

## THE URGENT NEED TO CONTINUE EDUCATION AND DEVELOP CRITICAL APPRAISAL IN CARTOGRAPHY

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### ABSTRACT

More and more people are able to produce 'maps' using computer graphics packages. Many are finding their way into print without the benefit of editing by trained cartographers. It is important that the cartographic profession makes a stand for maintained and improved quality and the members of the profession responsible for education and training instil a strong critical sense. A significant element of that should be a self-critical approach to map making.

### INTRODUCTION

A century ago the English Liberal landowner Harcourt was complaining that 'we are all Socialists now.' The recent paper by David Unwin complains that 'almost everyone is a potential cartographer and cartography is just one of a number of craft skills that have been made redundant by technology.' [1] Whilst this may be true, particularly in the field of thematic cartography, it is no excuse for cartographers to give-up their standards or to reduce their efforts to achieve effective training. Rather should the opposite be taking place. Both the mapmaker should be encouraged to improve the quality of the product and the map user trained to obtain more from maps, if indeed the map contains more than a simple message.

### THE PROBLEM

The problem has been recognised for a long time and has been discussed at length in conferences, congresses and the cartographic press. Too many maps are appearing in professional journals and papers which have not been prepared by company, departmental or faculty cartographers and are therefore lacking in essential qualities and in some cases are totally erroneous. Whilst editors, referees and publishers bear some responsibility, part of the fault also lies in failure to properly educate the map maker. However worse is that whole new areas for mapping are being opened up by application of computer technology.

The modern daily newspaper is no longer capable of being described as 'Black and White yet read all over.' Rather is it a complex production of news, text and supplement with lavish use of colour. How often do you find poor even misleading cartography contained therein simply because the perpetrator of the map is cartographically ignorant? Increasingly maps appear in ephemeral form to illustrate television news or weather. More and more appear in CD-ROM form much directed to classroom and educational workshop use. It is essential that those who publish this material understand basic cartographic principles and appreciate user approaches to maps so that they can reject the misleading and the bad before they enter the public domain.

Unless there is control, the worst possible situation may arise where the map users are exposed to mixtures of good, indifferent and poor cartography from the same source. As

fewer cartographers are employed in the preparation stages of periodicals and broadcasts so the possibilities of quality control diminish. It is vital that the cartographic industry recognises that it has a widespread need to insist on quality wherever maps are published.

### **SOME SOLUTIONS**

Firstly it is important to recognise that each cohort of map makers whatever their educational status requires training afresh. However good computer programmes become basic craft skills as described by David Unwin<sup>[1]</sup> need to be appreciated and used. The map makers training will need to begin in school alongside training in map use. Who will provide these? As the use of maps extends beyond the traditional 'geo' disciplines and maps come into the IT syllabus it is necessary for the voice of cartographers to be heard. Geography and Geology programmes give less emphasis to map work, skills in using GIS may offer an academically attractive alternative from using the graphic as a means of communication.

Turning to topographic mapping for guidance it is possible to become painfully aware that students leave school with only minimal understanding of map. Few appreciate the significance of differences of line width, some not understanding contour or colour. Much of what is known has come from rote learning and the finesse of mapping is lost. In some cases the lack of published specification from the mapping agency may be to blame too often it is ignorance on the part of teachers of the full meaning of map symbology. It is also important that cartographers remember that most school map training is in topographic mapping and that training in the use of thematic mapping is informal and incidental.

Mark Monmonier (1993) made an eloquent plea for improved thematic map training and directed his beam at the social scientists.<sup>[2]</sup> They represent one of the major growth fields in map production. Their ability to appear in the media may well create problems of poorly presented graphical information. Equally though the environmental scientists need to be able to create reliable, legible maps. GIS may improve their databases but interpretation of that data requires understanding of its representation as well as content. GIS may reveal new relationships between data sets for an area but in terms of a simple cartographic question 'at what scale and how sampled'?

The first plea is for cartographers to become involved again in school map training. To ensure that those who teach maps and map making in schools themselves appreciate the content of maps.

Secondly those of us who claim to train cartographers must recognise their responsibilities. There is still a need to provide basis skills. The basis skill may not necessarily be the ability to use a pen or scribing tool, to make a mask or shade an area uniformly. (One has yet to see a successful hill-shading computer programme). Instead the skill may be at a rather higher level of application and invention. It is important to appreciate line weights symbol size, placement and above all colour. Personally I favour drawing on paper rather than the ephemeral character of the screen display. There is a discipline of mind to be learnt beside a control of finger. Map projections are in machine

memory, transformations achieved via the keys, but appreciation of accuracy of representation is perhaps most quickly learnt still from drawing by hand conical or zenithal projection. The whole area of text on map is one which requires special care in training, too easily can it be obscured or over printed.

Beyond the basic skills it is important to inculcate good design practice. Design has a temporal aspect. Design is influenced by technology and by fashion. Unfortunately good maps pay appear old fashioned because of text style or colour. Equally poor design may shelter behind modernity. Whilst there is a vogue for historic maps as works of art there is less of a vogue for cartographic 'old masterpieces' - perhaps middle-aged masterpieces from which our students may learn. (My personal favourite in the Swiss Imhof-period)

There is a case for students taking a course in comparative cartography. Not all have opportunity to visit international exhibitions. Comparative cartography can fulfil two objectives; one the critical evaluation of map design, the other an awareness of cartographic products. The principles of critical evaluation have been known for decades yet it is surprising how frequently cartographers provide teaching material by ignoring the simple criterion of fitness for purpose. Modern maps are intended to be vehicles of communication yet in many simple messages become obfuscated. The second objective develops from the first. The wider the knowledge of what maps exist and more particularly how features are represented, the better trained the students are. One major problem thematic mappers have is achieving knowledge of innovations in design and symbology.

David Unwin [1] has discounted map analysis as an area of thematic map use. Yet it is through analysis of topographical and thematic maps that cartographers may be trained to evaluate map qualities. If the cartographers have only narrow specialisms in mapping this can be a difficult task. However if they are broadly trained so that they have knowledge of map content as well as its representation then the problem is less. One recognises that there could be a useful dialogue with regard to geological maps with their long established conventions, students representing the map users confronting the makers attempting to broaden the market for their products. Modern printing technology can produce far more complex thematic choropleth maps than the majority of users have met so far. Is it possible to use these maps in a quantitative way or must their interpretation remain qualitative?

Effective communication involves the map maker appreciating the requirements and the abilities of the map user. It is surprising how many students fail to appreciate people's connotative colour psychology or put their own 'connotative meanings' to the map colours they use. Few have sat back to think how they themselves use maps. Maybe we all function at different times and in different circumstances between the levels of the simple map user and that of the map percipient. Mostly we function simply at the user level. Take for example how we approach a road atlas. Mostly we fail to perceive the atlas contents, merely using them 'to guide our going from a to b.'

## CONCLUSIONS

Although there may be fewer employment opportunities for cartographers in the future there will remain a need to train in cartographic skills. Computer programmes will

improve in cartographic quality but there will remain the requirement for effective editing of map content. There is a need for the map making and map using profession to encourage cartographic education beyond the confines of 'the trade'. In the present technological revolution there is greater opportunity than ever before for a constructive exchange between the map user explaining requirements from map and the cartographer producing map. Please note the way this has been written, user first, maker second. Like other trades we recognise that we are market driven.

Personalised mapping may be a long way off but the training of cartographers better able to meet user needs is not. Young cartographers will appreciate also that users have rights that will ensure mapped information is accessible. To achieve this students will require sound training in the fundamentals of mapping and a heightened critical sense honed from a knowledge of good and bad mapping and an appreciation of their own abilities and limitations.

#### REFERENCES:

[1] Unwin D. 1994 Cartography, ViSc, and GIS Progress in Human Geography 18.4., pp 516-522.

[2] Monmonier M. 1993 Mapping It Out. Chicago