

## Tools Of The Trade

Inexpensive portable computers have found uses in areas previously inaccessible to information processing systems

Journalists can enter into their portable machine the questions they wish to ask at interviews, enter the answers



alongside, and then edit the piece into shape on the train, perhaps, on the way home.



Pharmacists have a cheap and easy way of labelling prescriptions legibly that also eases the task of controlling their stock.



Salesmen can give estimates on the spot even for complicated calculations like central heating installation or life insurance



Stock control is very important even in a small business, but in industry, where stock values run into many millions of pounds, it is vital to keep an accurate record. Portable micros, with 32 or 64 Kbytes of RAM, back-up storage on cassette tape, and communications facilities, are ideal for this purpose

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keyboard and an operating system such as CP/M.

First on the market was Adam Osborne's model 1, which offered a complete range of software, including BASIC, Wordstar, and Supercalc and CP/M utilities, for less than £2,000.

Its weak point was a small screen — 100 × 85mm (4 × 3½ins) — which made the characters rather small and demanded the use of horizontal scrolling to achieve a readable display size when a word processing package such as Wordstar was used. Users, however, soon accustomed themselves to it and the Osborne 1 became a market leader.

Competitors came to offer more facilities, especially in terms of microprocessor power and speed, and capacity of disk storage, until this class of machine became indistinguishable in all but looks from sophisticated office/business systems. In many cases they offer full compatibility with specific machines, notably the IBM Personal Computer, which perhaps encourages their use as a 'second computer'.

The real difference between these portables and office systems lies in their packaging. An applications program that runs on a normal office system will run on a portable with a similar microprocessor. The only limitation is still likely to be the size of the monitor screen and hence of the individual characters.

All this has been made possible by the development of the single chip microprocessor. The limitations on input and output accessibility are a reflection on our dependence on the keyboard as the main input device and the cathode ray tube as the main output device. But what if we suggest voice recognition and speech synthesis as an alternative? There is then no reason why a

micro of similar power to the Ajile Hyperion, for instance, should take up any more space than a Sony Walkman — and the chances are that, had we the technology available, it would look just like that, with the addition of a miniature microphone.

In the present climate of high-speed technological advance the developments in this field are likely to be considerable, even if we don't stray into the fantasy world of speech input and output. Imagine, for example, combining the Sinclair ZX Spectrum with Sinclair's flat-screen television and Microdrive, and powering the system from a nickel cadmium rechargeable pack: there is no reason why one should not put this together for oneself — though perhaps Sinclair will do it for us...

Because of its small size, the ZX Spectrum is an obvious machine for this application, but most computers operate on the sort of voltage obtainable from standard dry cells: there is little reason why almost any computer could not be made portable in this way.

An interesting trend is typified by the ACT Apricot, which is a normal office system, though small in size. Leave aside the monitor and the Apricot becomes a portable system. 'Portability' is, of course, a vague term. Many micros that are so described are merely fitted with a carrying handle and were never conceived as purpose-built, self-contained units.

With the introduction of a wide range of portable micros, the industry has taken a huge step towards fulfilling its real potential — making computing power available to all at low cost and in a form requiring no prior knowledge or training. Admittedly, it will be some time before these criteria are properly met, but the goal is in sight.