OH BROTHER:
Look what they've done to the typewriter!

by NEVILLE WILLIAMS

Meet the Brother EP-44, a mains/battery portable electric typewriter, a text editor (or mini word processor), a high quality 80-column printer, and a four-function calculator with print-out facilities — all in one unit and at an affordable price: $399 plus $20 for a 6V 1A mains supply.

The EP-44 is certainly portable, weighing 2.5kg (including batteries) and measuring 331(W) x 262(D) x 55(H)mm — small enough to be carried in a brief-case. It is quiet in operation, even when printing but, when typing into memory, the only sound to be heard is the contact between fingers and keyboard. Brother claim that it is quiet enough to be used in lecture situations, in libraries or in passenger aircraft. But more of that later.

Basically, our involvement with the EP-44 followed on from a situation which arose part way through last year. In rapid succession, the writer had met up with a number of friends and relatives who were planning to buy a personal computer, apparently with very little idea as to why they needed one or what form it should take. It just seemed the right thing to do!

Reacting to this, I prepared the "Forum" article which appeared in November last under the heading: "Do microcomputers really have a place in your home?". I expressed the conviction that, for many people, the answer could only be "No" — at least in terms of currently available equipment. However, I went on to suggest that a valid domestic role for computer type equipment would be as a word processor, able to cope with letters, lecture notes, essays, etc.

For this purpose, a normal microcomputer, optioned up to a full-scale word processor,was really too bulky and too expensive. I reasoned that there was a case for something much simpler and cheaper:

"Let's envisage a computer type keyboard and circuitry, with an integral printer of one kind or another, styled externally like a typewriter.

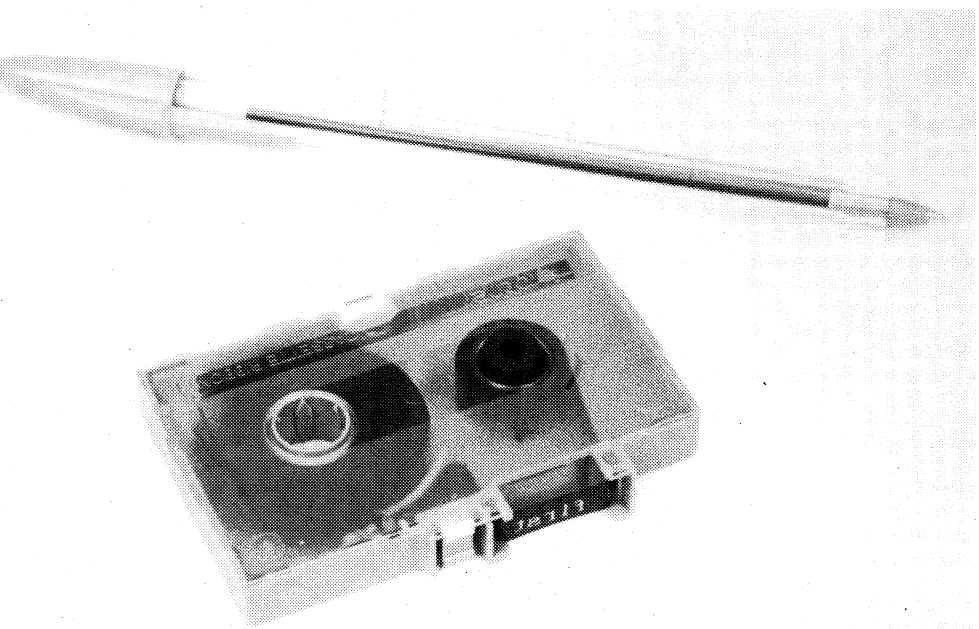
"In the MANUAL mode, it might operate in the manner of an electric typewriter ... in the PROCESSOR mode, operation would be controlled by a word processing program ... the text would be displayed, one or more lines at a time, on a liquid crystal display ... it would be stored in RAM (with battery back-up) sufficiently capacious to accommodate the contents of a typical letter or a useful segment of an article."

Having written that around Aug/Sept '83, we were naturally intrigued to see an advertisement in the Sydney Morning Herald (28/2/84) for the "New Brother EP-84". Under the slogan "It does everything but make the tea", it was credited with letter-quality printing, memory store for up to three pages of copy, text editing facilities, a calculator function with printout, and the ability to function as an on-line printer for typical microcomputers. We had to know more!

Enquiry at Brother Industries in Sydney established that the EP-44 was the latest in a series of "personal electronic printers" which the company had developed and marketed during the past couple of years. Even those earlier models, they said, had cut deeply into the sales of conventional portable electric typewriters which, by nature, were heavier, more bulky, more noisy and less versatile than the new electronic printers. The EP-44, with its extended facilities and much-improved printing quality, should prove even more attractive.

It does not match up in every respect to our suggestions in the November issue; it would be surprising if it did. However, it is aimed at the same market sector and represents what Brother Industries considers to be a practical and affordable product. So let's have a closer look at it.

Below: the clip-in ribbon cartridge is good for about 40,000 characters.




```
This is a sample of the print quality of the new
Brother EP-44 using plain paper:
the quick brown fox jumped over the lazy dog.
THE QUICK BROWN FOX JUMPED OVER THE LAZY DOG.

This is a sample of the print quality of the new
Brother EP-44 using plain paper:
the quick brown fox jumped over the lazy dog.
THE QUICK BROWN FOX JUMPED OVER THE LAZY DOG.
```

The print quality compares favourably with that produced by an electric typewriter.

The EP-44 has a rectangular body shell of grey plastic, with removable keyboard cover, a lift-up flap over the paper feed and printing mechanism, and a fold-away carry handle. The unit is readily portable in this form although, for longer journeys, one would normally carry it in a satchel or brief-case.

The inclined keyboard has a normal QWERTY (typewriter) layout, with soft-touch calculator type key pads. It provides numerals, letters in upper and lower case, space bar, shift keys and lock, back space, carriage return and a full complement of signs and punctuation marks — all aimed at simplifying user adaption to the electronic keyboard. And it certainly achieves that.

However, unlike an ordinary typewriter, each pad has a supplementary function, as marked on the panel immediately above it. Some of these functions, printed in blue and controlled by a blue "CODE" pad, have to do with the text editing and printing functions. Others, controlled by a green "2nd SHIFT" tab, provide 40 or more additional print symbols — a handy mix of mathematical signs, Greek letters, French accents, diphthongs and even the symbol for the Japanese Yen.

On the left-hand side of the keyboard are pads to do with tab and margin positions while, at the top left, are pads and switches for memory and printing control. Some of those at the top right have a similar role, while others relate to the calculator function.

The only display available on the EP-44 is a liquid crystal panel which normally shows the last 15 characters to have been typed. However, the display can be shuffled or cycled back along the line, or back through the memory, to examine its contents. It also provides a means for the system to "talk back" to the operator, both directly and by way of coded status signals.

The EP-44 is equipped with an 18x24 dot matrix print head which can produce type quality virtually indistinguishable from a quality electric typewriter. The letters have curved serifs and vertical strokes of graded thickness, the matrix structure becoming apparent only under inspection with a reading glass.

For printout, it is possible to use either thermal paper (up to A4 size) or plain paper. For the latter purpose, a clip-in cartridge is provided containing what Brother Industries describe as a "one-time heat transfer ribbon" — with a life of about 40,000 characters. For good letter formation, the paper must be fairly smooth, although we got good results with ordinary magazine offset stock. Carbon copies are not possible.

The EP-44 provides for three distinct print modes, selectable by a small slide switch. In the "DP" (Direct Print) mode, it operates more or less as a straight typewriter, printing characters as they are input from the keyboard. The characters appear in the readout but they cannot be corrected in this mode because they have already been printed. The manual suggests that the DP mode is mainly useful for setting margins and tabs, although we used it also for making last-minute amendments to finished copy.

In the "CP" (Correction Print) mode, characters are printed only as they emerge from the display, giving the operator the opportunity to correct typing or spelling errors before they

Look what they've done to the typewriter

Specifications

Number of keys	44
Printing speed	16 characters/sec
Paper width	220mm maximum
Printing width	203.2mm maximum
Characters/line	80
Printing method	24x18 thermal dot matrix
Ribbon	Cassette
Display	15-digit LCD (7x5 dot matrix)
Calculator	4-function with percentage
Interface	Conforms to RS-232C
Paper	Smooth plain or thermal
Power source	4 size D cells or mains adapter
Dimensions	331(W) x 262(D) x 55.2(H)mm
Weight	2.5kg (incl batteries)

become hard copy. Where a near-simultaneous printout is required, the correction facility is a boon to an error-prone operator.

Our tip, however, is that the "NP" (Non Print) mode will be the one preferred on most occasions. Certainly, it would be the one to use for jotting down notes in lecture, library or travel situations. Provided the batteries are left in place, the contents of the memory can be retained indefinitely for later printout.

However, even for normal typing — letters, instructions, assignments, magazine articles, &c — there is everything to be said for making full use of the memory, before anything at all is committed to paper. As in the CP mode, it is possible to correct typing errors as they occur but, in addition, other text in the memory can be corrected or revised.

In this respect, the EP-44 is less versatile than a full-scale word processor because the text is formatted in memory as lines of text, corresponding to the original typing procedure. The content of lines can be changed within the limits of the predetermined line length; unwanted lines can be deleted and new lines inserted. The text will contract or expand to accommodate such changes but there is no provision to shuffle words within the memory from line to line.

In practice, the line-by-line memory format is quite manageable for text which can be broken up naturally into short paragraphs such as a letter, for example, or the text of this very article. In these circumstances, it is no great hassle to re-type portion of a paragraph or even a whole paragraph, where extensive revision is necessary.

As with a normal typewriter, the EP-44 can type or print with 1-line, 1½-line or 2-line spacing, pre-selected by a slide switch. However, it is possible to program additional spacing between, say, heading and text or between paragraphs, by inserting blank lines, as required. Provision is also made to program half-line shifts to provide superscript or subscript characters, or to have selected lines (or words) print against the right-hand margin, or centrally between margins.

Practical experience

How does the newcomer get to cope with these and other tricks? I decided to find out the hard way by refusing on-the-spot instruction from a Brother Industries executive, deciding instead to rely solely on the Instruction Manual, as supplied. Accordingly, I spent an hour or so reading as much as seemed appropriate, before addressing myself to the keyboard.

It would be nice to be able to suggest that everything went smoothly but such was not the case. As with most keyboard devices, all the wonderful things you can do become things that go wrong when you don't do them correctly! It was some hours later, after many attempts, many errors and much searching through the manual that the EP-44 began to respond in a reasonably predictable manner.

You can teach yourself but it does involve a certain amount of time and patience.

In fairness, Brother Industries' have put a lot of effort into preparation of the Instruction Manual and most of the information required can be found, when you go searching for it. The problem is that so much has to be taken in at first reading that essential clues to correct operation are not recognised as such in the 24-odd pages of how-to-type instructions.

Our firm conviction is that, next time

around, Brother Industries could make it much easier for new buyers if they were to re-design their manual along more tuitional lines. In short, after a survey of the physical features — keyboard, batteries, mains supply, paper feed, etc — the newcomer could be taken through a basic exercise in, say, direct printing of straight text.

This could be followed by exercises in Correction Print mode and No Print mode, each a little more advanced than the last. Against this background, it would be possible to introduce the more specialised facilities with minimal risk of confusion.

No less important, any such manual should be tested with novices rather than simply being approved by experts, who know all the answers anyway!

Getting back to the EP-44 itself, our impression of the four-function calculator facility is that, for most users, it will be a bonus rather than a real feature. It uses figures from the main QWERTY keyboard in conjunction with a separate row of mathematical symbols at the top right of the panel — an arrangement that takes some getting used to. The calculator can be used in either Correction Print or Non Print mode but it cannot be stored in memory for subsequent printout.

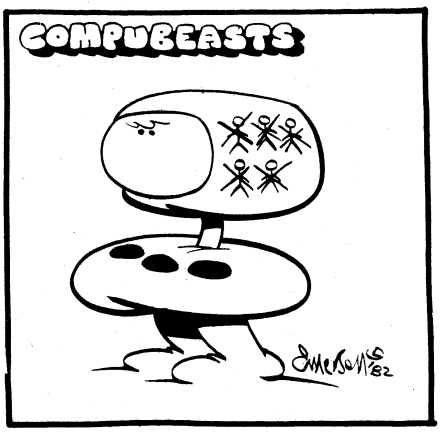
Most of the time it would be simpler to use a separate pocket calculator and type the figures into memory using the normal keyboard, which has all the necessary signs and brackets, anyway.

Although our prime purpose was to evaluate the EP-44 as a desk-top typewriter with memory, it can fill another role, as mentioned earlier, of prime interest to computer buffs. To quote Brother Industries' own brochure:

"Since the Brother EP-44 has a built-in RS-232C serial interface, it can be used as an I/O printer, able to print out text or command lists from your small computer, in addition to being able to print out through applicable daisy wheel units via an optional interface adapter. The EP-44 can also be hooked up with a telephone coupler and be used as a communications terminal."

Unfortunately, lack of time prevented us from putting these statements to a practical test but we did discuss the matter with staff member Peter Vernon, on the basis of the specifications, which conform to EIA and JIS standards. We also made contact with another enthusiast, who had checked out the EP-44 with several typical micros. Indications are that it should compare favourably with other small printers in terms of versatility, and more than favourably in respect to print quality and price.

In fact, at the time of writing, Brother Industries have just released a separate printer which is virtually the rear section of the EP-44. Designated as the HR-5 printer, it will retail for a modest $299, although we imagine that many buyers will prefer to pay $399 for the printer plus keyboard. Logically, the HR-5 and EP-44 printer could form the subject of a separate review.



Conclusions

In the meantime, what was our reaction to the EP-44 as an intelligent typewriter, a mini word processor, or a text editor — call it what you like?

Well, if you really want and really need a full-scale word processor, the EP-44 "personal electronic printer" would be a disappointment. It has a limited memory and it can't manipulate text to anything like the same extent.

But a full-scale word processor, involving a keyboard, a VDU and a printer, can clutter a limited workspace with mains-operated equipment costing anything up to "a couple of grand" — a prospect that will not appeal to a lot of people. Thats where the EP-44 fits in: it is compact, portable, mains/battery powered, usefully versatile and it carries a price tag of $419 including power supply. For many, it could be an eminently practical compromise.

Like any other "intelligent" keyboard, you do need to learn how to "drive" it and, like other printers, there is a running cost occasioned by the need for special paper or a special ribbon. This needs to be taken into account.

On the other hand, with a unit as compact as this, it is a luxury to be able to correct typing errors as they occur and to revise things that could have been better said. Then to press the "Print" tab and have it appear, line by line, free of errors and so cleanly printed.

After having used the EP-44 to prepare this review, I felt quite cheated when Brother Industries rang to inquire whether I had finished with it. They needed it for some exhibition or other.

Suddenly, my faithful old portable had begun to look positively archaic! (W.N.W.)