(videodis)

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THE POTENTIALS OF VIDEODISC IN VISUAL ANTHROPOLOGY; SOME EXAMPLES (1)

In 1927 John Logie Baird recorded images on a waxed disc called 'phono vision". The system used 30 lines at 12.5.frames per second and was sold in Selfridge's store under the name of "Major Radio Vision". It was not a success.

In the 197O's the marriage of two technologies, television and lasers, gave birth to a revived attempt to store visual images on a disc, called optical disc or videodisc. Information is engraved by a laser on the steel surface, which is then coated with plastic. The 'information' consists of one visual track and two sound tracks. It is read off each separate track by a laser beam.

At first this new medium was used as an alternative to videotape, as a way to record films to be played through in real time. But since one could not record onto this medium, it was a limited success, though there are many such videodiscs on sale in Japan.

Indeed, it is in Japan that my first example of the use of videodiscs in anthropology will be taken. After the world 'Expo' in Osaka, a great deal of money was put into developing the fine National Museum of Ethnology on the Expo park site. Conscious of the value of films, it was decided at first to use videotape technology to create a large library of ethnographic films which the visitors to the museum could use. Two years ago, the whole system was converted to optical disc. There are 36 "booths", each with two seats. A visitor can use a touch-screen and 'menu' system to select one of the 390 ethnographic films on different parts of the world. These are then selected by a 'robot' and played - usually lasting some twenty minutes or so - with sound.

The major advantage of videodisc in this setting is its durability. Since the laser does not touch the groove, one can play through the same disc, or pause it for as long as one likes on a single frame, without damaging the source. For a Museum this is obviously a great benefit. A roughly similar system is used in the Science Museum in Paris.

The Japanese experiment, however, does not exploit the other major strengths of this new medium. These include the following features. With videodisc, there is an ability to hold very large quantities of still frames, with good resolution, and to show them for as long as is needed. A conventional videodisc will hold 54,000 images on each side, that is 108,000 frames on a disc. For the storage of slides or black and white negatives this is obviously very useful.

A second advantage is the direct frame address system. Each of the 54000 tracks or images has a number. It takes the reader less than a second to go to a precise frame. There is none of the slowness of film or videotape which has to be searched through sequentially. The importance of this feature becomes apparent when we link a videodisc to a computer. The computer can use the videodisc as a large bank

of visual images (and sound). With an appropriate index, the computer can take one to the relevant image. With an appropriate "authoring" program, the computer can show the images in any order.

Furthermore, digital data (that is textual materials) can be stored on the two "sound" tracks and by picked off by the computer. Again, surprisingly large quantities of such material can be stored in this way. Over 600 megabytes of information, the equivalent of about 1000 normal books or more, can be held on each side of the videodisc.

Put in the startling talk of the industry, this would mean that the text and illustrations of the whole of the **Encyclopaedia Britannica** could be stored three times over on one disc. It is estimated that the whole of the largest library in the world, the Library of Congress, would fit into a large living room in this format.

Thus, combined with a computer, we have a medium that is very durable, retains high quality visual images, will hold moving film, still photographs, sound and text, can be directly accessed, is reasonably cheap to reproduce once a master copy has been made.

What then is this medium? It is difficulty to categorise or pigeon-hole. It encompasses the previous genres. You can 'read' it like a book, but it has sound and moving film. You can watch it like a film, but stop it and search it like a book. You can explore it like a gallery or museum, but are not forced to follow the tour laid out by the curators.

With its depth, interactivity and involvement of the viewer, it is perhaps the perfect medium for a post-modernist, reflexive, involved, age, breaking down part of the gap between 'author' and reader.

A second example of the use of videodisc technology concerns the most ambitious project to date which uses this new medium, the two videodiscs and associated software made by the British Broadcasting Corporation to commemorate the 900th anniversary of the making of the Domesday Book in 1086. (2) The videodiscs were made over a period of two years, at a cost of several million pounds. An Editorial Board (of which I was a member) oversaw the process. In summary, the contents included the following:

The Community disc: 20,OOO photographs and 2OO,OOO screen pages of information created by local groups (schools, voluntary groups etc) describing their local areas.

The National disc: one side consisted of 60 minutes of moving film of news events between 1980 and 1986. The other side included the following: 22,OOO photographs, 'surrogate walks' around half a dozen selected landscapes and houses, 45 extended commissioned essays, 2000 short pieces or "ephemera" from newspapers, leaflets and other sources, 6OOO statistical data sets of a demographic, economic and social nature.

There were four principal methods developed to find and examine the exhibits in this electronic museum. Firstly there was the 'gallery' concept, derived from work at the Massachusetts Institute of Technology, whereby one could select items by moving through a three-dimensional simulation of a gallery, and 'selecting' iconic representations of data-sets. Secondly, there were hierarchical indexes,

both geographical hierarchies so that one could start with the top level and gradually move down to very detailed maps of a specific street or village, and by subject, starting with large categories like 'Culture' or 'Economy' and then working down to a specifics topic. A third method was by keyword; a single word or string of words could be typed in and the user was offered data sets in a 'probable' order of likely interest. Finally, the huge set of statistical materials could be displayed in tabular or map form using various specially written programs.

This "Domesday" project, and others currently being made, usually have a mix of uses in mind for the new technology. These can be summarised as follows.

There is an archival purpose, the preservation for future generations of as much high quality visual and textual materials as possible. The BBC Domesday Project was explicitly laying down a "time capsule" for the future. It is this use "of optical disc technology that attracts "rescue anthropologists" and those concerned at the loss and deterioration of old films and photographs.

A second use is in research. As Marc Bloch, the great historian, put it, "the deeper the research...the more the light of the evidence must converge from sources of many kinds." (3) The new optical disc technology allows the user to combine films, photographs, photographs of artefacts, sound, books, manuscripts and move swiftly from one to the other, or juxtapose them. In particular, the ability to have complete control over film, to examine it frame by frame, to go immediately to a particular photograph, to hold an image from a moving sequence for as long as one likes, to vary the play-through speed, all these are valuable for research. It is also becoming possible to 'grab' an image, digitise it, enlarge part of it, or print it out.

A further use is in teaching and the dissemination of information. In school, there are now various projects (in England, for instance, the 'Interactive Videodisc in Schools' project) to replace the rather boring CAL (Computer Aided Learning) approach with this more exciting medium. The Domesday System was intended for this, but the cost of the player and other factors have lessened its impact. There are now signs that much cheaper players with inboard computers will make the original promise achievable in the near future.

In Universities a variety of disciplines, including anthropology, will be able to combine this technology with the increasing use of computers. As in schools, the great advantage of an optical disc system over conventional films is that it can be 'inter-active'. With 'branching' and 'looping' possibilities, the student can move at his or her own pace and at an appropriate level, can ask questions and become involved. Ultimately, it may be possible to create a simulation of real experiences, for instance anthropological fieldwork.

In Museums and Galleries, the videodisc is already, as in the Osaka museum, beginning to show its value. But much more could be done. For instance, all the reserve collections of objects could be made 'accessible' and full information be made available about each. In the Cambridge Museum of Archaeology and Anthropology, we have just opened a new exhibition on the Nagas of north eastern India which uses the videodisc as a source of an ever-expanding set of films about the background to the current exhibition.

One problem that has long perturbed anthropologists concerns the hoarding of cultural items away from the areas which they represent. The arguments for and against returning the artefacts are fairly well balanced, but even if the native artefacts were returned, it is very doubtful whether the increasing number of films, photographs, fieldnotes and so on could ever be "sent back". The new optional media represent a partial way out of the dilemma. Once a master copy is made, copies can easily be pressed and "sent back", assuming that the receiving institutions have the appropriate player. This is something which a large organisation like UNESCO should be encouraged to fund.

There is no better way to learn about the potentials and difficulties of a new medium than to use it. My last brief example will thus be taken from our own work in Cambridge. (4) With Martin Gienke, head of the Audio-Visual Aids Unit, I co-directed a project to make the first Cambridge Experimental Videodisc on the Nagas of the Assam-Burma border. It has just been completed and exemplifies on a small scale an attempt to explore, unite and compare the virtues of various media in the communication of anthropological information.

There is a book, which, with its 25O full colour plates and more than 4OO black and white archival photographs and analytic text, goes as far as a book can go in combining visual and written materials. There is the Museum exhibition mentioned above, occupying one of the two galleries in the newly re-furbished Andrews Gallery. This adds a third dimension to the two-dimensional pictures. There is a videodisc. This adds another seven thousand or so field photographs, 12OO colour photographs of artefacts, 72 minutes of sound, and 15O sequences of moving film. But this still leaves all the textual data. This is held on a 20 megabyte hard disc, and includes much unpublished background materials - field notes, tour diaries, letters, of those who collected the artefacts and took the photographs, as well as some of their completed monographs.

This means that one has roughly 25000 'items' of information at one's disposal, whether photographs, songs, film sequences or paragraphs of text. How does one quickly find what one wants?

Here we have developed four our own use the Museum Cataloguing system, MUSCAT, in association with Dr Martin Porter its author, to create the Cambridge Database System (CDS). This allows one to do 'Boolean' (structured) searching on fields. Thus one can search for all 'items' that are related to a certain day, person, place, ethnic group, archive or medium, and to build up searches of an 'and' 'or' kind. A second form of searching is called 'free text' searching. In this, a word or words can be put in and the computer will provide a list of the 'best' matches, starting with the most likely to be an answer and then the next most likely and so on. This technique was used for the BBC Domesday Disc, but in the CDS system has the added powerful feature of 'relevance feedback and automatic query expansion' not available on Domesday, whereby an interrogator can use the system to suggest links from those answers which seem interesting to other items which he or she has not yet seen.

The projects I have described give a very preliminary idea of developments which will take on a new impetus with the rapid application of Compact Disc technology in the 1990's. It seems likely that this will be the most important communications and educational technological field in the next ten years. It is one where anthropological materials, because of their intrinsic interest, their complexity and their visual immediacy, can play an important part.

NOTES

(2) I have given a detailed account of the contents, searching systems and some of the editorial decisions behind the choice of materials in relation to the Domesday Discs in 'The Social Construction of Britain on Videodisc', in the Society for Visual Anthropology Review, vol.6, no.2 Fall 1990.

(3) Marc Bloch, **The Historian's Craft**(Manchester Univ. Press, Manchester, 1954), p.67.

(Alan Macfarlane is Professor of Anthropological Science at the University of Cambridge.)