meet in four years time, the WWW will seem positively *ordinary*. Consequently the question is

"Does that map curator possess the knowledge, the resources and the confidence to make this different and changing response?"

To which, I must point out, one possible answer must be NO - we may have come to the end of our evolution. However, I do not think that we have yet assembled sufficient information necessary to answer the question. Therefore we need to look at the three components - knowledge, resources, and confidence - in turn.

Knowledge

The knowledge required by a map curator must be acquired. This may happen formally or informally, both before and during employment as a map curator. This formal knowledge acquisition prior to employment could include a geography degree course at university, where both attributes of the geography of the world and methods of collecting and analysing such attributes are purposefully taught. During employment, in-service training courses in cataloguing or conservation, for example, are included in this category of the formal acquisition of knowledge. Informal acquisition of knowledge before employment is most likely to be in map use, especially in interpreting map marks, often in the context of hiking or other route-finding activities. Informal acquisition of knowledge during employment is achieved by looking at, listening and learning form that knowledge which others share, wittingly or unwittingly, about the significance of a particular feature or of a particular map, for example.

Whichever way knowledge is acquired, it must, in order for the map curator to function effectively, include three elements. These are the available material, the user's profile and the processes for fitting these two together. Each of these elements can be divided into two components.

The first element the map curator must know is what material is available and, indeed, something of its quality. The two components of this element are firstly what is available *in toto*, and secondly what is available locally. This implies that the map curator needs to have a broad knowledge of map products through both space and time. The necessary extent and depth of this knowledge will vary

with the aims and clientele of the collection. Thus the knowledge possessed by the Curator of Maps at the Royal Geographical Society, which has a collection unconstrained by areal or temporal specifications and whose clientele varies from novice to expert needs to be (and is!) much greater than that of a map curator in a geography department, whose collection is constrained to service departmental research programmes and whose clientele is restricted to a limited and relatively high level of knowledge of what is available locally. In a small collection this may be an intimate knowledge of every sheet; more usually there will be a good knowledge of the different types of material and of the different map series held. With a more detailed knowledge of frequently-requested, rare, or otherwise notable items.

In the element of the user's profile, the map curator must know what the user's needs may be and what capabilities the user brings to the task in hand. Often, both these components can only be acquired by the map curator in the brief conversation sometimes dignified by the description 'reference interview'. Indeed part of the map curator's essential knowledge must allow for the interpretation of the 'reference interview' and the inference of the user's capabilities form the user's statement of needs. "May I see what printings you hold of the Second Edition of County series Surrey 20SE?"is not, for example, the enquiry of a novice - whose opening gambit is, more usually, "I'd like a map".

Given the knowledge, now acquired, of the user's profile, the map curator must attempt to fit that to his or her knowledge of the available material. Sometimes this can be achieved entirely at a theoretical level - "Yes that material does exist, but it is only available to the military of that country"- but more often, a combination of theoretical and practical knowledge has to be brought to bear, to refine progressively the request, combining information from the user with the knowledge of the map curator, finding possible or partial solutions and, ultimately, answering the request with the appropriate material or referring the user to a more appropriate repository.

In the future -a future which, technologically at least, is already here- I suggest that we shall need the same categories of knowledge but, within each category, the distribution of our knowledge will be significantly different.

Resources

In the process of providing solutions to users, we use, in addition to knowledge, resources. These resources include people and money. Although staff costs are the largest proportion of any library budget, it is important to separate the two in any discussion on resources, if only to assert that neither can be entirely reduced to the other. In the light of the technological changes required by the map curator, it may well be argued that the present distribution of resources between staff and non-staff budgets will also change. This, it seems to

me, is not yet a certainty. What is a certainty, however, is that map curators will continue to have to work very hard to achieve appropriate or necessary levels of funding and that the paraphernalia of statistics, performance indicators and assessments as well as the political and financial arguments to sustain these levels of funding will become more, rather than less, necessary.

However, as map curators, our main resource is spatial data. Traditionally, we have handled this data in the form of a map. In terms of cartographic communication theory, our job is to attempt to provide the map or maps and the expert knowledge in their use which will ensure that the end product of the communication process, that is the user's mental image of the real world, is as close as possible to the starting point of the process, that is the real world itself. Thus in figure 2, our success is to be measured by the extent of the overlap between symbol [4] and symbol [1].

In the future, while the end result, the overlap, may well be similar in figure 3 to that in figure 2, the role is significantly different.

A major change will occur in our role. 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 to inform or to mould their own or other people' image of the world. By analogy, we are no longer providing the cook with flour, but taking him or her to the field of ripe wheat with a sickle in one hand and a grinder in the other. There is no guarantee that the cook or the data user will use this new freedom to produce the traditional tri-colour-photo-litho maps or the traditional bannocks but that, of itself, does not mean that the overlap between the real world and the user's mental image of the real world need be any less.
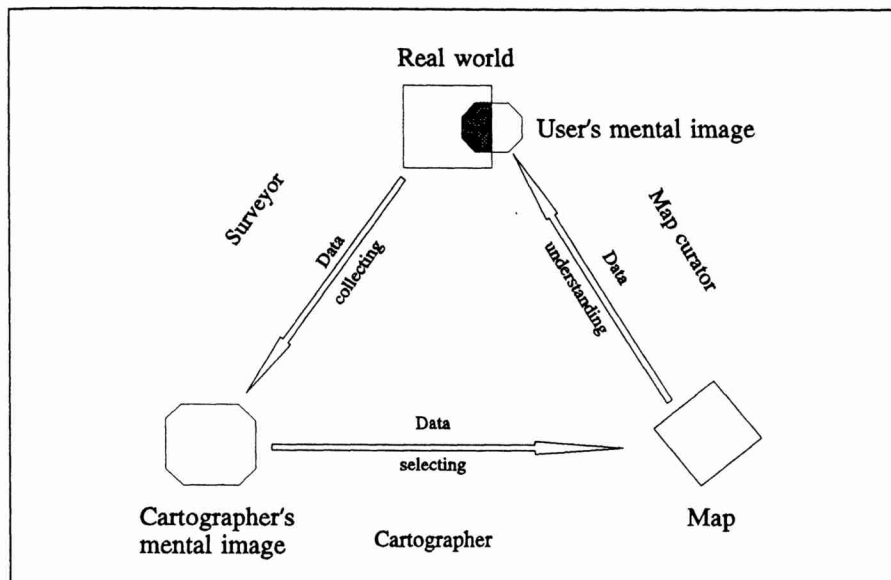
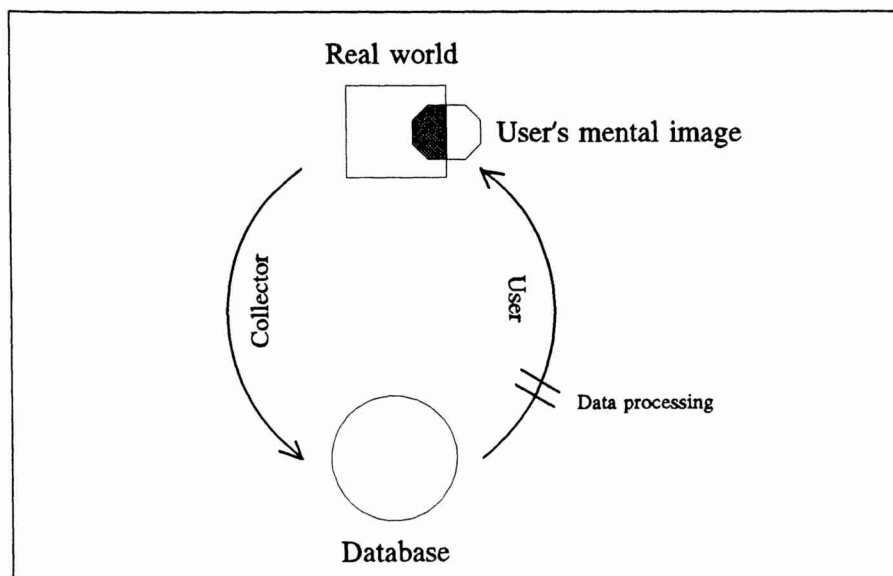Figure 2: The traditional cartographic communication process

Figure 3: The new cartographic communication process

Confidence

To generalise, I would suggest that for most map curators, the demonstrations that are described in the other papers in this issue are wizardry. To misuse McGlamery's acronym[3] they are MAGIC. This wizard weaves his spell and works his magic and produces the white rabbit from his hat. The audience is spell-bound and then cheers and claps. "How did he do that?" or "I'd love to learn that trick" say people in the audience to their neighbours. But they are all a bit frightened by something they do not understand and when the wizard calls for volunteers, everyone tries to push someone else forward. We are the professional map curators; as soon as we have the knowledge and we have the resources to cope with the changing technology, we will be there. Just now, however is it not easier to say,

> "Well, it would be nice, but...."
> "... I'm no computer genius."
> "... there's no time to learn."
> "... we need to get standards."
> "... it's all very well, but my interest is to the Dunkirk school."

Or should we not say, as McGlamery has so clearly said, *"I'm going to be part of this; in fact, I'm going to shape the future. I'm going to claim this bit for myself and drive forward. I have the confidence."*

Conclusion

So the question "Can the map curator adapt?" is not about the changing knowledge that the map curator will need to handle the technological changes that are in train. Nor is it about the changing nature of the resource and, in particular it is not about the role of the map curator in bringing spatial data to users. In both knowledge and resource components, map curators do possess the necessary professionalism to make the changing response required by technological change. However, the question "Can the map curator adapt?" is about confidence and it can be restated as, Does the map curator, as an individual, and does his or her institution, have the confidence to help bring about the future?" or, put another way, "Does the map curator, as an individual, and do map curators, as a profession, want to deal in information or in artefacts?"

The choice is, at the moment still in our hands as map curators, but we must answer it soon or someone else will make the choice for us and we shall have come to the end of our evolution.

[3]   McGlamery, P., 1995: Maps and spatial information: changes in the Map Room, Paper presented at the Zürich meeting on the Groupe des Cartothécaires of LIBER.