

## **MICROS AND BEYOND**

Microcomputers were the first computers cheap enough to be affordable to anyone who wasn't a fanatic, and before long a lot of people who weren't fanatics afforded one. For the first time, lots of people who weren't experts, and who had no easy access to an expert, were using computers, and expecting them to work.

To some extent, the same thing had happened with the interactive systems; but, although individuals using the computer didn't necessarily meet, there were usually experts within reach. With the microcomputers, this was no longer true; so a process of simplification, which had begun with the interactive systems, proceeded apace. In effect, while there were no big advances in technique, there was a change in the way people viewed computing.

### THE OLD VIEW.

A computer is a very complex device. Anyone who wants to use one has to learn a lot about it. You have to know about the processor, and the memory, and the disc; you have to know details of file storage, and how programmes are compiled, linked, and executed, and lots about memory management; and so on. If you want to do something like, say, open a file, you will have to say how big it is ( or will be ), and how long its records are, and whether it is blocked, and what the blocksize is, and whether the records are all the same length ...

### THE NEW VIEW.

A computer is a rather simple device. Anyone who wants to use one should be able to do so without difficulty. You can get by for most purposes with rather little knowledge; and, even if you're wrong, it's unlikely to do much harm. If you want to do something like, say, open a file, you will have to say "I want a file".

The consequences for the system were not so much in the area of driving the computer – few microcomputer "operating systems" are much more than fairly primitive monitors – but rather in ways of communicating with people using the system. Error messages became rather more helpful, sensible default values were provided for many system parameters, selecting from menus became common rather than writing job control instructions. Some systems would even respond comprehensibly to requests for help – and, even though the more elaborate help facilities lived within programmes rather than operating systems, they showed what was possible. People began to talk of *user-friendly* systems – usually misguidedly, but at least the idea was thinkable. But once you start along that path, where will it all end ?

### AN EVEN NEWER VIEW.

Who needs to know about computers ? For the great majority of people, the important thing isn't to **use a computer**, but to **get their work done**. Why should they have to waste time learning about files at all ? Even the easy, friendly, and simple "new view" is an easy, friendly, and simple view *of a computer*. Is that really necessary ?

No, it isn't. We can use the processing power of the computer to simulate something else with which people are comparatively familiar – say, a desktop. Then the idea is that, by using the metaphor of a desktop, people only need to think in terms of familiar desktops rather than strange computers. Just how well that works depends on just how good the metaphor is; and the better the metaphor, the more computing you need to sustain it. That's the operating system's job. The point is well made by this sentence from a description<sup>HIS5</sup> of the development of the Xerox Star, a very significant stage in the history of graphical user interfaces : "Star's designers assumed that the target users were interested in getting their work done, and not at all interested in computers."

### REFERENCE.

HIS5 : J. Johnson et al. : "The Xerox Star : a retrospective", *IEEE Computer* **22#9**, 11 ( September 1989 ). )

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## QUESTIONS.

Why was there an "old view" ?

What do you mean by "user friendly" ? What do manufacturers mean by it ?  
Is that really what we want ?

Is there a necessary connection between "user friendliness" and complexity ?  
( Or – do you have to be clever to be helpful ? ) Is a book user friendly ? Is it helpful ?

To whom is Unix friendly ? To whom is the Macintosh friendly ?

What do YOU think an operating system is ? Have we missed anything ?

Criticise some other views of operating systems : to control users; to manage resources; anything else plausible that comes to mind.

( A positively revolutionary view. ) Why did people need to know about operating systems many years ago ? Does anybody need to know about operating systems any more ? Why is there still a 340 course ?

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