Jon Vogler

Down to Business

OS9 on the Cumana Upgrade — will it do for business? Jon Vogler investigates

A powerful second processor for the BBC Micro, using one of the 68000 family of microchips; a 10 or 20Mb hard disc unit; a multi-tasking, multi-user, UNIX-like operating system that will support three or four BBC Micros running simultaneoulsy and a generous bundle of top quality business software: all for under a £1000! The Cumana Upgrade package sounded almost too good to be true. Clive Grace reviewed the hardware (Figure 1) in *A&B* January, 1987: I wanted to know whether it is really the business-person's feast that it appears.

The OS9 operating system was written by US software house, Microware, for Motorola who produce the 68000 series of chips and was intended to be a less formiddable version of UNIX. Although Cumana manufacture and distribute the Upgrade, they did not design it and have little experience of OS9. They subcontracted technical support of OS9 to a company called Seed who have been using it since 1980 but, sadly, Seed went into liquidation a month ago and, at the time of writing, Cumana have not been able to announce new arrangements for software support. Therefore this article must inevitably start with the rather gloomy advice: do not buy it until they have and you are satisfied that good software support will be available to you.

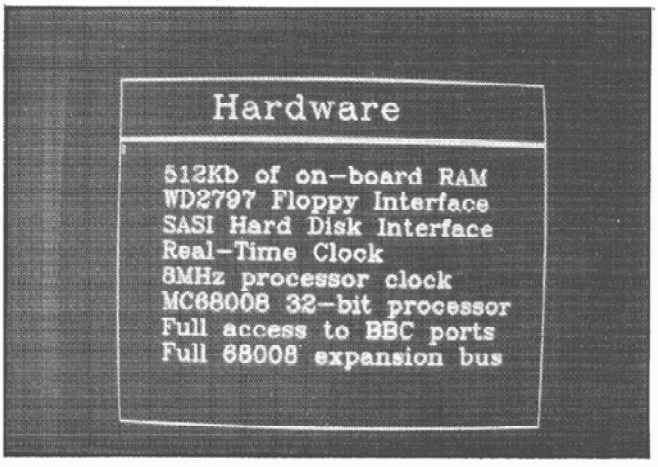
At first sight the bundle appears superb value for money as a business system. Each of the three main packages: *Stylograph* (word processor), *Dynacalc* (spreadsheet) and *Sculptor* (relational database and fourth generation language) are professional, quality packages for which you would pay hundreds of pounds if you bought them separately. You can operate them through the medium of *IMenu:* (Figure 2) a menu system, written in BASIC by Seed, which you can also tailor to your own needs or, if you are above such things, ignore altogether. Then you have three or four separate languages in which, if you are capable, you can write your own programs or short shell scripts to help and save keystrokes when you are using the software packages: BASIC 09, Pascal, C and the OS9 Shell. Alternatively you could use *Sculptor* for the same purpose: could, indeed, replace *IMenu* with one written in *Sculptor*; or in BASIC; or in the Shell! Plenty of scope for the enthusiast.

Hardware

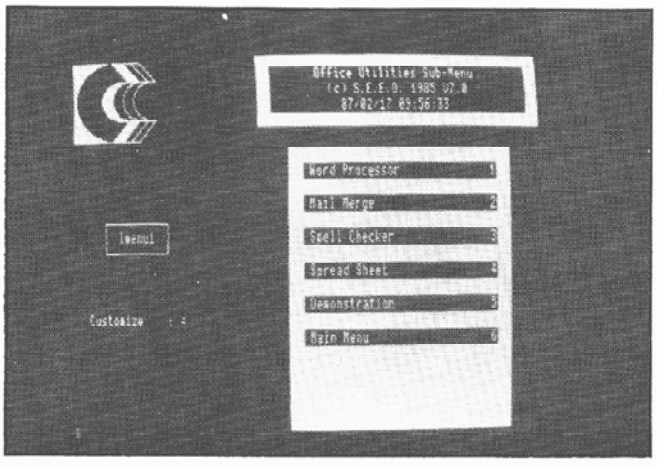
If you buy the hard disc, you get, in addition, a neatly engineered cover which acts as a bridge across your BBC Micro, on which the hard-disc unit, with its built in floppy drive, can stand. Mount your monitor directly on top of this and you have an extremely compact and business-like unit. Particularly business-like because, in the back of the stand, there are four 13 amp sockets: one for each separate piece of equipment and space to tuck in all those meandering cables, with only a single external cable leading to your mains socket. There is also a fan whose task in life appears to be to keep the BBC, containing a *68008* second processor board, cool; the hard-disc unit itself already contains a cooling fan. Unfortunately the extra fan in the stand is very noisy: louder than you would be prepared to tolerate as a permanent background noise in your office. However, if you plug all the hardware into a separate multiplug, you can short-circuit it. I experienced no ill effects operating, albeit with only a single user, for several hours at a time. This was in a centrally heated room in the depths of winter; in summer, and particularly with several users, it would be essential to run the fan but one can tolerate a lot — even fan noise — in return for a heatwave!

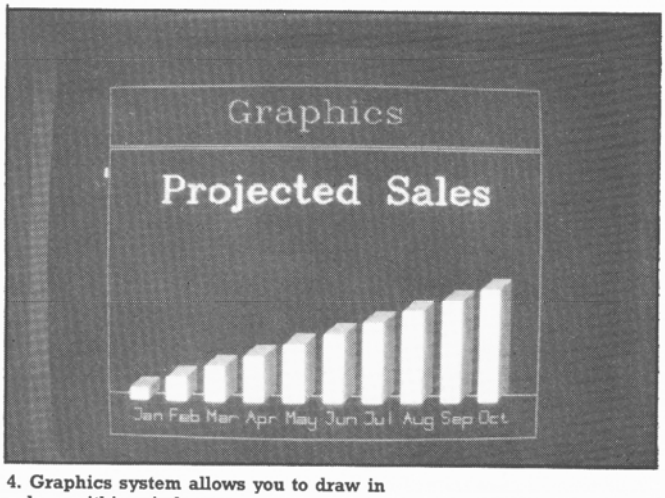
OS9 will support colour and, indeed there is a graphics displays system (Figure 4) which allows you to draw colour graphics within windows, scale, rotate and move them and

1. The Upgrade hardware described by a demonstration screen. Note the user-designed font, with large characters.

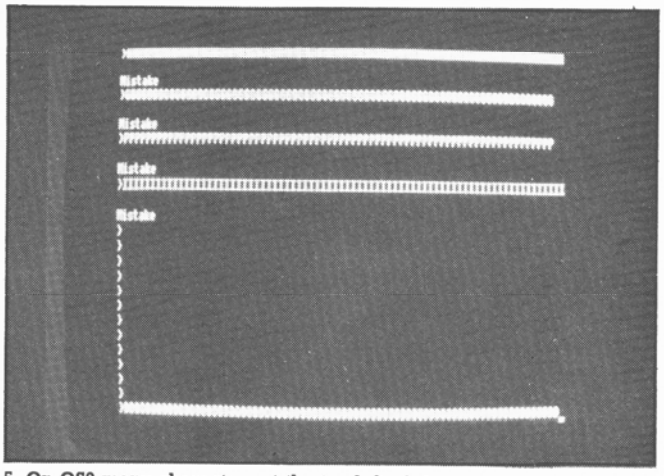


2. Imenu with date, time and option to customise the menu. Note the bending of the upper characters.





4. Graphics system allows you to draw in colour within windows.



5. On OS9 many characters at the top left of the screen were quite badly bent. This photo shows the same BBC and monitor working in BBC 80-column mode with perfectly erect characters.

intersperse them with text and define fonts (different styles and shapes of characters — Figure 1) for yourself. However, it uses a (quite simple) language of its own, which you would have to learn from the separate user manual that Cumana provide with the Upgrade, and which is not integrated with any of the Business software. I ran it, as most business folk would, with a monochrome screen and have to say the results were not fully satisfactory. First of all the characters are very thin: fine if the lighting in your room is perfect but quite difficult to distinguish otherwise. Secondly, characters at top left of the screen (the area that is used most in any interactive language (one in which you and the computer talk to one another) were quite badly bent. I thought at first this must be a fault of my monitor but reverting to BBC 80-column mode gave characters (Figure 5) that were perfectly upright. Nor was the problem due to over-heating; it occurred whether both fans were running or not.

Discs and memory

With the hard disc unit you have the option of a 5¼ inch floppy drive or one that takes 3½ inch floppy cartridges: if all other things are equal this last if preferable because the discs are far more durable but, if you want to run your computer as a straight BBC from time to time, consider whether you may need a 5¼ inch drive in order to read existing floppies. The hard-disc unit itself ran smoothly without problems.

One of the nice features of OS9, in marked contrast to UNIX, is its resilience: you can switch off at the mains without corrupting the file system. However do not try this while writing data to a file, because obviously that would be corrupted but, if the main menu or operating system prompt is showing on the screen, then you are quite safe. The system takes quite a long time (nearly a minute) to power up again. OS9 is much less capable than UNIX in handling the transfer of data between memory and disc. Whereas UNIX swaps data between the two automatically, OS9 requires that you have sufficient memory to hold all concurrent tasks. For example, when you load your word processor you are given, by default, 4K of disc space for your word processing file. If you fill that up you get a bleep and have to save what you have done and issue a special command to open up more disc space.

However there is an option to increase the memory buffer for large texts; but that means less memory available for multi-tasking programs. There is a command that enables you to load processes into memory, even though you may not be intending to use them immediately, and they will then run much more promptly when you do. The Upgrade, which comes with a full 0.5Mb of memory allows you, when you start up, to earmark 32, 64 or 128K of this to be used as a "RAM-disc": an area of memory which behaves like a very fast disc-drive. This is useful for carrying out tasks like sorting files or "spooling" to a printer (queuing jobs in a temporary file so that two or three different users can use a single printer without risk of time clash). However the more memory you use for the RAM-disc, the less will be available for programs and you must never forget that the RAM-disc is "volatile": it loses all its contents when you switch off.

OS9 can support any disc size but the largest made by Cumana is the 20Mb. As it only costs £100 more than the 10Mb version, it's the obvious option if you can possibly afford it. It is certainly not realistic to think you could run OS9 sensibly from floppies. OS9 can support up to a dozen users as a practical limit and I am told you can buy a "spider board" device to stick on the back of your BBC, so you can run it with the upgrade and

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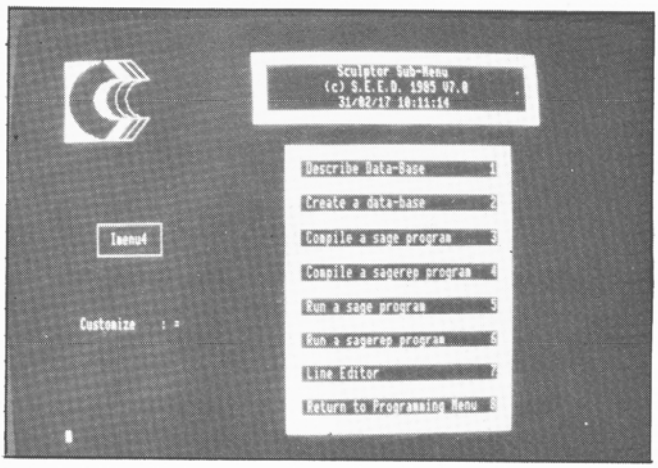
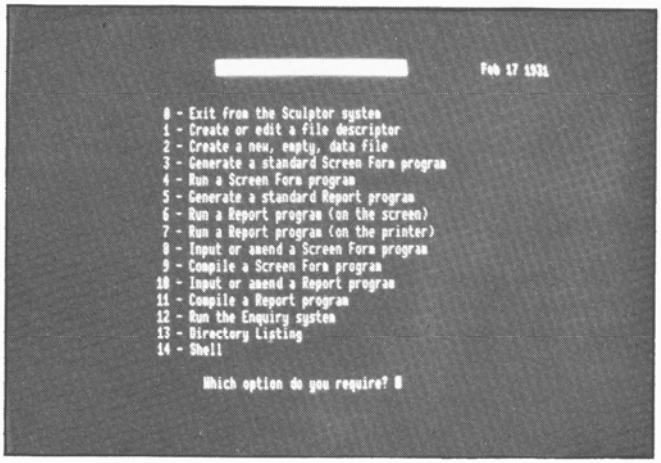
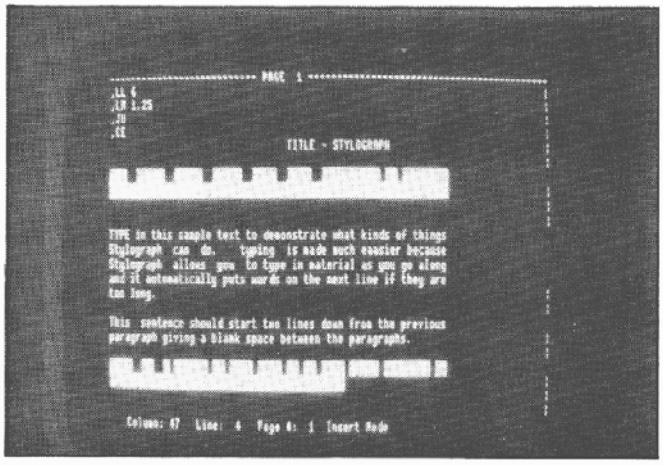
6. Seed's IMenu system produced a truncated Sculptor menu.

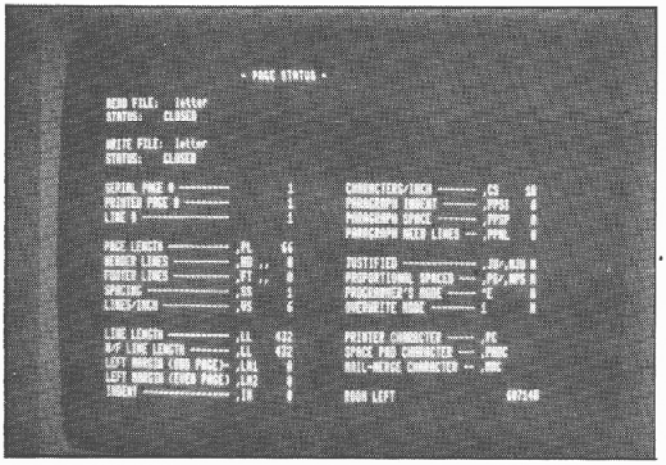


7. It took some detective work to find the full Sculptor menu.





8. Stylograph: different type faces are all shown on screen as inverse video.



9. Stylograph page status form lists what formatting is currently operating.

three or four terminals, but I did not test this myself. It will not operate under Econet at present so, as a serious multiuser system, it is less attractive that Torch's (much pricier) Unicorn running UNIX.

Menu system

Seed's *IMenu* system (Figures 2 and 6) is neat and efficient. The header tells you the date and time (but sadly the date is given in American format year/month/day). However this can be very handy if you are trying to sort events by date order. There is an option to quit the Menu system, in which case you get an OS9 "prompt" — a dollar sign — to tell you you are "in the shell" and can work interactively: issue instructions and receive replies. You can also opt to customise the menu system, to include programs of your own or omit choices you never expect to use. The Main Menu panel offers you the choice of office programs, programming languages and the various system utilities.

Some nice features of this Menu are, firstly, that it operates at the touch of a key: no need to press the (RETURN) key. Secondly that it switches itself off, to avoid "screen-burn" but at the touch of any key you can get it back again. The Office Programs Menu offers the word processor, with its associated mail-merge and spelling checker, the spreadsheet and a demonstration. *Sculptor* is omitted but is included on the Programming Languages Menu. No need to debate whether it should be treated as a fourth generation language rather than as a working database because the joy of this system is that there is nothing to prevent you (once you have learned how) customizing the Office Facilities Menu to include it.

In fact you have to be careful that the *IMenu* system does not obstruct your control. For example I looked at the *Sculptor* Menu (Figure 6) and was surprised to see that it was far less comprehensive than it is on my Triple X version of *Sculptor*. So I returned to the operating system, changed directory to the one that contains *Sculptor* and ran it again and was pleased to find the full menu (Figure 7).

The *IMenu* is excellent for unskilled users who want to make simple menu choices and no more but anyone more enterprising may prefer to work from the OS9 shell.

The OS9 Operating System

Many readers may never have even heard of OS9, let alone tried it. What is it all about? It is frequently described as a simplified version of UNIX and I conclude this is accurate. It includes many of the good things about UNIX such as:

- A hierarchical directory structure (each directory "hangs" from another, like a "family tree" showing how you descended from King John).
- The ability to redirect program input and output; for example decide "shall I send my accounts trial balance direct to the printer or to the telephone modem or to a file for later editing?
- The ability to pipe program output through another process or build a Tee-joint. So you could decide to pass (pipe) that trial balance through a sorting program to get accounts headings in alphabetical order instead of nominal cost-code numerical order. A Tee would allow you to see it on the screen while this was happening.
- A Shell: an "interactive command line interpreter": you give the shell instructions and the shell tells the computer (or, more accurately, the operating system) what you mean and passes its replies back to you in a way you can (sometimes!) understand.
- A full-screen editor called Scred which is not, however nearly as powerful as UNIX's vi but is a vast improvement on MS-DOS's horrible edlin
- A number of utilities such as:

a) grep which will find all occurrences of a given string of characters in a file

b) qsort which will sort the lines of a file in anyway you specify

c) which will count characters, words or lines in a file

d) cmp which compares two files and reports any differences

- A password and security system for multi-user operations.

However one must stress that it is much less powerful than UNIX. There are far far fewer commands and some of the best UNIX functions are completely absent. For example, that magnificent UNIX program called awk, which will allow you to extract selected data from a set of accounting files and feed them painlessly into a spreadsheet, simply does not exist on OS9. Again, the OS9 Shell has none of the powerful, simple programming capability which I myself use so extensively on UNIX and which protects one from having to learn BASIC or C or anything else in order to "tailor" a computer system to one's personal needs; you just string existing UNIX utilities together using Shell to provide the logical glue.

However the other comparison one might make is with MS-DOS or CP/M and there is no doubt that OS9 is far more flexible and versatile than either of these.

Stylograph word processor

The *IMenu* forces you to choose in which directory you will work (for example it offered me accounts or letters or mailshots) and then to select a file name. *Stylograph* starts by presenting a 12-line main menu, including choices of editing, printing, saving or loading files and one or two others options. A cursor in the left-handmargin is moved up and down but, unfortunately, the arrow keys are not operative. I understand from Seed that a program "patch" is available so that you can use them but in the meantime you have to use "," (comma) for down "i" for up and so on.

If you wanted to load a new text you would have to press the comma key twelve times to get to the bottom of the menu: most uneconomical.The first item on the menu takes you into "escape" mode, in which text can be edited and, from any other state, you can

get back to editing by hitting the (ESCAPE) key. From editing, a touch on the slash key will return you to the Main Menu. The other modes are: supervisor which is the main menu, insert for entering text, overwrite for altering text and escape for cursor control, scrolling, etc.

There are also a number of control commands which can be executed from all "stylomodes" except the supervisor mode. This arrangement is bad: excessive key-strokes are required during editing because the cursor cannot be moved while in insert or overwrite modes. You have to shuttle back and forth between these and escape mode: very tedious and "unergonomic"!

The menus are clear but they too demand excessive keystrokes as in: Several keystrokes to move the cursor down the menu to

"Return to OS9"
(RETURN)
Is the text secure?
Yes
Are you sure?
Yes

Good word-processors can do this in a single keystroke!

Editing facilities in what is optionally either a WYSIWIG (What You See Is What You Get: it prints out as displayed on the screen) or a formatting type of word processor are comprehensive and include subscript and superscript, underline (and overline) and bold face or "emphasized" text, all of which are displayed on screen as inverse video (Figure 8) and all of which can be entered in any combinations.

How do you know what style the inverse video represents? (CONTROL)(V) inserts a coded character, in place of the reverse video fields, which can be interpreted to disclose the combinations selected. So the word "combinations" might appear as 333333333333 which would indicate that it is in bold face. Press (CONTROL)(V) again and "combinations" will reappear as reverse video. There is a range of formatting commands (rather like WordStar but they start with a comma, not a dot, and mainly control page layout matters such as headers, footers (short phrases printed at the head or foot of every page), justification, page numbering and so on. The unusual feature is that most of these commands affect the screen display, not solely the printed page.

If you press (CONTROL)(P) you get a screen that lists what formatting is currently operating (Figure 9). Another useful toggle is (CONTROL)(F), which previews the text, without the formattiong instructions being visible. A control command will show you what error you have made whenever the computer's bell sounds and another control command allows you to work in "programmers' mode", with special arrangements of tabs so that the program texts can be neatly set out and indented.

Search and replace facilities are comprehensive and allow one or every occurrence of a word and have an option to ignore the case of the word, so it will still be found, even if it sits at the start of a sentence, with a capital letter.

It is possible to work with line lengths in excess of normal screen width and avoid "word-wrap" by scrolling the screen to left or right. Other editing facilities include a facility for setting programmable tab stops, predefined printer characters, pad characters (blanks that will not be stretched or compressed during formatting; for example to maintain tables rectangular and neat), ghost hyphens (they only appear if the line is broken and disappear if subsequent editing moves the break away from the line end) and all the usual centering, spacing and justifying options.

On screen assistance is built-in, with good help files obtained rapidly by pressing (CONTROL)'. Comprehensive error messages can be obtained, with (CONTROL)(N), which alert the user to problems such as "cursor at end of screen", or "non-standard letter spacing selected". Type variations such as superscript, underline and boldface can be embedded in your text regardless of which printer you use because *Stylograph* has a sophisticated procedure for configuring the codes to match any printer. However you need to understand printers and their use of escape and control codes fairly well to modify the "driver" of a strange printer. You can use *Stylograph* with a proportional spacing print wheel and driver configurations for commonly used printers are already provided. You can also reconfigure the "system map" so that the word processor takes account of extra devices (such as modems, terminals or plotters). There is also a limited option for "mapping" keys to perform different tasks (but it does not appear to help with the BBC arrow key problem.)

Stylograph documentation is clear and comprehensive but uses rather small print. There is a good contents page but no alphabetical index; a shocking omission. Appendices in the manual summarize the stylograph features and the printer configuration program and a cardboard keyboard crib is provided.

I frankly did not like *Stylograph*. It makes poor use of the keyboard: the clumsy escape commands only exist on 24 of the BBC's 50 odd keys while control commands occupy only 17 of them. There is a particularly poor range of commands for moving the cursor around the screen. There is no capability to create footnotes, indices (indexes) or tables of contents. Although headers and footers can be created they are "single compartment"; normally headers and footers are split into left hand, centre and right hand portion but not on *Stylograph*. The modest range of format commands sits uneasily in a basically WYSIWYG editor. However the most serious criticism is the excessive number of keystokes required to carry out almost any task.

Mail-Merge

Stylograph comes with a useful mailmerge option which can not only carry out the standard task, of merging a text-file with a file of names and addresses, but can also:

- insert the current date from the computer.
- extract variables from a data-file according to their position in the file (Figure 10). Having

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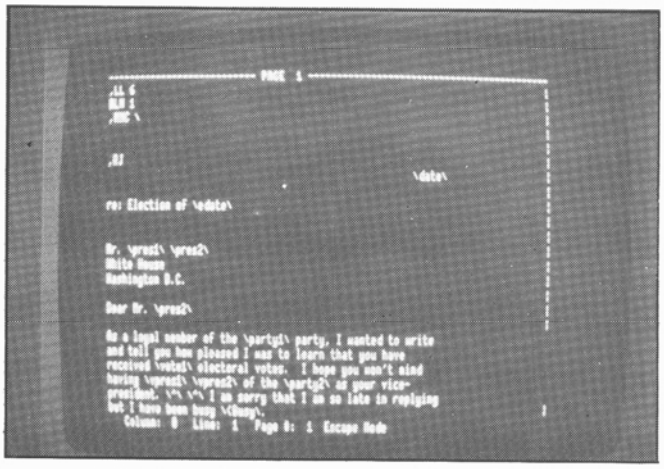
10. Stylograph mail-merge function allows variables to be embedded in the text.



11. Stylograph spelling checker report.