# TECHNOLOGY

## The Domesday Book on video

**Barry Fox**

A MODERN DAY, computerised Domesday Book, the Domesday Project, is being launched later this month.

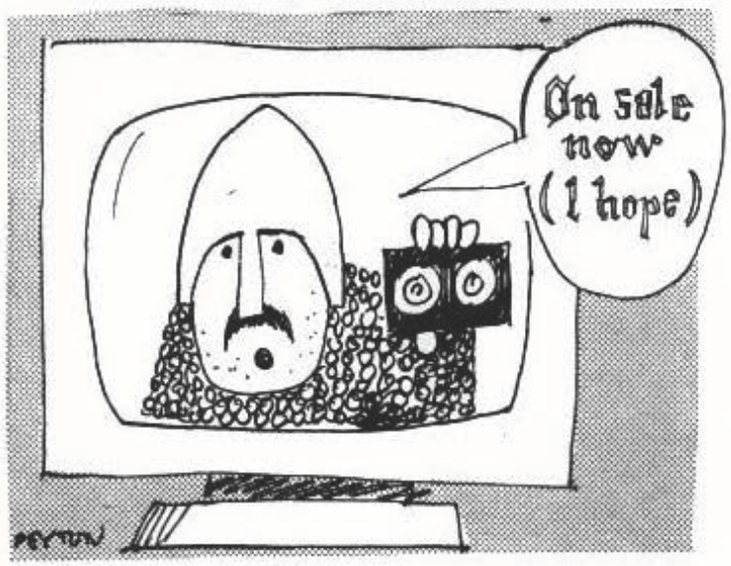
Its launch is long overdue. The Domesday Project was supposed to have been ready for Michaelmas (29 September). The plan was to commemorate the 900th anniversary of William the Conqueror's book with a celebration of information technology. The original date was missed, but to ensure that the project was working in anniversary year, a network of 40 specialist dealers around the country should have systems on display by early December. There are unlikely to be many for sale until next year. The BBC, Philips, Acorn Computers and the Department of Trade and Industry are producing the electronic Domesday Book, which is a computer-controlled video disc. The development costs are about £2·5 million.

The BBC has pre-empted the launch by publishing full details of the technology to a small circle of broadcast engineers. The big question, which will not be answered until launch day, 25 November, is how much the discs and essential replay system will cost. If, as now feared, it costs nearly £4000, schools and libraries will not be able to afford it.

The BBC originally planned to make a series of TV documentaries on Domesday, but soon found it faced the same problem as King William: although there is no shortage of information on life in Britain, there is difficulty in collating it for easy access. The BBC decided to publish on optical disc instead of paper, and teamed up with Philips to use a computer-controlled Laservision video disc.

Acorn, which already makes the BBC Micro computer, offered to provide the hardware and software. Engineers at the BBC found that the original Micro needed too much modification. So Acorn developed the new Master 128. The BBC also took over responsibility for the software from Acorn, and paid a specialist firm, Logica, to help. Without this move there would have been no hope of meeting the 1986 deadline.

Philips developed a modified disc. A conventional Laservision video disc stores




pictures and sound. The BBC wanted computer data as well. The new format, called Laservision Read Only Memory (LV-ROM), looks to the user like a conventional analogue video disc. The LV-ROM, however, also carries digital information imposed on another carrier frequency, which is recorded on the disc between the video signals. The Domesday disc is thus like a combined video and compact disc. It can hold up to 45 000 images of still pictures and 300 megabytes of data, equivalent to around 30 million words of text.

There will be two Domesday discs, the Community Disc and the National Disc. The Community Disc contains a "people's database", with 24 000 Ordnance Survey maps and local information, which 14 000 schools round the country have supplied to the BBC on floppy disc. The BBC collated the data from schools on a VAX minicomputer over 15 months, and wrote a comprehensive index.

The National Disc contains 9000 sets of statistics, and 50 000 photographs acquired from libraries and museums. There are also 60 minutes of moving pictures and sound.

The discs play on a modified Laservision disc player. Each picture on the disc has an identifying number in digital code, and a microprocessor in the player recognises number codes sent by the computer. For example, when the computer sends code "200", the player automatically searches out picture number 200 and displays it on screen.

The video circuitry in the computer and the player are locked together, so that text or graphics generated from the computer can be superimposed on whatever picture from the disc is frozen on the television screen. The user, for example, pinpoints a place on a map with a cursor, and then homes in on a larger-scale map and whatever information and pictures the disc stores for the area.

The tricky part has been programming the Acorn computer to search the LV-ROM index. The retrieval software, developed by Logica, is also stored on the video discs. It loads automatically when Domesday is switched on. Unfortunately, the Acorn computer lacks the memory to store all the retrieval software at the same time. So the Acorn has to compromise by holding a "kernel" of software permanently in memory and then loading smaller chunks of the program as they are needed. Inevitably, this will slow down the system.

The project's backers are confident that the technology works, but they know they face a serious problem over sales. If they charge a realistic price they will put customers off. If they sell cheap they will lose money on every system sold. □

# Search for cheaper Domesday video

THE SEARCH is on for an alternative to the BBC's expensive Domesday Interactive Video System (*New Scientist*, 13 November, p 26). The system is unlikely to meet its targets for sales as the cost has deterred business people and others from making an investment.

Under its charter, the BBC is obliged to make the technical specifications available to any firm that wants to compete with its package.

Already, Research Machines, a company which competes with Acorn in selling computers to schools, has announced a Nimbus 16-bit system, but this will cost £500 more than the BBC's Acorn system. And, next year, there will be an IBM PC package for Domesday. But this, too, will be expensive.

The videodiscs for the BBC's system cost £230, which is a bargain for the statistical data, maps and information they contain about Britain. But the hardware needed to play the discs and search out the data costs another £3760.

There are good technical reasons why the systems cost so much, and they are only now emerging and are not widely appreciated. The crucial point is that all hardware systems for Domesday must use a new generation of laservision player from Philips which costs £2000. This is the only videodisc player which can read the 324 megabytes of digital data stored on each side of the BBC disc, as well as the 54 000 still picture frames.

The laservision player has also improved the reproduction of still TV pictures. Ordinary videodisc players cannot reproduce the Ordnance Survey maps with sufficient clarity to be legible. Additionally, the new player incorporates circuitry which synchronises the graphics and text coming from the computer with the player's own video pictures so that one can overlay the other on screen. Without this circuitry, called genlock, the pictures on the screen break up.

Hopes for a cheap system in the future rest with CD Interactive (CDI), from Philips and Sony, a new type of 12-centimetre compact disc which stores a mix of data, text and pictures, just like the 30-centimetre videodiscs used on Domesday. CDI should become available at the end of 1987 or during 1988.

Transferring the Domesday database to small CDI discs would make the hardware smaller, easier to use and cheaper. This would make Domesday available to institutions, and even homes, which cannot afford £4000 or more for the hardware currently available.

The technical specifications for CDI, as recently published by Philips, confirm that CDI will record still pictures as digital code, so that they can be reproduced on any TV set or computer anywhere in the world. This would make Domesday compatible with TV systems throughout the world. So far, it plays only on a European TV system.

One CDI disc can store up to 7000 still pictures or 300 000 pages of text, or a mixture of both. CDI can hold only around 10 minutes of motion video, but the film clips are by far the least valuable part of the Domesday system.

Several CDI discs would be needed to replace the two 30-centimetre videodiscs in the BBC Acorn system. But this is no problem as there are already autochanger CD players, which take a magazine of several discs. □