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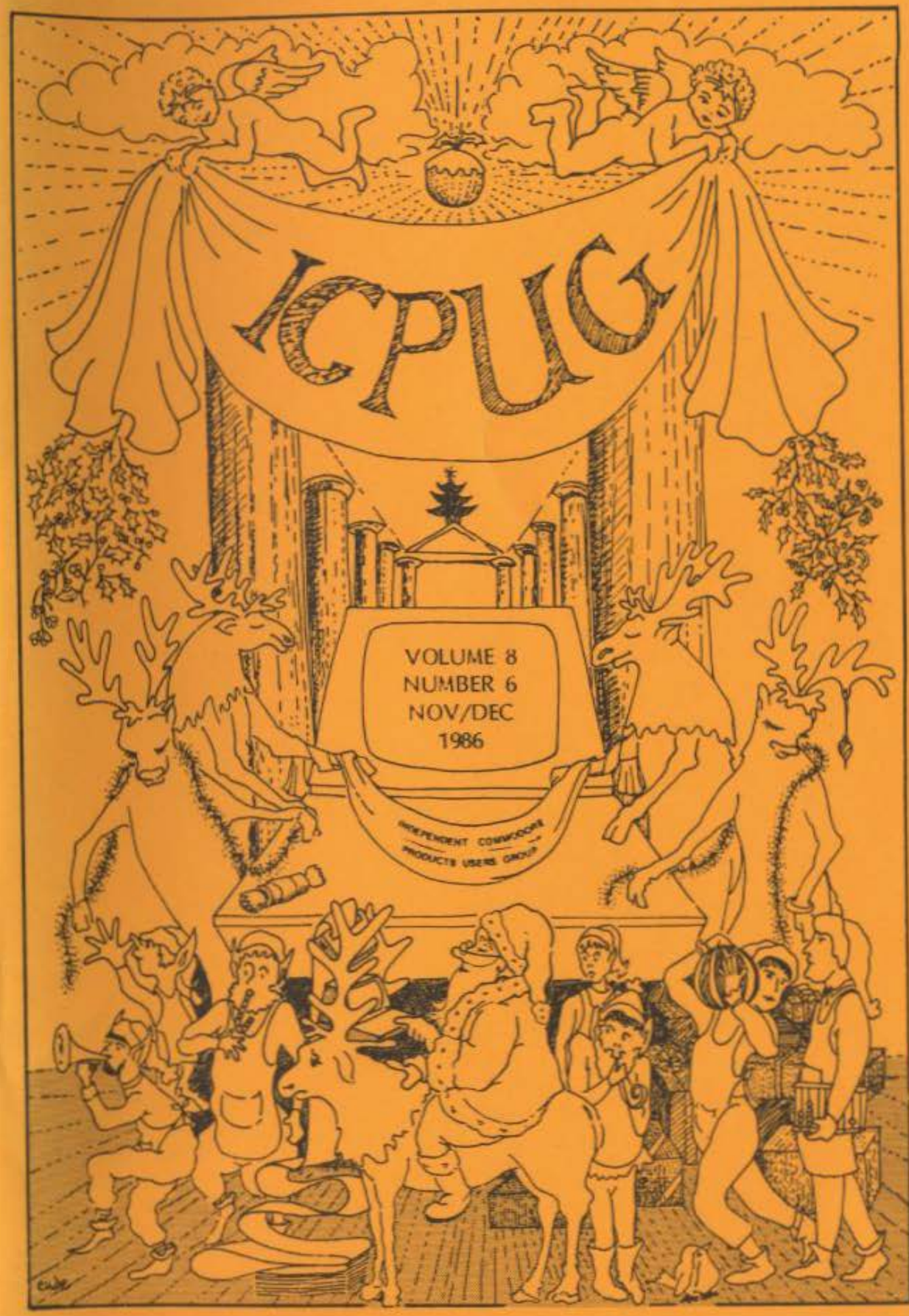
Egham (0784) 39208/34630



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(Software Librarians - see inside back cover)

# INDEPENDENT COMMODORE PRODUCTS USERS GROUP newsletter

Vol 8 No 5 November/December1986


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Europe's first independent magazine for CBM users

# EDITORS' NOTEBOOK

Getting up from our knees, which production of this bumper issue had brought us to, your editors wish everyone a Merry Christmas and happy computing in the New Year. You may notice from the new Committee list that Henry is now called 'Managing Editor'. No one seems to have any idea what this title means but, though under pressure, we are both managing. This is almost certainly the last year this team will produce your Newsletter, but it seems to us that anyway it is high time it was produced by new technology - by interactive page make-up on an Amiga screen and by laser printer, rather than by PET/Qume.

Our second article reviews Superbase on the Amiga and is almost the most fascinating it has been our lot to bring to you. It is not that most of the things Superbase does are new but the speed and ease with which it does them. Any 16-bit database worth its salt today, and certainly my favourite, Smart, will do most of them - and who wants a 17 Gb database? - but not that fast, that easy. Rearranging screen format at will as the records whizz by at 12 per second - Wowee!

What is new, at least for micro users, is the ability to store digitized images as records. Jim gives one possible use in security work, but what about estate agents, who could now show customers a graphic of each property on screen as they page through potential properties in the database? And many other uses.

It is interesting to note that Precision propose to port the program to other micros, and it will be even more interesting to see how much of the Amiga's facilities can be reproduced, or mimicked on, say, an AT. Many of us will surely hanker after Superbase/Amiga but most will hesitate to go out on a limb which Commodore, to judge by their record for shooting themselves in the foot, are eminently capable of sawing off on the tree side.

This issue contains rather more advertisements than is our policy, due to the changeover of advertising managers. This is not a sign that we are going to fill the Newsletter with advertisements because they mean less work for us - indeed, we grudge the extra pages we could have used ourselves. Contributions are building up well - whether because we now have the largest membership in our history or because you-all are getting the right ideas, we don't know - but just keep them coming and let's have some more fat issues.

HdeG
HGV



# COMPLEX DESIGNS—THE MANDELBROT SET

by Eddie Syratt

In recent months, a new benchmark test for timing high-speed computers has come into use - it contains so many operations that the fastest existing computer - an array of 250 parallel INMOS transputers - took over 2 seconds to complete it: the array was performing about 2500 million operations per second! You will be pleased to learn that a C64 or a C128 can do it, albeit more slowly. The test draws one of an infinite number of coloured, high-resolution pictures, based on a mathematical concept called the 'set of Mandelbrot numbers', which can be very beautiful.

Benoit Mandelbrot, of the IBM Research Centre, New York, was working on a method for computer generation of natural-looking objects (e.g. Mountain ranges which are not just triangular), and developed a technique which he called 'fractal geometry' involving the use of complex numbers for distorting a regular outline in a controlled way. Part of this work produced the particular set of numbers which is now known as the Mandelbrot set, or M-set, which has the reputation of being 'the most complicated object in mathematics'.

Complex numbers themselves are not difficult to understand: the name arises because such a number is the sum of two different entities which can't be added normally - like 'one hamburger plus two times the speed of light', which doesn't equal three of anything. Complex numbers do however have SIZES, and also very real applications, e.g. in electrical circuit theory: no complex numbers, no computers.

Mandelbrot was concerned with the changing SIZE of complex numbers when a square-and-add operation was repeatedly done on them; some get bigger, but not all, and for no predictable reason. Those whose size stays low after an indefinite series of iterations form the Mandelbrot set; those NOT in the set 'escape' to a high value, after a number of iterations which depends on their nearness to the set boundary.

Turning all this into a coloured picture is done by regarding the C64 high-resolution screen as a 'map' with each point on the screen representing a different complex number, and its colour denoting the number of iterations necessary for that number to 'escape' to a high value: 2 iterations might give a red dot, 3 a brown dot, 4 yellow etc. Those inside the M-set (which do not escape) are coloured black. Plotting sufficient of the map shows that the whole M-set resembles a black insect-like blob with a knobbly and whiskery skin.

The interest lies in 'zooming in' on the skin boundary, which turns out to be extremely complex in nature, and even to include miniature MANDELBROT sets. The detail is brought out by defining a particular rectangle, and specifying certain other parameters, which then construct the 'map'. Zooming can be continued as far as desired, the only limits being the resolution of floating point arithmetic in the computer and time available. The complexity goes on indefinitely!

The magazine 'Scientific American' had an article (August 1985) on the M-set, and Steven Thorpe printed in 'Compute!' (July 1986: p98) a BASIC C64 program for generating pictures; this can be modified in various ways to achieve different results. It requires the top, bottom, left and right limits of the desired area of the complex plane to be specified, as well as two other factors: the SIZE at which a number is deemed to have 'escaped', and the maximum number of iterations before giving up and deciding it is in the M-set. An array holds a sequence of colours which will be allocated to increasing pre-escape iteration numbers. The high-resolution screen has 320 x 200 dots, or 160 x 200 in the multi-colour mode: for these dots, which each corresponds to a different complex number, the program iterates the (Z1=Z0*Z0 + C) formula until either a pre-determined maximum has been done, or the size 'escapes'. Each iteration involves almost 100 arithmetic and logical operations, so if a maximum of 256 iterations has been specified, over 25000 operations might be needed to decide that a particular dot is or is not within the M-set, and hence its colour.

The program can be customised and compiled (which then runs at about 2.5 times the BASIC speed), and can produce a complete picture in 3 - 12 hours, depending on its complexity. The program allows the picture to be saved to disk, and an auxiliary program permits it to be read back into the high-res screen. At the very least, it gives the computer something to do overnight, with a colourful result visible at breakfast time.

--oOo--

## 64 SOFTWARE LIBRARY CHANGE

Would members with surnames beginning with H who us the 64 library please note that David Miller has taken over from Richard Weston as 'H' librarian. His address appears on the inside back cover.

A Mandelbrot picture: the original, of course, is in glorious technicolor

# SUPEBASE ON THE AMIGA

by Jim Kennedy

Well, it's here! Superbase for the Amiga, or at least the Personal version has arrived. There will be a second, even more powerful Professional version coming out in the next few months, but in this article I'll cover what the Personal version can do.

Simon Tranmer of Precision Software, who did the programming, originally furnished me with Superbase for the Amiga in what is known as beta-test format. To explain, alpha-testing is done first, usually 'in house', and then beta tests are carried out by a combination of outside experts and 'average' users. Unfortunately, today it is becoming fairly common practice to rush both software and hardware to market too soon thereby reducing the beta-, and sometimes the alpha-testing to a minimum. Adding to the customer's frustration is the fact there is more to release of a software package than just the program itself; manuals must be published and their production can take longer than the program itself. However, the Superbase program for the Amiga appears to have been reasonably well beta-tested (I found one bug, which Simon tells me has been fixed) but the manual was already in print during my testing and therefore the first versions sold reflect this. More about the documentation later.

Breaking with their past tradition of copy-protecting the disk itself, Precision have introduced the use of a dongle for this program. As many will know a dongle is an electrical 'key' that plugs into a port on the machine and whose presence is required before certain essential operations may be done. You may make as many copies of the program disk as you like but each will run only with the correct dongle present. An improvement over the head-bashing protection of Superbase on the 64. (It may be of interest to note that in the US market some companies, such as Borland, are eliminating protection from 'serious' software altogether in response to customer demand.) This type of protection allows Superbase to be installed on a hard disk, essential for large databases. Not having a hard disk to hand I have not tested this point.

Starting to use Superbase on the Amiga (from now on Superbase) is rather easy. No programming experience is required and one need not even use the keyboard very much. In this respect it acts like most Amiga programs that use icons, pull-down menus and mice should. The program loads in around 60 seconds and in one of three ways. First, but



only in those versions with Workbench on the disk, it is loaded by inserting the Superbase disk following the boot or Kickstart disk. Whereas my beta-test versions permitted this method, the final production version of Superbase Personal didn't. This omission of Workbench from the Superbase disk is merely to save disk space and should cause no problems. Second, it may be loaded by clicking on the Superbase icon from the Workbench screen just like other Amiga programs using icons. Third, it may be loaded using the Command Line Interpreter (CLI). Now I would suspect that most people will load it by the first or second method and won't wish to bother with Amiga DOS or the CLI. In the Personal version at least, the average user is almost completely shielded from Amiga DOS except for a couple of housekeeping tasks.

Pull-down menus using the mouse are available at the top of the Superbase screen. Actually they drop down but since everyone uses the pull-down term I'll stick to it. For example, various options such as New, Open, Close, Edit, Save, Remove and Quit are displayed under Project which is just one of many entries along the top menu. The Open command in tum has its own submenu including File, which when selected causes a window to appear listing all the files on the disk. Clicking whilst the pointer is on a file name loads up that particular file and displays its first record on the screen. Bear in mind that up to this point one has not yet touched the keyboard.

The file selected may now be displayed in one of three ways: 1) In Record View format where the data appears one record at a time with the fields aligned with the left side of the main window; 2) In Form View format, again one record at a time, with each field arranged anywhere you like in the window just like a traditional card form for holding data; 3) In Table View format but this time the display is many rows of records with the data from each field in its own particular column.

One may change the layout of these displays at will. For instance, in Form View format and when scanning through the entire file in a 'fast forward' mode with records coming onto the screen at the rate of many per second, one may use the mouse to 'grab' one field. The display will then automatically pause whilst one then drags the 'grabbed' field to another point on the screen by holding down the mouse button and releasing it at the new field location. Upon release the fast forward display will then resume where it left off and go right on displaying data from each record in that new location. The system is completely indifferent to the changed layout and no delay is observed. How one rearranges the fields makes no difference to the machine except that it doesn't like one field being placed on top of another, i.e. two into

one won't go. The Table View format is an exception to this, however, in which one may make columns overlap each other so as to leave only a few characters of the 'covered' column showing. This is very useful for screen display of names, addresses, telephone numbers, etc which would normally take up more than 80 columns.

One may also do things like temporarily displaying only selected fields such as first and last name along with telephone number from a record which includes dozens of fields containing address, birthday, occupation, hobbies, etc. All it takes to do this is a couple of clicks on the mouse buttons. Be warned! After using Superbase on the Amiga you will not like to go back to any other database on any other micro.

In fact, people using this package will quickly forget most principles of planning the form layout of the their database. If they don't like it they'll just go and change it, either temporarily or permanently, by adding new fields, deleting old ones, and moving existing ones around. If they still don't like it when using it next week, well, change it again. My first reaction was that we shall now see lots of sloppy form designs in many databases with this system but upon reflection I have concluded 'Why spend an hour designing something that you may wish to change latter, particularly when the change will only take a couple of seconds?'

The same thought applies to a lesser degree to the key fields chosen in a file. For example, one may start an address and telephone file with one key field for last names. At a later date one may then decide that another key field is required for the city, county or country field. A couple of mouse movements and clicks and the change is made. Incidentally, you may have up to 999 key fields for a given file. Caution! The more key fields the longer it takes to update all the indices.

To access records in a file using the mouse there is a series of icons along the bottom of the main window which correspond to buttons similar to those found on a tape recorder: forward, back, fast forward, fast back, pause, stop, first record and last plus three other icons. I suspect most people with reasonably sized files will zip through all records from either beginning or end of file to approximately the desired point with the two fast buttons and then step through more slowly to find the exact one. In very large files, on the other hand, one may click on a Key Lookup icon, one of the other three icons. This icon is pictured as question mark in a box. I personally would have preferred an outline of a key instead but everyone to their own tastes. Who knows, a newcomer to databases might find the ? easier to use.



Using this Key Lookup icon brings forth what is called a requester. Requesters are windows which open when necessary and ask for details about your request. In this case the requester asks you to type in the record key from the keyboard. (Notice this is the first time I have mentioned the keyboard.) To use this Key Lookup requester one would type in Smith to find a person in the file under that last name.

Another type of requester may be called up using the second of the 'other' icons with the equals sign in its box. This is known as the Filter requester and displays 1) a list of all the fields in the file, 2) a series of icons depicting logical, relational and mathematical operators and 3) two other small boxes. One of these boxes is called the Value Box and is used for entering text whilst the other is called the Main Box and displays both the text as well as the fields and operators which are selected. For example, if you wished to find all people with the last name of Wood and living in Leeds you first click on the Filter icon, up comes the requester, then click on the LastName field, click on the '=' or 'LIKE' icon, type Wood in the text entry box, click on 'AND', click on City field, click on the '=' or 'LIKE' again, and then type Leeds in the Value Box. Everytime you click on a field or icon that item is transferred to the Main Box, our example resulting in:

LastName LIKE "wood" AND City LIKE "leeds"

Notice that when using LIKE one need not worry about upper or lower case. This is in contrast to the equals sign '=' which is case-sensitive. Other operators such as <, >, <=, >=, <>, +, -, *, /,OR, NOT plus brackets are all available with their own icon. Double quotes are added automatically by Superbase where required. In other words, to find everyone named Wood living in Leeds required only a few clicks on the mouse and typing 9 characters from the keyboard. One need not go back and forth between mouse and keyboard, however, as an option of entering everything from the keyboard is available.

Like the Amiga itself, Superbase can be very addictive as it is both powerful and easy to use. I should imagine that many users will buy an Amiga just to use Superbase on it. This is because certain features are just not present on any other system. Suppose, for example, you were a security guard at a very important installation and all employees had passes which contained not only their picture but also a unique fluorescent pattern on the back of each pass. As each person entered and placed their pass under the ultraviolet light you could call up their record in the screen and click the mouse button using the third of the 'other' icons, which is an outline of a camera, to display their

digitized photo. You would then click again to see the display of the unique fluorescent pattern. Yes, pictures may be treated almost like any other record in any other file with almost any number of records in a file and multiple pictures in each record. Pictures are stored in what is known as External Files in standard IFF format, which virtually all Amiga graphic programs can handle, and called up by the camera icon.

The only real limits of Superbase are more a matter of the mass storage capacity and Amiga system limitations rather than Superbase itself. Do you really expect to have more than the 16 million records which Superbase allows in one of your files? It would require thousands of floppy disks to contain a file of that size even if each record were only a few bytes long. Almost everything about Superbase on the Amiga is virtually unlimited. One would run out of space on a 40Mb hard disk long before one would run out of capacity in Superbase. It has a maximum file size of 17Gb - that's right, 17,000 Mb! Normal comparative standards such as number of records per file, number of fields per record and number of key fields are now approaching the irrelevant. There are really no limits to the number of fields in a file especially if one restricts the display to Record View format. There are, as expected, limits in Table View and Form View formats simply because there is a limit to the number of fields which can be displayed on the Amiga itself. This leads to an effective restriction of around 2000 fields when used in Form View format as only 256 lines may be used with each line having say around 8 fields. The numbers of total files and open files is likewise unlimited in Superbase.

One could place the entire Unabridged Oxford English Dictionary (all 16 volumes, containing about 65 million words under some 400,000 keywords) plus the entire Encyclopaedia Britannica in one Superbase file if one so desired. Of course one would need a sort of supersized CD-ROM drive for a single file of this size as current CD-ROM disks hold only 550 Mb. I understand from Dr Bruce Hunt of Precision that they had one file of 9 Mb and 35,000 records up and running during Superbase development. And all of this is on a system for around the £1000 mark.

Superbase supports various field types including Text, Numeric, Date and External File (which is used for pictures). With Numeric fields one may chose dozens of different formats. For example, you could display or print the quantity 32.3 as 32.3, 32.300, ***32.30, or 00032.30. You may also select whether to have a minus sign for only negative numbers, both plus and minus signs, parentheses (i.e. (123.88)) for negative



numbers, or no signs at all. You then also have a choice of whether the currency sign is to the immediate left of the number such as £12.66 or positioned in outriding fashion as follows:

£ 12.66
£ 12345.99

Other options are available. You may select whether a zero quantity is to be displayed as 0 or left blank, whether thousands should be separated by a comma and whether you wish to use exponential format. Whilst on the subject of expnoential format, Superbase handles numbers to 1.797693134863E308 using 13 digits. However, it handles integers only to +/- 2,147,483,647 (i.e. 2 to the 32 power).

You have a rich choice of currency symbols including the Pound, Dollar, Deutsche Mark, Franc, French Franc, Peseta, Yen, Danish Krone, Swedish Krona, unspecified Krona/Krone, Schilling, Mark/Markka, Drachma, Lira, Turkish Lira, Guilder and Rand. The only niggle is that in the Personal version of Superbase these settings are global. In the Professional version I understand one will have the option of making them local, thereby permitting exchange rate routines in financial packages to display the appropriate symbol for each currency. However, one may still accomplish the same thing by adding an extra separate currency symbol field just before the numeric field so that upon printout one would actually print both fields, the first one being the symbol.

Date fields are handled very elegantly with the following date formats representing just a few of the total options:

| | | | |
|---|---|---|---|
| 19 Sep 86 | 19 September 1986 | 19 9 86 | 19/9/1986 |
| 19.9.86 | 86 9 19 | 1986 September 19 | Sep 19 1986 |
| Sep 19,1986 | 9/19/86 | 19-9-86 | and so on. |

I am certain everyone will find the date format they wish to use as one of the options. Again, they are easily changed using the requester from a pull down menu. Superbase also allows a short-cut for date entry. If your format is set for 19 September 1986 you need only type in 19 9 86 and the full format is then automatically displayed. One only needs to get the day, month and year in the right order with a space between them for everything to sort itself out - a nice touch. Genealogists will be happy to note that dates may range between 1 Jan 0001 and 31 Dec 9999.

One has a choice of making a key field Normal (ie Duplicate in old Superbase language) or Unique. Superbase on the Amiga doesn't have the problem that it did with duplicate key fields on 8-bit machines where if you had a duplicate last name key field and ten Smiths in the

records, a sorted list would print the first Smith's name and address ten times over. But even on the Amiga Superbase cannot read your mind! If you refer to one Smith's record in another file it won't know which Smith you have in mind unless you tell it!

Fields may also have three further designations appended to them. First are Validated fields where one may only enter text or numbers meeting certain criteria such as >= 800 or LastName LIKE "Smith" OR LastName LIKE "Jones". Second, fields may be Calculation ones such as:

Amount * InterestRate / 100 .

Calculation fields are built up with a requester that is somewhat similar to that used in the filter requester. Constant fields are just a form of a Calculation field. A third option is the Required field where one is forced to make an entry.

As mentioned before one may change these types at will as well as adding or deleting others. In fact, adding or deleting is done merely by clicking on an icon. It really is that easy to design and modify a database in Superbase as I mentioned earlier in the article.

The only thing I feel is missing from these field types is one for time formats. Of course one may set up special time fields and by means of Calculation fields handle time entered as Hours, Minutes and Seconds but having a built-in facility would have been even nicer. This would be particularly advantageous for users like travel agents where the local departure time in London could be also displayed alongside the local arrival time for in New York.

Other options may also be set as desired. I mentioned earlier that the records were displayed at a rapid rate in fast forward mode. In Table View format I was able to display records at the rate of 12 per second; admittedly these records only had about 10 fields. However, one may change (slow) this rate to allow easier reading of records in fast forward mode to say one per second. One may also select paging options whereby things either pause after a full screen or scroll upwards without a pause. Superbase has buffers which store blocks of records from the current file being read. By changing the size or numbers of these buffers one may store even more records in RAM and access time is thereby decreased. The penalty for doing this is somewhat reduced available memory. Like so many other options this is easy to change.

The characters used to separate fields and records in import and export operations may also be specified and changed at will. The default ones are the comma between fields and carriage return between records. And since fields may contain punctuation marks such as commas and double quotes which cause problems especially upon export and



import one may specify that all exported fields are automatically enclosed in double quotation marks. These double quote marks are automatically discarded upon import. Another useful feature I have not seen before.

Password protection is provided for three levels for each file; Read Only privileges, Read and Write privileges but without the ability to delete the file, and Full privileges. Not all three levels need be set and I suspect that few users of the Personal version of Superbase will use more than one level if any. I understand the Professional version will have a more sophisticated form of password protection. Two minor complaints about it on this version. First, the password(s) you type in are echoed to the screen so others may observe them. It would have been nice if they were echoed as asterisks instead but Simon tells me the Amiga DOS prevented him from being able to intercept the input characters during these types of operations and substitute asterisks in their place. The other is that you cannot change the passwords (at least in this version) once they are set. I suspect most users won't find either of these things of any serious consequence, however. Much better security is to lock valuable things up when you are not using them.

One thing all users should be aware of; the Superbase directory is held in RAM. This was done because the normal Amiga DOS routine to get a directory is a comparatively slow operation due largely to the manner in which the directory is stored on disk. Storage in RAM means the directory for Superbase files comes up instantly. However the price one pays for this increased speed is that after scratching a file it still shows up in the RAM directory even though it has been deleted on the disk. One has to reload the directory in RAM if one wishes to have an absolutely up-to-date directory or else enter the CLI and do a dir command to see that is is really gone.

Records created by Superbase are now stored in blocks of varying size unlike the old versions which were in 128-byte blocks with only 123 being usable. In this version the blocks may be as small as 64 bytes with 60 being usable. The block sizes get larger as the sum of the field sizes in a record becomes larger. This allows databases with many small records to have more of them per disk than those with large records.

Next we shall examine the manual and there are three comments I should like to make. First, it starts off at a basic level and is quite well written, particularly in the first half. To their credit Precision have included both a comprehensive table of contents as well as an

index. Various tutorials are included which help the new user along. At about the halfway point the standard begins to fall down a little. The tutorials cease and one comes across examples with the warning 'but please don't try and make it actually work - it's only an illustration'. This must be changed if new users are to be able to learn to use the program! I know that this portion of the manual was written before the program was finished but a couple of days' delay so as to write a proper tutorial where the disk examples match the manual examples would have been in order.

My second comment concerns sparsity of tutorials and examples in certain sections of the manual. Certainly some are there but I would have liked to have seen more. If you read BYTE, the premier American microcomputer journal, you will know of Jerry Pournelle. In it he writes a well known column entitled Computing At Chaos Manor and is probably the most widely read author on computers in the world. Now Jerry never tires of saying, about computer manuals, 'You cannot have too many examples'. So often, in fact, that I refer to Jerry's views as PLONCS; pronounced like the plural of the cheap wine I'm accused of drinking. Of course, as the Newsletter doesn't pay me for writing this stuff that's all I can afford [as has been said before, neither do we charge you for the privilege- Ed]. Anyway, PLONCS stands for Pournelle's Law On New Computer Software and I agree with him wholeheartedly. My advice to all on how to write computer manuals is, 'If in doubt, follow PLONCS. And then after finishing this go back through it again and double the number of examples for good measure.'

My third comment is about what was left out of the manual, at least in the first version. Superbase on the Amiga is a true relational database unlike previous editions of Superbase on the PET, 64 and 128. This allows one to handle many files with many keys in each file in one operation. Imagine one file of clients' names and their addresses, a second file of accounts for each client with their balance (bear in mind one client may have many accounts and hence many records) and a third file of banking institutions and their addresses where these various accounts are held. Suppose one would like to display the names of clients and their addresses along with the names of the banks and their addresses for all balances exceeding £10,000. I consider this to be a reasonable and straightforward query. But how to do multiple file queries is not demonstrated in the manual! It had only two pages out of over 170 devoted to these relational queries and no example or tutorial was provided whatsoever. An analogy would be like buying a Porsche and not being able figure out how to shift out of second gear. I know that



a manual of this size cannot hope to teach very much about designing and working with relational databases but surely a couple of examples, or better still, an elementary tutorial, should have been included here. After all the real conceptual difference between the old and the new versions of Superbase is that it is now a true relational database. So why hide the fact and not let people know how to use it? If, like Hertz or dBase, you are number one, maybe you can get by with these omissions. If, like Avis or Precision Software, you are not quite there yet, then you must try harder or suffer the consequences.

Thankfully Precision rang me after I had done the first draft of this review and these matters have been discussed with them. They stated that they are to bring out an appendix covering the use of relational queries along with many additional examples and that this appendix will be made available to all customers including those furnished the original manual. This is very welcome news indeed. I am also informed that a revised manual will also be prepared and with luck be published in a few months and so this will be even more good news for users.

Error messages are very complete and also listed in one appendix. Another appendix has a true ASCII table as used on the Amiga; very useful for dyed-in-the-wool CBM programmers accustomed to PETASCII (also known as Commodore ASCII).

I had no printer available so could not test the print facilities but from the manual everything seems to be covered and I should not expect to see any awkward surprises here. Labels are catered for as a built-in facility available straight from the normal menu unlike most other databases.

A Professional version of Superbase on the Amiga is to be available in the not too distant future. It differs from the Personal version in various minor features plus three major additions. First, there will be an Application Form Builder allowing the user to design business forms including matching of existing forms if desired.

Second, a programming language facility will be available. This is probably not as an important an omission from the Personal version as most readers may imagine as one may save the queries generated to disk and recall them repeatedly somewhat like macro commands. I believe that full-blown programs will be most important either where someone wishes to make an idiot-proof interface for untrained office staff or for very long and specialized tasks. I can see no real reason for writing a program such as one would do in the versions of Superbase on an 8-bit machine to specify say the screen layout of the data when one can change it so easily on the Amiga with the mouse. It also makes little

sense to spend an hour or two writing a program to output the data from selected fields in records chosen from the file when one can select the 'active' fields in a couple of seconds.

Third, a word processor will be built into the Professional version. Precision don't claim it will be a complete desktop-publishing facility but rather a standard office-type word-processing program. I have not actually seen this in the Professional version yet but if Superscript is anything to go by I shall probably be happy. I'll report on it as soon as I can get my hands on a copy.

I like Superbase on the Amiga very much. As mentioned before I would judge the program good enough to cause many people to purchase the computer just to run Superbase on it. I have not had a chance to test any other database packages on the Amiga such as Acquisition, only read their spec sheets, but I would be very surprised indeed if any were to come with substantially more features than this one.

Precision plan to port this program to quite a few other machines. It should work very nicely on them. But I doubt if any of these other systems will be able to handle the display features available on the Amiga. With regard to the bit about rearranging the display in the middle of a fast forward without missing a beat, as they are wont to say on the other side of the pond, 'You gotta see it to believe it!'

The Personal version of Superbase is to be sold at £149.95 but see the Discounts Officer for price to members. The price of the Professional version has not yet been set. The Personal version is very good value in comparison to other popular database packages around, and much easier to use. But what would really set things alight would be a price of just under £100. That should place Superbase for the Amiga up on the map alongside programs like VisiCalc and Turbo Pascal. After all, the key marketing question to ask these days is, 'What would Alan Sugar or Philippe Kahn do with this product in today's market?' If Superbase is marketed properly it may well become another milestone in microcomputing.

--oOo--

## VIZA DISK DIRECTORY UPDATE

Peter McDonald has written to say that, when using VIZAWRITE CLASSIC, documents can be deleted from disks in the course of updating his VIZA DISK DIRECTORY routine published in the July/August 1986 issue of the N/letter (Vol 8 No 4 p303). If users of the CLASSIC version have any difficult in working out how to do this, send an SAE to Peter at 254 Leigh Rd, Worsley, Manchester M28 4LF.



## MIKE'S MEANDERINGS

by Mike Todd

Well, I seem to be getting to the bottom of my IN-tray at long last, and the AMIGA library is being distributed, with 25 disks of freely distributable software in its first release (October '86). It is my intention to keep this up to date, with update disks being made available every couple of months for those who already have the library. I expect the first update disks to be ready by the New Year.

On the subject of the New Year (by the way, Happy Christmas!), in the first newsletter of 1987 it is my intention to publish details of the ICPUG technical advice team. This is a list of names and addresses (and in some cases, telephone numbers) of those prepared to answer high- and low-tech questions. Along with this newsletter you will find a questionnaire that is at the heart of this 'register of advisors' and I would ask EVERYONE who is willing to offer any of his or her time, to complete it and send it to me as soon as possible. This especially applies to committee members and regional organisers who may consider that they have no need to complete it! Only those who complete the questionnaire will be included in the final list.

Those with questions on a specific topic have had, up until now, no means of identifying exactly who should receive their queries. As a result, a handful of the committee receive large numbers of queries that they can only make a tentative stab at. However, there is a huge pool of expertise in the group, ranging from communications experts to BASIC programmers, from those with particular hardware experience to those with experience of specific software packages. With a register of advisors available, the queries should end up in front of someone who, if nothing else, has the specific hardware or software available. This should result in better and more useful responses.

The final list will consist of names, address and phone numbers in several specific categories - all of the information derived from the completed questionnaires. For those who prefer that their names, addresses and/or phone numbers are not included, but who would still be prepared to help, a central register will be maintained and queries directed in their direction as appropriate. I would not expect more than a handful of queries a month.

So please, all those who have volunteered their services in the past, or who are already answering members queries or who are part of the ICPUG organisation - complete the questionnaire as soon as possible.

In recent months, both the British Post Office and 3.5" disks have come under my critical eye! What's the connection? None . . . other than the fact that I have been keeping some statistics on both.

First, the Post Office. Since 1st January, I have kept a record of all incoming mail - its postmark date, delivery date and postage 'class'. In the 10 months to the end of October, I have received a total of 1492 letters (or packages, sent as letter post). Of these, 845 were posted first class, 504 were second class and the remaining 143 were of indeterminate class, or had no visible sign of a postmark.

Now the Post Office aims to deliver 90% of first class letters by the first woring day following the day of collection and 96% of second class letters by the third working day following the day of collection.

My statistics are rather different:

| working days | first class | second class |
|---|---|---|
| 1st | 510 | 9 |
| 2nd | 108 | 48 |
| 3rd | 88 | 310 |
| 4th | 92 | 50 |
| 5th | 25 | 52 |
| >5th | 22 | 35 |

That's only 60% of first class and 73% of second class reaching their target figures. That doesn't include a total of 12 letters that have never arrived (they're the ones that I know about) and one letter that was found by a passer-by in the road!

I know it's got nothing to do with computers, but I thought it worth airing anyway.

As for the 3.5" disks, I mentioned in the Sept/Oct newsletter about the hazards of using single-sided disks with the Amiga. I used to use single-sided 3.5"disks (after all, they're a fair bit cheaper) until I was badly bitten on a couple of occasions. Since the last newsletter I have been analysing my disk usage and looking at failure rates.

I use a variety of disks, mostly unbranded double-sided, of which, out of a total of 135 I have used, two were faulty (in both cases, flaws could be seen on one of the disk surfaces). I have also used about 50 branded double-sided disks and only one (of 20 Sony disks) proved faulty - the rest have all proved satisfactory.



As for the single-sided disks, I tried a batch of 10 unbranded, with a failure of 4 - I also used 80 3M single sided, of which 5 would not format, and 10 have subsequently failed. Having examined the single-sided failures, most had obvious flaws on the second surface.

Looking overall (and ignoring the difference between branded and unbranded), that's not quite a 2% failure rate for double-sided disks and over 20% for single-sided. I'd be interested to hear others' experiences in this area as the single- versus double-sided argument is, if my postbag is anything to go by, starting all over again.

Recently, Commodore announced a 'special deal' for Commodore Users. Those registered as customers of such Commodore dealers as Supersoft will have received a letter from Chris Kaday (UK Managing Director) offering, for 'only' £1121.25 (inc VAT), an Amiga system 1 - that's the 256k, single-drive version. It is true that this is a saving of £575 on the original price, and I'm sure that many will take advantage of it - especially with the offer of '. . . a lead to connect your existing Commodore equipment (64, 128, +4 or C16) to the 1081 monitor'.

As many existing Amiga owners will be aware, a 256k, single-drive system is painfully inadequate for all but the least demanding of applications. Unfortunately, the offer doesn't apply to the 512k, two-drive system, which still costs £1926.25.

Of course, Commodore will soon have another two Amigas on the market - one, a low-end home machine (but really just a re-engineered version of the existing machine) and the other a fully fledged business version, complete with the IBM compatibility built-in. I wonder what the prices will be - I doubt that they could sell the low-end machine if it were priced at over £500.

The one thing that Commodore does not have, is the market awareness of successful entrepreneurs such as Alan Sugar.

In a recent exercise amongst a group of work colleagues (representing the gamut of computer interest - from those who enthuse about computers to those who have absolutely no time for the 'infernal' machines), the possibility of very cheap Amigas was discussed.

At a price of over £600, few were interested but when a price between £300-500 was suggested, I could have taken 20 orders there and then.

I do hope that Commodore left their pistols behind in Corby when they moved to Maidenhead - mind you, they have shot themselves in the feet so often now, they only have their brains [one is sometimes tempted to say, 'What brains?' - Ed] left to blow out!

--oOo--

## EXHIBITIONS REPORT

by Jim Kennedy

I promised a report about the Manchester Show held at UMIST for this issue. Well, it was very successful from our standpoint. We took in more memberships in one day than ever before at any show anyone can remember - over 100 new members joined. Commodore computer users of the northeast turned out in large numbers. It was a pity that more companies didn't do likewise; many didn't bother to take stands and a few even pulled out at the last moment. However, those companies that did attend did well by all reports; many sold out of stock. Rest assured that ICPUG will support the Northern Commodore Show next year and we plan on holding a get-together at it, probably on the Saturday.

The raffle prizes for the combined PCW and UMIST shows are as follows:

| WINNER | PRIZE | DONATED BY |
|---|---|---|
| Martin Kay | Amiga 'C' | Commodore Electronics |
| Ray Medford | 10 disks | ICPUG |
| Andrew Gatland | Superbase: The Book | Precision Software Ltd |
| John Burge | Mains Filter | Tony Firshman Services |
| Chris Jones | Picasso's Revenge | Precision Software Ltd |
| Mike Hatt | Multisoft Assembler | Commodore Electronics |
| John Hickinbotham | Office Master 64 | Gemini Marketing Ltd |
| Harry Frost | Uniprint Interface | Precision Software Ltd |
| Mustufa Desai | Office Mate 64 | Gemini Marketing Ltd |
| Paul Littlewood | Word Shuttle 64 | Commodore Electronics |
| Jim Kennedy * | The Amiga System Book | Precision Software Ltd |
| Mrs Janet Long | 128 Prog Ref Guide | Raeto West / Level Ltd |
| Michael Kirk | Year's Free Membership | ICPUG |

* I swear I had nothing to do with this - it was sheer chance!

There are still some prizes to be won for the Amiga as well as other machines; we only drew the names of two Amiga owners so the rest will be added to the November raffle. Also some of the Sunshine books on the 64, the Music Master for the Plus 4 / C16, Numbers at Work package and the 128 Digital Research CP/M Guide and Disks will be added to the November pot of raffle goodies. I'll cover the results of the November Show in the Jan/Feb 87 Newsletter.

The Commodore Show in London for 1987 is scheduled for April 10-12 at the Novotel. These things have a tendency to change so only pencil it into your diary. We are also planning another Get-together one evening during the London Commodore Show.



## REVIEW—CBM MUSIC EXPANSION SYSTEM

by Alan G Hoskins

This Commodore pack consists of three separate items - an FM module which plugs into the expansion port, called the Sound Expander (including driver software on tape) - a 5-octave, full-size keyboard which plugs into the FM module - and Sound Studio, a synthesizer/sound editor package which works on the computer's internal sound chip.

After the Sound Expander has been connected into the 64 the output (from a phono-type socket) can be fed either to the TV or monitor via the leads provided or to a separate hi-fi amplifier - this latter being the only method capable of doing justice to the quality of the sound available.

The unit provides for 8-note polyphonic input (or 4-note polyphonic in the Ensemble mode) and is based on the Yamaha dedicated chip (a la DX...). It is fully tunable over 3 octaves.

Although the Expander can be used with the Music Maker keyboard overlay, for anything approaching serious use it will prove essential to have the full-size keyboard. This is connected to the Expander cartridge by a rather short length of IDC ribbon cable which, although being a trifle flimsy, should prove to be perfectly adequate and can of course be easily (and cheaply) extended.

Software is provided on cassette with the option to upgrade to disk - there are apparently more voices, etc, on the disk (see below).

Once loaded, the options are displayed on four pull-down menus, with the main display being of short lengths of treble & bass staves on which the notes appear when played.

The 'Setup' menu allows split keyboard (only with full-size keyboard, however), one-fingered chord, fingered chord and memory (which continues one chord until the next chord is played).

'Synth Voices', the second menu, provides 12 different sounds - I thought the Brass was brilliant. Also from this menu a further menu for Left-hand voices is available, chosen from the same list as contained in the main menu.

The 'Rhythm' menu provides backing accompaniments in 12 styles, with full control over tempo and it can be based on any of the one-fingered chords mentioned earlier (only major and minor chords are available - no sevenths, minor sevenths, etc., but unless you have a particularly good musical ear you can easily get away with just using those provided).

'Riff', the final menu was rather obscure to me until I found out what one was (it being a short phrase repeated over and over - its origins being in jazz). There are three sets of riffs available - each containing 12 patterns - and these can be programmed to play in any order in a sequence of up to 256 steps.

The keyboard and FM module are of very good quality and make up an excellent package. The main drawback being the lack of programmable sounds. Music Sales assure me that a software package to program the FM chip (no mean feat!) will be available in about a month - I am eagerly awaiting its arrival.

After playing with the FM sounds for some time I decided to look at the other software - the Sound Studio synthesizer and editor. What a disappointment! - although I have enthused over the excellent SID chip in the past, it has no chance whatsoever of attaining the quality of the Yamaha FM chip.

As a music package, Sound Studio is excellent and it can be used in conjunction with the long keyboard, which then only plays monophonically. I was initially a little surprised that this software was included in the package at all. What it does, though is give the user an introduction to both real-time and step-time sequencing which will be of great help when the FM Composer Package finally arrives. It is also Midi compatible if used with a suitable interface.

Unusually (for Commodore) the price of the system (£149.99) appears to be pitched about right. The quality compares very well with the mid-range keyboards from other manufacturers, but of course you do need a C64/128 to make it work!

P.S. I have since exchanged the tape software for the disk version. Unfortunately this appears to contain a rather large bug - the program crashes after loading music examples and attempting to run them. My copies (I had a replacement which behaved the same way) have now been returned to Music Sales for their observations and I have not yet received further communication from them.

--oOo--

## COVER COMPETITION

A surprising number of excellent entries for this competition were received and the final decision on the winner has not been taken, but unforeseen objections excepted, this should be the last appearance of the present venerable if slightly lewd cover.



## WORD PROCESSING ON THE PLUS 4

by Mike Hatt

I am a relative novice, but learning (like most of us - Ed) and the Plus/4 seemed impressive to me, but expensive, when it first appeared at £300. It tempted many of us when the price dropped to £150. But now it can be obtained with cassette, joystick and even some games for less than £80; that's got to be a bargain. The one great asset is that IT WILL RUN SUPERBASE, in some respects better than the 64 does. However, the built-in 3+1 software does have limitations; on the word processing side one was stuck with the 3+1 Word Processor and couldn't use either of the two 'Scripts', EasyScript or Superscript! This was particularly sad for me because I wanted to have some degree of compatibility between the Plus/4 and 64, using the Plus/4 as backup machine.

The first glimmer of light appeared when I tried reading a 3+1 file while running EasyScript on the 64. You can get some sort of text on to the screen, but there's a lot of garbage at the head of the document, 'M's have shifted into paragraph markers and it's all in lower case! However, it was clear that a disk user could load 3+1 files to EasyScript in an emergency - but the Plus/4 didn't like taking them back!

Other Plus/4 users may lack the money to buy a disk drive, without which 3+1 is not supposed to work. The 1551, believed to be the production version of the proposed fast SFS481, and commissioned mainly for Laskys' packages, is now getting very cheap, but if you've missed the last one, then various 'reliable sources' suggest that a good and cheap solution to 3+1 problems is the 'Tape 3+1' program which allows the user to put files on cassette and appears to have a better file structure for the word processor files, all for under £5. It would be nice to see a review of this program if any member has tried it.

There is also a useful routine developed by Amie Blomberg, and described in the August 1986 edition of 'Your Commodore'. The idea is to type your text in 3+1, note the bottom line count and then exit by pressing RESET followed immediately by RUN/STOP to enter the Monitor. Release RESET and use the Monitor command S'Filename',1,C000,XXXX(R) to save the text to tape for reloading as a machine code file before the next use of 3+1. Note that you can't get back directly to BASIC without a full RESET, the 'X' command throws you back into the 3+1 spreadsheet!

Blomberg's article gave a table of end addresses (XXXX) for each line length of the document up to DEA6 hex (56998 dec) for a 99-line

document. This method does work, at least one other member has already used it several times, and for the purposes of this article the first outline was written on 3+1 and saved in this way to tape, reloaded and saved to disk, then loaded on into the other programs described below and combined with other files to produce the final text.

The latter stages of this process were achieved as a result of one of Precision's products, under their alias of 'Parasoft' - Script/Plus. At a show late in 1985 I had seen, on a forgotten corner of the CBM stand, a lone Plus/4 running what appeared to be EasyScript on a Plus/4 cartridge, and subsequently there were odd mentions of some such thing costing about £35. The recent advertisements, however, made things a little clearer and, moreover, the price was only just over £20, so I now own a Script/Plus cartridge. This program has been very favourably reviewed by Fred Reid in the August 1986 'Commodore User', and mentioned in kindly terms elsewhere. Even better news is that recently Precision have started giving a discount to ICPUG members on this product.

As Mr Reid has written a fairly comprehensive review, I shall be lazy and avoid giving a very detailed account; essentially, Script/Plus behaves in most cases exactly the same as our old friend EasyScript, with the exception of a few changes in keystrokes. The most obvious difference is that ESC is used instead of F1 to enter Command Mode; after that, many of the commands are identical.

One obvious advantage is that Script/Plus in its cartridge form is available immediately from switch-on. The cartridge can be kept plugged into the back of the Plus/4, or into the 1551 connector if you have one already plugged in there. On power up, the Plus/4 message has changed to indicate Script/Plus available on F2, with 3+1 STILL AVAILABLE on F1 and of course BASIC still available if you don't use either of the function keys (which give appropriate SYS calls).

In case you were wondering, an initial check indicated you can happily run SUPERBASE with the Script/Plus cartridge plugged in, providing you are in BASIC to load SUPERBASE! It is also possible to exit to BASIC from Script/Plus, thus immediately overcoming one of the 3+1 quirks. For those who are adventurous, it is said that the Script/Plus ROM can be, and supposedly has been, plugged into the Plus/4 board as a permanent replacement for 3+1 . . . I think I'll stay a live coward!

On entering Script/Plus, the choices of screen columns, disk/tape and printer types are very much in the EasyScript style with some differences with printer settings. You don't have the 3+1 problem of



having to press the Commodore and C keys for each command, then finding it didn't work and leaving you with a 'C' and part of a command in the middle of your text . . . 3+1 veterans can add their own tales of woe here.

There are a few minor grouches. So far there is no sign of any ability to change display colours in Script/Plus, although the actual text colour appears to remain whatever one cares to set it in BASIC, and the background and border could presumably be set by POKES before hitting the F2 key. A little experimentation may be worthwhile.

The only apparent bugs which have been found, whether in Script/Plus or my particular Plus/4 is uncertain, are the failure of Script/Plus to stay in Disk Mode if RETURN is pressed after a disk operation, and a refusal to save-and-replace. In Disk Mode the first key press appears to have no effect, a further press returns to Edit Mode and can 'return out' some text. It is better to go to Disk Mode separately for each task and use STOP to go back every time. Also, work in INSERT mode as far as possible.

With file replacement you are asked for a 'Y' to replace, but the program apparently takes it as an 'N' and does nothing. This needs further checking, but at least the latter quirk makes me use rename-and-scratch and should be a really good way of avoiding the famous disk bug (they always said one man's bug was another man's feature . . .).

Returning to the problem of file compatibility with the 64; once Script/Plus is running on the Plus/4 a link is available to both of the two 'Scripts'. First there is the problem of the old 3+1 files to be sorted out. But, most of the garbage, as well as the 'M' and lower case problem, is avoided in Script/Plus by using ESC-SHIFT/L. This conveniently gives a 'reformatting' load for pre-Script/Plus files. A 3+1 file will still have a slight garbage header to be deleted but the document should be usable. One point, it's a lot easier if you set the screen width in Script/Plus to 77 lines to match the 3+1 screen when loading; then having edited the document, save the new version and reload to the 40 column screen.

The way is now clear to exchange documents with the 64. For example, the text of this article was swapped between the two machines using the various 'Scripts'. Additional information has also kindly been supplied by Peter MacLaurin of PSL's Support Department, including some on the 128. At the end of this article is a compatibility table which results from both Peter's and my information.

There's plenty of room for more experiments and more detailed comments, but for the time being I'm just happy to have an extra

machine available for typing that urgent letter. For those with a Plus/4, Script/Plus may be well worth the investment. And if 3+1 is getting you down, this is the answer to quite a few of your prayers. I did once manage without it - but I'm glad those days are over.

COMPATIBILITY TABLE

| ORIG FILE CREATED ON | CURRENTLY USING PLUS/4 3+1 | PLUS/4 S/PLUS | C64 E/SCP | C64 S/SCPT | 128 S/SCPT |
|---|---|---|---|---|---|
| PLUS/4 3+1 | OK | AWKWARD Note 1 | AWKWARD | NO GOOD | NO GOOD |
| PLUS/4 S/PLUS | NO GOOD | OK | OK | OK | OK |
| C64 E/SCPT | NO GOOD | OK | OK | EDIT | EDIT |
| C64 S/SCPT | NO GOOD | EDIT Note 2 | EDIT Note 2 | OK | OK |
| 128 S/SCPT | NO GOOD | EDIT Note 2 | EDIT Note 2 | OK | OK |

Notes: 1. Load with SHIFT/L gives fair results
2. Remove TAB information from end of text plus other editing

References

1) Blomberg, A. Wordprocessing on the Plus/4. Your Commodore, August 1986, pp49-51.
2) Reid, F. Tried and Tested - Script Plus. Commodore User, August 1986, pp56-7.
3) anon. Script/Plus. Commodore Computing International, September 1986, p24. (Treat some details with caution).

--oOo--

We also had a long review from WGC Austin making mostly the same points with similar enthusiasm about Script/Plus, which he, with more courage than Mike Hatt, intends to install in his Plus 4 if he can find out how to do so. He suggests that if 3+1 had contained Script/Plus the Plus 4 might have achieved the success it deserves, though pointing out that any program to run on both the C16 and Plus 4 is restricted to



the memory size of the C16 and therefore cannot do the Plus 4 justice.

He has the usual criticisms of the manual: even after making the multiple corrections sent with it there were still errors, and the index was incomplete. He also makes an interesting point that has often irritated us with other manuals - why on earth do people so often choose a typeface that does not distinguish clearly between 'one' and 'l' for a computer manual? The answer must be that they like the look of a sans serif face and think it is modern and appropriate, without thinking the decision right through. (We throw this stone unashamedly from the Newsletter's glass house because, as we explained recently when under fire from Peter Reynolds, we do not have much choice: software houses do - Ed.)

## REVIEW—PLUS4ORTH V2.0

by Richard G Hunt

PLUS4ORTH is an implementation of FIG Forth for the CBM Plus 4, and a 'pre-release' version may now be obtained. It is a pre-release version because it is both incomplete and has numerous errors, although these are fairly transparent to the user. Working backwards (as usual), I shall explain.

The Plus 4 has some 60K RAM available on power-up in BASIC. From $8000 this is banked under ROM. Therefore it is necessary when writing ML routines that read memory above $8000 to incorporate some routine that selects the RAM rather than the ROM, otherwise one experiences a little bit of bother. The memory map of my Forth implementation makes use of such high RAM. Unfortunately it was not until I had coded about 75% that I discovered that the standard Forth words such as [@] and [cmove] were not accessing high RAM correctly. As I wished not to switch off ROM totally (even if I knew how to handle the result - which I don't, yet) I found the way the inbuilt ML monitor did it and rewrote the offending Forth primitives to include a few extra instructions. It

worked nicely, until I needed to implement the [load] function. Unlike any other LOAD instruction you may have come across, the Forth [load] merely changes the source of the input stream from the terminal input buffer to the address containing the block to be loaded. The Forth interpreter then handles the rest, interpreting or compiling as required. Alas, here I discovered that by putting my disk buffers into high RAM, I had dug a hole for myself, because the Forth interpreter, using indirect addressing techniques, was NOT reading RAM at this point (it took me more than three weeks to work this out!). The result is that I needed to rewrite most of the Forth primitive definitions that contain any indirect addressing, or alternatively not to use ROM except when calling Kernal routines (which also presents problems.) Fortunately, as mentioned elsewhere, I am now using a proper symbolic assembler which makes the task much easier to contemplate than by the hand assembly method by which V2.0 was installed. Incidentally, versions 0.1 through 1.9 (approx.) either didn't work or failed in some other way to please me.

V2.0 is incomplete therefore (see, there is logic in working backwards) because of the need to rewrite. It does not have I/O words defined for file loading/saving, nor an assembler, nor can it possibly hope to work with any graphics commands, even if I had defined them, purely because I have had to move the disk buffers to the RAM area I had reserved for graphics use, viz. $2000 et seq. Notwithstanding . . .

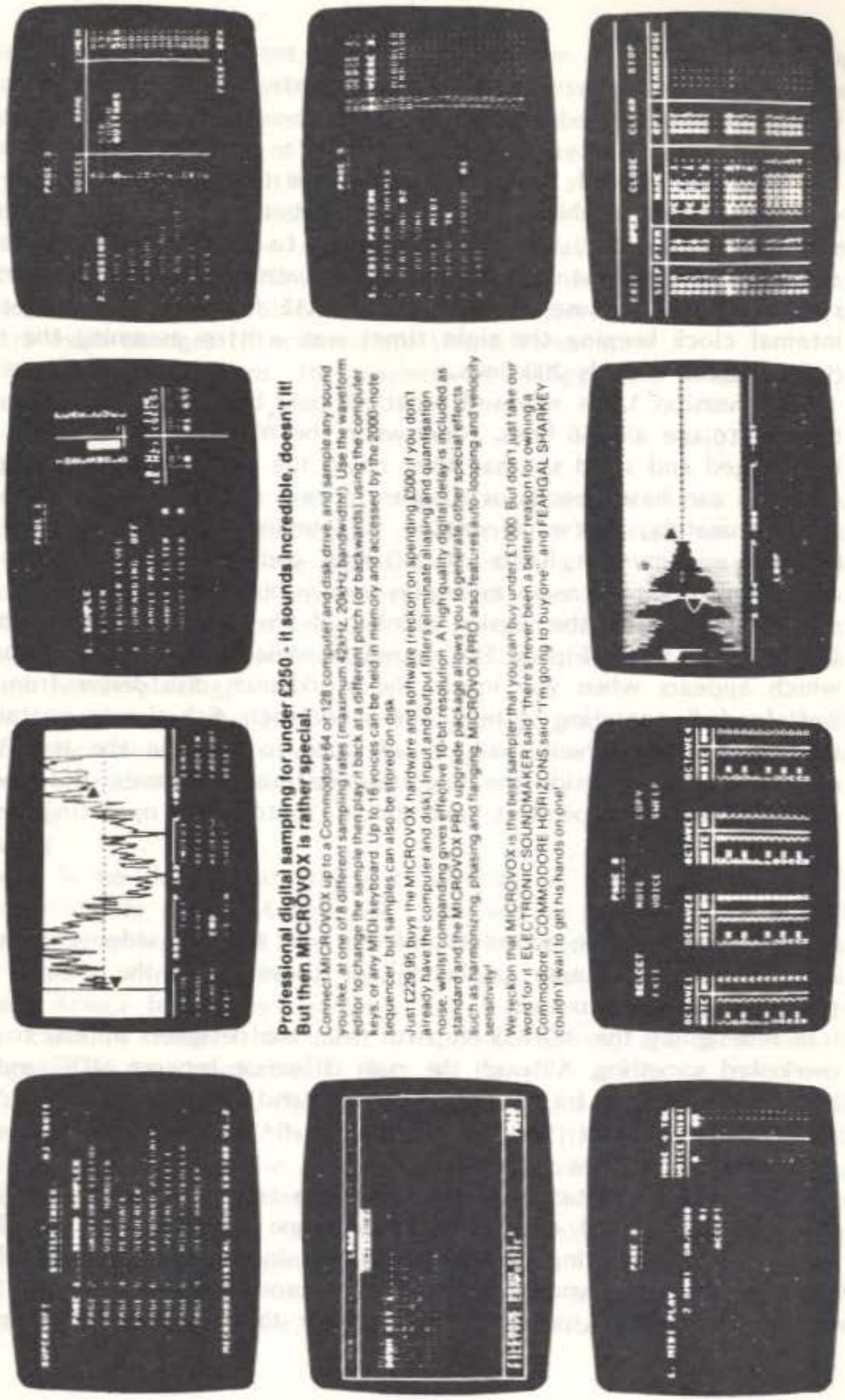
PLUS4ORTH supports the FIG standard dictionary. It has an editor vocabulary and supports some special Plus 4 functions such as COLOUR, SOUND and the function keys. Gratefully I acknowledge the tutoring of Tom Cranstoun, who has made a number of (helpful) suggestions and taught me specific techniques to use for the machine-dependent routines. I do not wish to write a complete description of an incomplete implementation. However, if anyone is sufficiently interested in a) the Plus 4 and b) Forth, I am prepared to let them have gratis a copy of the implementation as it stands, warts and all. It is available on disk or tape (courtesy of UNICOPY) subject to the usual ICPUG library conditions. Please note that PLUS4ORTH is the copyright of me, Richard Hunt, and is therefore not to be copied, altered or otherwise hacked about. Note also that I shall be keeping a record of all copies of the program files that I issue!

(Note: ICPUG National - please feel free to copy this article - thanks, Ed.)

--oOo--




MICROVOX LOOKS GOOD.... SOUNDS BETTER!



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# AMIGA—WATCH

by Mike Todd

The vast majority of Amiga owners in the UK will have bought PAL versions of the machine. That means that the display, in its normal non-interlaced mode, has 256 active lines to play with - but you can only get at the first 200 when you use version 1.1 of the operating system. That's because version 1.1 (or 1.1E for Europe - to get the internal clock keeping the right time) was written assuming the NTSC (US) standard of only 200 lines.

When version 1.2 is released (which should be any day now) you will be able to use all 256 lines. Windows in the WorkBench screen can then be dragged and sized so that they cover the bottom 56 lines, and CLI windows can have space for 30 lines of text (as opposed to 23).

Unfortunately, software written for version 1.1 will probably have intrinsic window-size limits of 200 lines and so not be able to take advantage of the increase in display area - but it will still work.

The 1.2 refers to the version number of the operating system loaded from the KICKSTART disk. The copyright message, and version number which appears when you insert the WorkBench disk derive from this 'soft-loaded' operating system. The WorkBench disk simply contains a startup-sequence which loads 2k of code to activate the WorkBench environment from inside the operating system - however, this code is operating-system-dependant and should 'match' the operating system version.

## PAL or NOT PAL?

I have recently come across a problem with the PAL video chip in the Amiga that may cause problems for those using the Amiga in a professional video context.

In redesigning the AGNUS chip for PAL, the designers appear to have overlooked something. Although the main difference between NTSC and PAL is the difference in frame rate (30 per second, as opposed to PAL's 25) and number of lines (525, as opposed to PAL's 625), there is another difference that is not so obvious.

Those who understand a little about the television signal will know that, at the end of each field scan, come the frame pulses. These consist of 5 equalising pulses (sometimes known as half-line pulses), the actual frame sync (consisting of 5 broad pulses) followed by a further 5 equalising pulses. The needs for these are highly technical,



and I certainly don't want to go into them here other than to point out that many television systems (especially professional synchronisers and video recorders) are timed to expect this number of pulses.

NTSC has 6 of each of these of pulses, instead of PAL's 5 - but the Amiga insists on inserting 6 into the PAL signal! The result is to upset some types of video systems.

The designers of the Agnus chip either failed to understand this difference between NTSC and PAL, chose to ignore it in the hope that it wouldn't cause any problems, or they were just too lazy to make the extra mask changes to accomodate this difference.

Whatever the reasons, the majority of Amiga users should have no problems whatsoever.

## BOX NOT SO CLEVER

Just to prove that it's not just Commodore that is fickle - you may recall that, in the July/August newsletter, I referred to the Amiga being used to generate the games graphics on a BBC-TV program called 'Box Clever' to be aired between 1730-1800 each weekday evening.

This WAS the plan before the series was shot - but along came the BBC's daytime television and 1520 on a Friday afternoon seemed to be a much better placing.

So, instead of Emlyn Hughes and the Amiga graphics running up to the six o'clock News each weekday evening, we have Angela Rippon and her Masterteams. Well, it was a good try!

## BASICs

There is no doubt that the vast majority of Amiga owners will be programing in BASIC. AmigaBASIC, the version now supplied with the Amiga, is powerful and easy to use, and accessing fancy features such as screens, windows, menus, graphics and sound is so very easy. Not every Amiga feature is available, and it may not be super-fast, but it's certainly faster than most I've come across, and is a valuable language to have available.

Its main drawback is that it is difficult to run more than one BASIC program at once, and that partially defeats the object of a multi-tasking computer like the Amiga. To run a second BASIC program would require that a second complete version of the interpreter be loaded and run. On a 512k Amiga, this is certainly possible, provided that you don't need to open screens or extra windows.

There is another version of BASIC that was released with very early Amigas - this was ABasic, which is unlikely to be seen in the UK since

it was superceded by AmigaBASIC before Amigas were sold here.

ABasic was written by MetaComco (the authors of part of the Amiga's operating system), had an attrocious line editor, was less structured and was fairly unpopular.

AmigaBASIC was written by MicroSoft (and is similar to the BASICs on many other machine, apart from Amiga-specific features), has a good screen editor, lends itself to structured programming and is popular.

Don't get the two mixed up - they are incompatible, although I'm sure that programs written in ABasic could be converted with a bit of work.

BASIC MEMORY

Although 512k of memory in the expanded Amiga seems a great deal, it soon trickles through your fingers. Select AmigaBASIC and it's amazing how much gets eaten up.

For those with 256k Amigas, by the time the interpreter is loaded and has allocated 14,000 bytes for program and variable storage, the initial 130,000 (or thereabouts) bytes of RAM reduces to around 14,520. Then up pops the LIST window and free memory (outside BASIC) is reduced to only 11,000, although you can recover some 2,700 bytes by closing this window. Because of the nature of the Amiga, these values will be approximate and will vary according to several factors.

For 512k owners, BASIC allocates 25,000 for program and variable storage and the initial 404,000 bytes reduces to around 233,000 left in the system - 212,000 after the LIST window opens.

When AmigaBASIC loads, the code for the interpreter takes up around 93,000 bytes. Once running, it allocates 25,000 bytes (I will talk in terms of a 512k Amiga from now on) for program and variable space, a further 4,800 bytes for stack usage and around another 4,000 bytes for its own internal workspace. It also creates a full-size, 640x200-pixel, BASIC window (two bit planes, so another 32,000 bytes).

Then, the LIST window opens (another 16,000 bytes) claiming about a further 5,000 bytes for its workspace.

In total, once BASIC is operating, a grand total of about 180,000 of the system's RAM has been used up. What is left belongs to the system, and is used by anything else that is going on at the time. This free RAM is referred to in the AmigaBASIC guide as the 'System Heap' and it is from this that memory for screens, windows and audio is acquired.

All this is fine if one simply wants to write BASIC programs that use only the existing window. As soon as one wants to play around with new windows or screens, memory for these has to be acquired from the System



Heap. A new screen takes 8,000 bytes for every bit plane allocated using the SCREEN command (that's for 320x200; a 640x200 takes 16,000 and a screen of 640x400 a total of 32,000 - and when version 1.2 comes along, a full size, 640x512 screen will take nearly 41,000 bytes per bit plane!).

Windows themselves take up at least as much memory as their size dictates (horizontal pixels x vertical pixels / 8 . . . and that's per bit plane defined for that screen), although they start 'borrowing' memory as soon as you move them around or size them.

With all this memory-guzzling going on, it's a miracle there's space to do much else. Even if the system (that's outside the 180,000 used by BASIC) appears to have enough memory to do all you want (and you can examine the actual amount available using the FRE(-1) function) it may still not be enough unless the memory required is all in a solid block and not fragmented here and there.

There are a couple of ways of reducing memory requirements when working at the limit. First of all, you can reduce the 25,000 bytes of program/variable space and the 4,800 bytes of stack space using the CLEAR command. Its format is:

```
CLEAR , programsize, stacksize
```

The minimum for both is 1,024 bytes - so you could reduce the requirements to only 2,048 bytes, although there's not a lot one could do with that amount of space.

Other savings can be had by keeping the number of bit planes down to an absolute minimum and ensuring that windows and screens are closed when not required. This could save a lot.

There is really little point in trying to economise by re-using variables, leaving out comments and cutting down on spaces within BASIC programs as the savings are going to be relatively tiny compared with what could be achieved by deciding to have only 7 colours instead of 15, thereby saving a whole bit plane and at least 8,000 bytes.

Of course, windows left 'laying' around on the WorkBench screen also use up memory - closing these will save quite a bit of memory too.

SOME BOOKS

So far, I have seen few of the books available for the Amiga. However, I have looked at three which may be of interest.

The first, from Sybex, is the 'Amiga Programmer's Handbook' by Eugene P. Mortimore. This is NOT for the average programmer, and nowhere does it cover BASIC. Instead, it looks at some of the internal system calls

and it is mainly intended for those programming in 'C'.

The sections cover EXEC functions, graphics, drawing, animation and text functions, the layer functions, and Intuition and WorkBench functions. There is also an introduction to the concept of the library in the Amiga, the data structures required to use them and the significance of INCLUDE files for 'C' and assembler programmers.

While the book covers what it covers thoroughly and well, it does miss out important areas such as AmigaDOS, devices and math functions.

If you're intent on reading about the innards, it may be a book to browse through, but at £24.95 it would have to be a very serious browse. I know of one ICPUG member who bought it by mail order and was very disappointed with what he got.

A rather fuller, and better, overview of the Amiga can be had in Compute!'s 'Amiga Programmer's Guide'. This has eight chapters, each giving an overview of different aspects of the Amiga - from BASIC programming, to 'C'; from using AmigaDOS and the CLI, to graphics and sound.

At £14.95, this is certainly a better and more general book than the Sybex title - but my feeling was that for the serious user (in whatever language you choose) it failed to cover ground thoroughly enough despite the occasional large example program in 'C' and assembler.

A more useful book is Compute!'s 'AmigaDOS Reference Guide'. This just sticks to the aspects of AmigaDOS that you'll need to use the CLI to best effect.

It examines how to use the CLI console, the editing features (what there is), windows, processes, files (and the complexities of directories and subdirectories and pattern matching), the various devices available, command sequence files (batch files, using the EXECUTE command), the two editors (ED and EDIT) and the many commands available from the CLI.

I have few criticisms of this book, and it is by far the most practical of the the three I looked at, and at £12.95, it is not unreasonably priced.

LIBRARIES & LANGUAGES

Apart from BASIC, I have recently been examining other languages available for the Amiga. 'C', MODULA-2 and assembler are all very powerful languages, but which lack the ease with which BASIC accesses Amiga features. None of them have simple commands, like the SCREEN



command in BASIC. Instead, programmers have to use other means.

The routines that provide access to these sophistications are, for the most part, included as part of the operating system (collected into 'libraries') and are loaded into protected memory from the Kickstart disk. Accessing them is, in theory, straightforward, but to get over some of the complications that older Commodore machine code programmers used to encounter (such as routines moving about between different machines, and even between different versions of the same machine) a different approach has been adopted.

On the Amiga, one directly accesses the library routines by issuing a special 'open library' call, with the name of the library required. This returns an address which points to the start of the library code within the operating system and gives us access to a jump table (much the same as the Kernal jump table in other Commodore computers) containing jumps to the various routines contained within the library.

Determining which jump instruction to go for is straightforward since each routine is given a name, and these names are set up in various ways, depending on which language one is using.

To confound matters even further, the special 'open library' call is itself part of a library (the 'exec.library') .

To demonstrate how this works, take the example of a piece of assembly code to open a window on the screen. The OpenWindow function is part of the intuition.library and requires several parameters giving the position and size of the window, its title, minimum and maximum sizes, which gadgets are required and a host of other information. For this exercise, we will assume that the table has been set up and is held in memory at an address which has been given the label WindowData.

We also need the name of the required library to be set up - in this case, we will assume that we have already put the library name 'intuition.library' in memory at an address labelled IntuiName.

Our first action is to prepare to use the exec.library. Its address is held at the only absolute address in the entire Amiga - at location 4. This is sometimes known as the System Base, and is held as SysBase. In assembler, this is done by:

```
move.l    4,SysBase    ;SysBase = 32bit contents of loc 4
```

The pointer SysBase now contains the address of the exec.library, and preceding it will be the jump table - organised as follows:

| address | offset | instruction |
|---|---|---|
| SysBase-552 | LVOOpenLibrary | JMP $00971A |
| SysBase-546 | LVOVacate | JMP $FC1960 |
| SysBase-540 | LVOProcure | JMP $FC194A |
| . . . . . | | |
| SysBase-36 | LVOExitIntr | JMP $FC0CA4 |
| SysBase-30 | LVOSupervisor | JMP $FC07E8 |
| SysBase-24 | EXTFUNC | JMP $FC202A |
| SysBase-18 | EXPUNGE | JMP $FC2028 |
| SysBase-12 | CLOSE | JMP $FC2024 |
| SysBase-6 | OPEN | JMP $FC201C |
| SysBase | library base address | |

Each of these entries in the table is a routine within exec.library, and the special 'offset' names given to each represent the numbers that must be added to SysBase to find the correct address in the table. The slightly odd form of these names (preceded by _LVO) identifies them uniquely as library offsets and these are assigned values when the assembled code is linked using one of the files supplied.

The last four names are routines that are directly related to setting up the library and need not concern us here.

Therefore, the entry we require for the 'OpenLibrary' routine is at the address SysBase+ _LVOOpenLibrary and, referring to the system documentation, we discover that OpenLibrary requires two items of information - the pointer to the library name (which we have already determined will be IntuiName) must be in register A1, and the version number of the library we are expecting (which we can set to zero for this exercise) in D0.

So, now we can open the library as follows:

```
MOVE.L SysBase,A6              ;register A6 points to exec.library
MOVE.L IntuiName,A1            ;set up pointer to library name
MOVE.L #0,D0                   ;version number = 0
JSR    LVOOpenLibrary(A6)      ;JSR through the table entry
MOVE.L D0,Intuibase            ;D0 = address of intuition.library
```

The address of the JSR instruction is computed by adding the offset value of _LVOOpenLibrary (which is actually $FFFFFDD8, or -552 in decimal) to contents of A6, and JSRing to it.

The result of this routine is to hunt through the libraries and find the base address of the specified library and return this in D0. This we stash away in IntuiBase for the moment.



Now we are ready to go into the intuition.library and access the OpenWindow routine. This is done in very much the same was as we used the OpenLibrary routine in exec.library:

```
MOVE.L IntuiBase,A6            ;address of intuition.library
MOVE.L WindowData,A0           ;the start of the window table
JSR    LVOOpenWindow(A6)       ;execute the routine
MOVE.L D0,WindowPtr            ;save the pointer to the window
```

The address of the window table is passed to OpenWindow in A0, and the routine returns the address of where intuition is holding its own data about this window. This will be needed if we need to do anything at all with this window, so it's stashed away in WindowPtr for the time being.

It's important to close a library when done, especially since it will be using up valuable memory if it was loaded from disk. This is handled by the CloseLibrary routine within exec.library and, in our example, it goes something like:

```
MOVE.L SysBase,A6              ;we need to know where exec.library is
MOVE.L IntuiBase,A1            ;which library we're closing
JSR    LVOCloseLibrary(A6)     ;close it.
```

This may all seem very long-winded, but it does at least allow routines to move about in memory without programmers ever needing to know where they've got to. Provided that the pointer at location 4 is correct, and that the order of JMPs at the base of a library remains the same, then the library calls will remain compatible across all versions.

Perhaps the most complex part of the process is setting up the data tables - and that'll be the subject of a future piece.

Programmers in 'C' and MODULA-2 need to perform very much the same sort of ritual. Fortunately, much of the ground work is done by the compiler and linker which means that there is no need to worry about the library offsets and so on.

In 'C' for instance, the opening of intuition.library and opening the window is performed as follows:

```
IntuiBase = OpenLibrary ("intuition.library",0);
WindowPtr = OpenWindow (WindowData);
...
CloseLibrary (Intuibase);
```

A great deal easier, I'm sure you will agree. The compiler takes care of all the shuffling of pointers - you just have to ensure that the variable types are correct, and the tables are set up correctly.

In MODULA-2 (the TDI, or Modula Software, compiler) the procedure is very much the same. The biggest difference between 'C' and MODULA-2 is the way in which the functions are defined. In 'C' (and assembler), the functions are defined within one of the libraries linked in by the linker (in the examples we've seen, these are contained in AMIGA.LIB on the 'C' and Assembler disks). In MODULA-2, the procedures are held within modules held in files and specified using the FROM . . . IMPORT . . . feature which is at the heart of the modular nature of MODULA-2.

I recently started using the MODULA-2 compiler from Modula Software and I have been generally pleased with it. It does lack support for 'concurrent cooperating processes', which is part of the specification for the language - ironic on a machine with multitasking as its primary feature.

I also found the users' manual rather poor - consisting of only 53 pages. The remaining 340 or so pages are listings of definition modules included on the disk for the Amiga features (although this is an essential part of the documentation).

I haven't had time to try it out fully, so a full review of it will have to wait until next time.

For those who would rather play around with a simple version of MODULA-2 before expending money on the 'real thing', the public domain compiler in the library is well worth looking at - but you'll need to read up about the language first.

FINALLY

The Amiga is a complex, but extremely powerful, beast and many are finding some aspects tough going but I'm finding it difficult to know what to write about in the newsletter - please let me know if there is any aspect you would particularly like discussed.

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# COMAL CORNER

by Brian Grainger

I have to start the article this month with some bad news and some good news.

I have some bad news regarding the COMAL cartridge. Despite refusing ICPUG's offer of about £19 each, Commodore UK later sold out their stock for a rock-bottom price. These were then sold by the purchaser at the Northern Commodore show at prices under £10. We know they have all been sold. Being understandably miffed with Commodore UK, ICPUG subsequently decided to investigate purchasing direct from Denmark. Costs were equivalent to what we paid to Commodore UK (despite the fact that the Danish street price is about three times our price). However, we have had significant problems with Denmark when purchasing COMAL manuals. Basically they are slow to respond and do not always answer our telephone calls. We are therefore not happy to continue dealing with them. This point of view was put to the ICPUG committee of 4th November and committee decided to discontinue selling the COMAL cartridge. This includes both the 64 version and the forthcoming 128 version.

If you are one of the unfortunate people who have not got a cartridge and now want one I suspect that one course of action is to try and get a cartridge on the second-hand market. This sudden course of action has caught out our own publicity rep., who wanted some more cartridges for his school and I suspect it will also sadden a few Scottish teachers who are now using COMAL. Can I therefore ask those of you who have cartridges and are not using them to consider putting them in the For Sale column. You might as well let some worthy students get their use rather than leaving them in a drawer!

I shall try and obtain an address and costs for members to purchase direct from Denmark, particularly for the 128 version. This will be notified via this column in a future newsletter.

Despite the above, there is some good news. I shall still be continuing to support COMAL, both cartridge version and disk 0.14 version. The latter has lately been undergoing some enhancements. Recent requestors of the disk COMAL have been sent a fast loading version of COMAL which includes inbuilt error messages. This COMAL is fast-loaded using the 'Epix Vorpal system' and loads incredibly quickly. I strongly recommend all 0.14 disk users to ask me for a copy of this 'Fast-loading 0.14

COMAL'. By the time this appears I hope to have an enhanced version with some extra free memory, giving about 11.5K rather than the normal 9.9K, and text and screen dump facilities. This will bring the disk version closer to the cartridge standard and will help to offset the inability to get the latter. These additional enhancements are being carried out by a COMAL enthusiast so I cannot give an exact date on availability.

In addition to the fast-loading disk we now have a fast-loading CASSETTE version of COMAL 0.14 with INBUILT error messages. Existing cassette COMAL users will know it is a big program and it is a long wait to load in. Also error numbers are given rather than messages. Both these problems have been solved and existing users are advised to upgrade. Those of you without disk drives yet to try COMAL are also advised to try the new version. The fast-loading cassette COMAL is available by sending a cassette (C60 min) and return postage to Peter Crowder. Peter is the QRT 64 Software Librarian so his address is in the inside back cover. PLEASE INDICATE IN YOUR REQUEST WHETHER YOU ARE AN EXISTING COMAL USER OR A NEW USER.

David Pirie wrote to tell me of some errors in the DIFF'EQUATIONS program on COMAL Today Disk 7, 2.0 side. Apologies to those who found this program would not run. The revised lines to change are as follows:

```
1320 PRINT "1500 e=(-2)"
1330 PRINT "1510 f=(sin(t))"
1940 PRINT "2140 a=(-x*2)"
1950 PRINT "2150 e=(-1)"
1960 PRINT "2160 f=(sin(t))"
2430 PRINT "2640 b=(-5)"
2440 PRINT "2650 a=(-x*2)"
2450 PRINT "2660 e=(-1)"
2460 PRINT "2670 f=(t/10)"
2920 PRINT "The coefficient of x'=a"
2980 PRINT "3200 c=(-x)"
2990 PRINT "3210 b=(-6)"
3000 PRINT "3220 a=(-5)"
3010 PRINT "3230 e=(-1)"
3020 PRINT "3240 f=(2)"
```

Copies of the disk identified on the directory as 'amended 08-11-86' have already had these corrections made.



David also sent me a handy tip for using the definable function keys on cartridge COMAL. When editing a program one often wants to delete lines quickly. David suggests redefining function key 3 as follows:

```
USE system
i$=chr$(148);cr$=chr$(13);k$=chr$(11)
j$=i$+i$+i$+i$
defkey(3,j$+"del "+cr$+k$+cr$)
```

Now, list the lines to be deleted on the screen (possibly through the use of FIND). Place the cursor on column 1 of the first of these lines and press F3 as many times as there are lines to be deleted.

Some time ago Jonathan Cooley asked me for a COMAL routine to load a machine code routine directly into memory. I asked Peter Crowder to have a look at the problem, and he came up with the following routines for the COMAL cartridge. One routine loads a standard machine code disk file into memory with start address as given in the file header. The other routine saves machine code from the COMAL environment as a standard machine code disk file.

```
9000 //
9010 // Procedures to allow loading of M/C or other data files
       directly into
9020 // RAM, and to save the data in the first place.
9030 //
9040 // First, the SAVE - syntax
       SAVE'CODE(filename$,start'addr,end'addr)
9050 //
9060 PROC save'code(name$,start,finish) CLOSED
9070   OPEN FILE 7,name$+",p",WRITE
9080   high:=start DIV 256; low:=start MOD 256
9090   PRINT FILE 7: CHR$(low),CHR$(high),
9100   FOR i:=start TO finish DO PRINT FILE 7: CHR$(PEEK(i)),
9110   CLOSE FILE 7
9120 ENDPROC save'code
9130 //
9140 // Now the LOAD - syntax LOAD'CODE(filename$) - a non-forced
LOAD
```

```
9200   t$:=GET$(7,1)
9210   start:=ORD(t$+CHR$(0))
9220   t$:=GET$(7,1)
9230   start:+256*ORD(t$+CHR$(0))
9240   WHILE NOT EOF(7) DO
9250     t$:=GET$(7,1)
9260     POKE start+counter,ORD(t$+CHR$(0))
9270     counter:+1
9280   ENDWHILE
9290   CLOSE FILE 7
9300 ENDPROC load'code
```

That is about it. I await requests for fast-loading COMAL 0.14.

--oOo--

## COMAL DISK FOR THE CARTRIDGE

by Brian Grainger

I am not going to list a directory of the latest (No.4) disk for the COMAL cartridge from the UK COMAL SIG. The titles will not mean much. Suffice it to say that it is filled completely with useful routines to define, draw, load and save just about any type of graph you are likely to use along with suitable demonstrations and instructions for use.

The disk has been months in the preparation and much blood has been sweated by Bert Millest in the preparation.

Make this effort worthwhile by sending a disk and return postage (now 26p in the UK) to me and asking for COMAL 2.01 UK No.4.

--oOo--

## COMPUNET COMMENTS

by Brian Grainger

Well, what is there to say about Compunet this time? It has not improved since last time has it? Surprisingly, I did not receive many comments on my criticisms of Compunet last time although those I did receive were all in agreement. A larger number of people have informed me, via Prestel, that they are no longer with Compunet.



Tony Wright wrote to agree with my comments and add his own displeasure about the admin charge on the VAT refund. In protest he has cancelled his direct debit agreement with Compunet and suggested this is the time for ICPUG to show its teeth and tell Compunet they cannot take subscribers for granted. This is an interesting point and one that was discussed by the National Committee. Other members may have similar views and I feel I ought to explain my point of view that we can do nothing at this time, which was accepted by Committee.

Despite the number of withdrawals from Compunet due to the increased charges, they have been remarkably successful in recruiting new members. The free modem offer must be the reason for this. This is reflected in the number of ICPUG members in the Compunet CUG. The numbers have increased by over a third in the period July-November. Consequently, despite the price increase, Compunet is at present being successful. Against this background of success I feel that the view of the longstanding member would cut little ice. Therefore I feel at present ICPUG does not stand a chance of winning the argument. Maybe this will change if the service does not improve and all these new members do not decide to renew. However, if Compunet get a computer dedicated to them alone the service will improve or maybe they will think of another scheme to attract new members such as including other computer owners. My only advice at present is to weigh up the costs of the revised standard charge against the unchanged basic charge and see whether, for your use, basic charge is now the cheaper option. Personally, I am still on the system - somebody has to register all the new members into the CUG!

Last time I mentioned a couple of demo programs on the system but I did not know where to direct you to find them. Since then I have looked at the Compunet index and GOTO DEMOS will find them. On page 431 of the last newsletter a certain program ('Starship Hero In Trouble') was mentioned. Well, it had not been banned when I went on Compunet and it really is an amusing adventure, particularly if you know the idiosyncracies of the various committee members. You did a good job John! Hopefully those of you that downloaded it have found yours truly hiding in the corner of the hanger bay!

Another useful area within the ICPUG CUG is that which gives the listings of programs published in the newsletter. No longer do we have to type the things in only to spend time finding all the typing errors. Have a look when you can.

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## DIVISION WITH REMAINDER

based on an idea by Joe Bowman

If you ask a computer to do a division sum such as 5/4 the result will be 1.25. This is all very well if you simply want accuracy, but if you are writing educational programs it is better to have a result in the form : 1 + R 1. This can be achieved by the following routine:

```
10 INPUT A,B
20 A = INT(A): B= INT(B)
30 IF A < B THEN: C = A: A = B: B = C
40 D = INT(A/B)
50 R = A - (D * B)
60 PRINT A" / "B" = "D" +R "R
```

Line 20 ensures integer-only sums
Line 30 is a catch to stop the likes of 5/9.

--oOo--


# DISK EXCHANGE 64

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## REVIEW—WORD WRITER 128

by T Raynor

Word Writer is a word processor for the Commodore 128. It runs in both 40 and 80 columns and is a 'What you see is what you get!' word processor. Simply, the text on screen appears the same as the printed output (well almost!).

My first impressions of this package were, to be quite honest, not too good. However, after a short time, I realised there was a lot more to it than I first had thought. The package is very easy to learn and get used to. It took me about an hour of use, after which I was able to use the word processor to its full potential. Word writer is similar to Viza Classic in many ways, as it has pull-down menus and windows. However, these facilities are not implemented as well and are not so appealing to the eye.

Commands are either selected by the function keys or by the pull-down menus. At first, remembering the commands is quite tricky but there is a very useful help window which lists the commands in a scrolling display. I wish more packages had help screens like this! I also found the documentation quite good, with a nice ring-bound manual, which was informative and explained the features in reasonable detail. There is a handy reference section at the back of the manual, which is useful as a quick reminder on how to do something.

Entering text is fairly easy, although, there were a couple of features that I found difficult to cope with. INST/DEL when shifted sets insert mode and does not insert a single character, and DEL deletes the current character and moves the rest of the line back a space, but does not move a character to the left! Thus the rest of the line is 'sucked' into the cursor. Backarrow does the closest job to the ordinary delete, giving a backspace. There is a wordwrap feature, but when text is edited in the document this feature does not work. It only works at the end of the document. This may sound very painful but all that is required is a format command to tidy up the document. Formatting is also very quick. The advantages of this system, as opposed to Superscript, which generally tidies up as it goes along, is that it is much faster and there are less delays. In general, the editing is quite good and after a short time, I became quite used to it.

When entering text, it is very easy to centre, right justify and indent simply by pressing a function key. I found this extremely

useful. Another very nice feature is the on-screen highlighting. To print in bold or italic is very easy - just press CBM+B or CBM+I. From then on everything you type is printed in bold or italic. It is easy to see which parts are in bold because the bold shows on the screen, and the same applies to italics, underlining, superscript and subscript. These features make using Word Writer extremely easy. It is possible to take standard text and move over it and add extra features such as underlining without any problem.

Included in the Word Writer package is a spelling checker. Entering words into the user dictionary is difficult because you need to create a standard Word Writer file and enter the words manually. The spelling checker however, includes a nice search facility. When it finds a word it doesn't understand, it will search for similar words in the dictionary thus making correcting spelling much easier!

Also built in is a simple calculator. It works in the same way as a standard hand-held calculator and results may be transferred to the document. There are no column-adding facilities but I found the calculator much easier to use than with other word processors.

Setting up the printer is quite an easy job. One major fault is the inability to use printers that do not connect to the serial connector. It will quite happily work with an Epson, provided you have a serial interface! The program is American and I assume over there users do not tend to link printers to the user port. It would be nice if this were corrected for the UK version.

Word Writer is not as sophisticated as Viza Classic or Superscript. However, after a short time I found it very easy to use and it has several nice features not available on other word processors. It seems to be fast and I did not discover any bugs. My major criticism of the program was the inability to drive Centronics printers. If you are buying a word processor for the C128, I would recommend that you take a look at Word Writer as it is a very easy to learn and quite a sophisticated package.

--oOo--

## KEYBOARD CLAMP FOR THE DISABLED

By oversight we have not included in this issue a description of an adjustable board to hold computer keyboards for the disabled, or others who desire to support their keyboard at an unusual angle. We shall include it in the next issue, but anyone urgently requiring such a thing may contact Rossin Educational Designs, 8 Moore Grove, Lymm, Cheshire WA13 9RT or phone 092575 2509 and ask about the SEERS BOARD.



# PASCAL CORNER 3

by Marc Bray

Since writing Corner 2, I have obtained three other Pascal Compilers. These are:

First Publishing's version (for C64)
Oxford Pascal 128
JRT Pascal.

JRT Pascal is a version of Pascal available for the Commodore 128 from ICPUG. It runs under CP/M and details for obtaining a version should be available elsewhere in the Newsletter.

As ICPUG now has its own version of Pascal and, according to the last Newsletter, there are 716 members with 128's (18.24% of users), I hope to be hearing from the other 700 members when they have obtained their versions.

Two discs are supplied for JRT. These are numbered CL2 and CL3. The compiler and associated subroutines are on CL2. CL3 contains the manuals. I have been lucky enough to have had a copy of JRT for the past two months - although I have not had enough time to try it out fully yet.

The first thing to do when you receive your copy is to print out the manuals, found on CL3. The files have been created under Wordstar. Unfortunately, I do not have Wordstar and so had to resort to the slow method of printing the manuals. This involves copying the file TYPE.COM from Commodore's CP/M Utilities disc onto the Manual disc (CL3), press <CTRL>P, and then enter the command TYPE filename [NOPAGE] to print the manual on the printer. To print out the full manual, it takes approximately 3 hours - so be warned!.

Using the TYPE.COM format to print out the manuals means that some format commands for Wordstar are also printed. These do not detract too much from the appearance, although if you do have Wordstar available the finished result would be better.

Pascal programs for JRT are written using any of the Editors currently available. Two are currently available - ED.COM and EDIT3.COM. The latter is available on ICPUG disc CU1. I have been using ED.COM as I cannot find any instructions on how to use EDIT3.COM, apart from the DOCument file on the same disc.

Now, with four Pascal compilers available, the idea of a library system seems to be getting a little bit complicated. I shall now try and explain how I intend to organise it!.

Tony Harrison-Smith, the C128 CP/M Librarian is going to organise the JRT library. I shall be vetting these programs and organising the libraries for the other three systems - Oxford64, Oxford128 and First.

When sending any programs (on disc or tape - with return P&P) please state for which compiler they were written. JRT programs can be sent to either Tony or myself.

At the time of writing this article I have not received any donations, although I am working on some programs myself. These are mainly mathematical routines, namely the solution of non-linear equations and various routines to manipulate matrices. I should like to hear from anyone writing similar programs.

Now on to some letters received. For anyone with problems compiling programs using Oxford64, a solution from Lorean Adrian of Wallasey.

1. Enter program in the normal way.
2. Type DISK - to enter compiler mode.
3. Type PUT filename - to save program.
4. Place system disc into drive.
5. Type COMP filename.
6. Swap disks.
7. Type EX filename - to run program.
8. Swap disks.
9. Type LOCATE:secondname=filename

Three files have now been produced on the disk:

filename - source code (operation 3)
filename.OBJ - object code (operation 4)
secondname - BASIC code (operation 9)

Operation 9 enables a compiled Pascal program to be executed from BASIC without the Pascal compiler being present.

In a letter from Switzerland, Paul Schofield states that he is currently using a Commodore 128 and two 1570 disc drives. He is using TURBO Pascal from Borlands' German distributors. As it is running under CP/M there should be no problem obtaining British versions. Paul has given me a couple of addresses of possible British distributors. Watch this space for further information. If there is anyone also using this version, please get in touch.

Stephen Earl in Oxford has supplied some useful information. Oxford Pascal has now been taken over by Systems Software(Oxford) Ltd, 16b Worcester Place, Oxford. Stephen has also been in touch with Systems Software and has informed me that they do not think the market justifies a new, bug-free version of Oxford64. Letters of complaint to me at the address below.



I have also been sent a number of bugs that can be found on Oxford64. I shall be testing these and reporting in the next issue.

Remember, get writing your Pascal programs and send them to me. Everyone with a Commodore 128 now has no excuse for not obtaining Pascal.

--oOo--

18 Hillside Road, Hillside, Southport, Merseyside, PR8 4QB

## SUPER★ CORNER

edited by Jim Kennedy

Due to the long review article on Superbase for the Amiga, the Corner in this issue will be very short. You will read elsewhere in the Newsletter about the 1571 ROM bugs which affect Superbase and Superscript on the 128, which I made mention of in previous articles. Readers are referred to my column entitled Jim's Jottings for a detailed discussion of these points.

Karsten Hunger from Denmark furnished me with a printout of a Superscript Defaults file for a Seikosha SP1000VC Printer which he says works for him. SAE to me if you would like a copy. Also, Graham Johnson of Sutton Coldfield sent me his Superscript defaults for a Smith-Corona D200. Since they are on disk I can either furnish a printout (again SAE please) or I can place them on a formatted disk sent to me with return postage and label in a reusable mailer.

Pete Miles in Dorset has come up with another series of Superscript macros for daily recording of materials and labour used on various jobs such as electrical, plumbing, carpentry contracts, or anywhere else one uses a variety of materials and spends varying amounts of time on projects during the day which must be accounted for. Rough notes can be made at work and transferred to a Superscript document later. Each item is saved as a separate 'document' on the disk so the limit is somewhat less than 144, the maximum number of files on a 1571. Again, a formatted disk to me with return postage, label and reusable mailer. Don't forget to say which item you want - I cannot read minds!

If any of you are reaching a point where you are running out of room for a Superbase database on a disk then it may pay you to do some quick calculations. Superbase stores data in 128-byte blocks of which only 123 are useable. If the records in a file contain an average of say 135

bytes (allow one byte per character in a field plus one for each field as a field separator) then your database is using two Superbase blocks of 128 bytes for each record which is equivalent to one CBM disk block of 256 bytes. However, if you were to do things like cut down the number of fields in the record and the amount of information stored in the fields to say an average of 110 characters per record you would be able to almost double the number of records on your disk. It doesn't matter if the odd record goes over the 128-byte limit and uses two Superbase blocks, just try to keep the average down so most records use only the one. Savings can made by use of abbreviations, omission of commas and full stops and concatenation of many 'tick the box' fields into only one field using a series of letters as a code. Don't be alarmed that you will not see any extra blocks free after doing this 'condensation'; once Superbase has allocated a block for database use, it stays committed. But the space is there, free to be used for the next record to be entered. A backup makes an identical copy of the existing disk so it will also not show increase in the number of blocks free. These savings will, however, show up after export and import, as these operations rebuild the files in the imported database. This is also a useful thing to do once a database has been in use for some while.

Superdesk, which is available from the 128 Library, may be useful to members just learning to use Superbase and/or Superscript on any of the Commodore machines including the C64. Whilst on the C64 one cannot use the integrated parts of the program where Superbase calls Superscript, but other parts may prove useful. Things like the Set and Dump commands, modifications to the Start.p program and Help screens for menus are used, so one may see how these are employed and incorporate them into other programs. I have placed Superdesk in the public domain so everyone is free to use and modify it as they desire. It was not written as the 'final version' of a desktop utility but rather as something to stimulate others into doing something really useful.

Those of you who have purchased 'Superbase: The Book' may have noticed something missing from the bottom of page 30 and the top of page 31. The missing words are:

'. . . output or other processing. You can copy, rename,
or delete lists.

Memos
These are created with the 'memo' option. They . . .'

Thanks to Mike Hatt for bringing this to my attention.




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## ON THE NUMBER OF CORNERS IN A RECTANGULAR NEWSLETTER

by Brian Grainger

I was amused to read the Editor's comment last time (p.415) when Brian Cutts suggested starting a CP/M Corner.

I believe I can lay claim to founding the first 'comer' with COMAL CORNER in the July 1982 issue. COMAL had appeared before then under the boring title of COMAL News or some such. In January 1984 John Bickerstaff claimed the second 'comer' with Discount Corner. In September of the same year Superbase Comer arrived (now all-embracingly called Super* Comer). The fourth comer was claimed in July of this year with Pascal (wash my mouth out) Corner. There is no truth in the rumour that the newsletter cover design competition had a pentagonal entry so I'm afraid we have run out of comers. I guess Brian will have to become a little more imaginative.

As inspiration for new series titles perhaps I can explain how I thought of mine. When it was clear that COMAL was to have a regular column I tried to think of something snappy as a title. I read a long time ago how alliteration provided this effect so I wanted a word beginning with 'C' that conveyed a suitable meaning. COMAL Comer was born. It was not difficult to continue this technique when Network News became a regular feature. I had a problem when Compunet became a separate feature as another word beginning with 'C' was needed. Eventually I hit on Compunet Comments. It is noticeable that other authors use this technique as well. At one time we had a Commodore Column and at the moment we have Mike's Meanderings [not to mention Jim's Jottings, which we are wondering whether, having seen the first, to rename 'Jim's Jehad' - Ed].

Perhaps as a bit of fun we can have your suggestions in this vein for other regular features. What ideas for 'Editor's E . . .' [Elegy?], 'Amiga A . . .' (Amiga-Watch is clever, I must admit), 'CP/M C . . .' etc?

Perhaps I can suggest removing a Comer by having a Pascal Prattle column! I'm only joking, Marc. CP/M Complications springs to mind as well but, if I say that, Brian Cutts may suggest COMAL Claptrap instead of COMAL Comer!

--oOo--



## JIM'S JOTTINGS

by Jim Kennedy

### SEASON'S GREETINGS

By the time you read this a rotund man dressed mostly in red and riding a sledge drawn by some rather curious-looking creatures will be on his way south delivering cheer throughout this green and pleasant land. Likely it will be green; we shall probably not have a White Christmas with lots of snow and the Thames frozen over but for most members a new Amiga under the tree will do very nicely thank you. Then Boxing Day will probably see everyone playing with their new hi-tech toys until the wee small hours. Which reminds me, did you know that the difference between men and boys is the price of their toys? I thought not. Anyway, here at Lost Battles, which happens to be the name of the humble abode in which I dwell, we shall likely be playing with our new toys as well as reflecting on the events of the year past, looking ahead to the year to come and contemplating ICPUG's first year as a Co-operative. I hope all members enjoy their holidays as much I am planning to enjoy mine.

### NATIONAL COMMITTEE

Since being elected as your new Chairman I felt a column like this would be in order to keep all members informed of what's going on in the world of ICPUG, Commodore and computers in general. By the way Hugh de Glanville came up with the name. I don't know what we'd call a column if we had a Chairman with a name like Zachariah, maybe Zacks Zygomorphisms? I won't write one for each issue but, being more loquacious than phlegmatic, you'll probably see it fairly often.

One of the first things that I would like to discuss is the members of the National Committee and what they do. Now although in most organizations everyone knows the chairman and remembers his name, it is usually the other people on the committee who end up doing the really essential tasks and hard work. One way of looking at the ICPUG National Committee and what they do is to think of them running a half million pound a year business in their spare time without pay. I'll mention just four out of the many areas of ICPUG operations of which many people are only vaguely aware of the size of the tasks involved.

Hugh de Glanville and Henry Velleman produce this Newsletter, although the term journal might be more appropriate, which, in its six issues a year, contains more text than is produced in 12 issues of some of the so-called popular computer magazines. Now I'm sure no-one

subscribes to ICPUG just for the number of words in the Newsletter, we like to think it's more to do with the quality, but it does make for an interesting situation. Two people in their spare time (what spare time? - Ed) turning out the same volume of work as the 6 or 7 full-time staff of most of the popular Commodore computer magazines.

Jack Cohen runs our 'Front End' of ICPUG and handles membership details. With approximately 3000 members that means an average of 10 transactions per day just for enrolments. That and the dozens of telephone calls each day, written enquiries, the task of maintaining our membership database along with a dozen or so other matters, means that he has more on his plate than many full-time administrators have in highly paid jobs.

In addition to his duties as Secretary and Vice Chairman, John Bickerstaff, along with his team of Discounts Officers, operates the discount program with a turnover in the hundreds of thousands of pounds a year level. Who else do you know runs that size business for no salary? And this not only involves processing members' orders, it also means a lot of hard work contacting suppliers, negotiating terms of discounts, stocking various items and importing others from abroad. It is a more complex business than your average corner shop.

Joe Griffin and his team of software librarians send out more disks than most software dealers sell. Further, the dealer doesn't usually have to copy each disk. In fact, ICPUG has more titles in its library than most dealers have in stock, and most of these have been personally checked and placed into ICPUG format, things a dealer need not do.

I cite these four areas as examples of what goes on just to keep ICPUG alive and well. Other officials not mentioned give equally long and dedicated efforts. And they do all this in their spare time, without pay and to help their chosen hobby. So on behalf of all the membership I would like to thank all those mentioned above and listed below for all they have done in the past year and wish them all a Merry Christmas and a Happy New Year.

During this forthcoming year I'm also sure it would be well received if you were to let them know how their efforts are appreciated when you next deal with any of them. Without their voluntary efforts ICPUG wouldn't exist. But, like any other group of people, we are not perfect. And we cannot read minds either. So please let us know if anything goes wrong and we'll try to put it right.



A complete list of the ICPUG National Committee is as follows:

| | |
|---|---|
| Chairman | Jim Kennedy |
| Vice Chairman/Secretary | John Bickerstaff |
| Membership Secretary/Manager | Jack Cohen |
| Treasurer | Jennifer Goldsmith |
| Newsletter Editor | Hugh de Glanville |
| Managing Editor | Henry Velleman |
| Software Librarian | Joe Griffin |
| PET Librarian | Joe Griffin |
| 128 Librarian | Tony Harrison-Smith |
| 64 Librarian | Andrew Hartley |
| Amiga Librarian | Mike Todd |
| PC Librarian | Peter Reynolds |
| VIC20 Librarian | Brian Wise |
| Plus 4 Librarian | Richard Hunt |
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| Asst Discounts Officer | Brian Wise |
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| Liaison Officer for Disabled | David Bate |
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DISABLED AFFAIRS

ICPUG (some think we are now ICPUL, but no; we are registered with the Registrar of Friendly Societies as Independent Commodore Products Users Limited but we 'trade' as Independent Commodore Products Users Group as per the motion passed at the AGM) has a new committee position of Liaison Officer for Disabled Affairs. David Bate from Merseyside has the job. If you have any queries along these lines contact David at 71 Bedford Road, Bootle, Merseyside L20 7DN. And speaking of disabled matters, I committed ICPUG to help escort wheelchair bound visitors around at Commodore computer shows where we have a stand. So in case any member sees someone in need of this type of assistance see us or ask the organizers to contact us at the stand and we'll help out.

1571 AND 128 ROM PROBLEMS

Many of those who read Super* Comer will know that I, along with many others, had problems with data becoming corrupted when the second side of a 1571 disk is in use. It now turns out that Commodore has been aware of the problem for some time and developed a new ROM chip for the 1571 to overcome this deficiency. This most serious problem arises because the BAM gets the front and the back sides of the disk mixed up and corrupts files that extend over both sides of the disk. Commodore have also produced some new ROM chips for the 128 to cure various bugs such as the Caps Lock Q problem and an incorrect RS232 implementation. However, these 128 bugs are not as serious and the changes in the new ROMs are apparently not all that drastic so I wouldn't lose too much sleep over them; the 1571 appears to be the main problem.

I received a set of these new chips for testing on very short notice so was not able to determine whether or not all the bugs have been fixed. However, Nigel Peters borrowed them and has promised an article for the Newsletter on the whole problem shortly. Meantime, and since I suspect that many customers will be letting Commodore know just what they think of this situation, we would be interested in receiving photocopies of Commodore's reply to their letters, including those from branches of Commodore outside the United Kingdom. After all, the problem is worldwide.

ICPUG is negotiating with Commodore (UK) to try to ensure our members get the new 1571 ROM chips as soon as possible. I'll keep everyone posted on this matter as things develop. In the meantime, please don't ring me or anyone else on the Committee asking when anyone will have the new ROMs or what is happening. We'll let everyone know what, if anything, is being done as soon as possible. But until your new ROMs



are installed, my advice is not to rely on storing important data using both sides of a disk in a 1571 drive either on its own or in a 128D. Keep at least 664 blocks free in a 1571 double-sided disk.

ICPUG TIE

Some may remember mention in a previous Exhibitions Report that we would be looking into making an ICPUG tie available to our members. Well we have found a source who will produce good quality ties to our specification in Navy with a small, gold coloured ICPUG logo appearing in the centre (what is known in the trade as an 'under knot motif), the logo being as shown on the back of the Newsletter covers but in a finer, smaller pattern. The Committee are not certain how many people would like these ties so I would request members express their views to me by E-mail, phone or letter. We shall then order a reasonable quantity. The price should be around £3.50 each posted to the UK or Europe and £4.50 for the rest of the world.

MEMBERSHIP RENEWALS

When sending in your membership renewal (loose with this issue) forms to Jack Cohen please indicate the equipment you are using. This lets us know what our members have, so we can better serve all interests. The equipment 'spread' affects things like what software we arrange discounts for, and it has an influence, albeit limited, on what articles appear in the Newsletter. It is also useful if your telephone number is included on the form. This is particularly important for our free raffle prizes as the prize winners are contacted by phone to select their prize. Those who cannot be contacted easily and quickly receive one of the prizes that is not specific to a particular machine. In case you have an ex-directory number you should be aware that we do not release the membership list outside ICPUG so it won't become widely available unlike the practice in some organizations.

Reminder! Membership renewals are due before the 1st of March in order to be able to qualify for the free £1 share in ICPUG. Mew members and all existing members renewing after 1 March 1987 will have to pay £1 for their one share in the co-operative. Be sure to pass this information on to your regional group and to any others it may affect. We shall be preparing and distributing new membership forms which reflect this change but some of the old forms may still be floating around amongst the groups.

Finally, remember that it is a lonstanding ICPUG policy that we don't send out individual notices of membership renewals. The basic

subs have been kept at £10.00 again for 1987 and we absorbed all of the increase in postal charges (except for Eire which has been reclassified by the Post Office as Europe), so we cannot afford the extra postage such notices would cost. Sending in your 1987 subscription early helps us and ensures you don't miss an issue of the Newsletter.

SOME ITEMS ON OFFER

Under a special discount offer the price of the Amiga fell during October to £975 ex VAT. This offer is scheduled to end 30 November so I don't know what the price will be when you read this. But if any of you were contemplating getting an Amiga you should have given John Bickerstaff a ring. As most are well aware ICPUG members can usually get substantial discounts over and above the normal discount price. Such was the case during October and November with the Amiga. If you are now kicking yourself after reading this, remember my advice in the future, ring John before you buy any hardware or serious software. Ring him even if you are just waiting for the price to come down before buying a major item, it may have already done so. Remember, if he knows the item is cheaper somewhere else then he will tell you about it. In all cases you'll usually save a bundle because, unlike a commercial enterprise, it makes no difference to us whether a member buys through us or someone else. Unfortunately, with overseas orders things are not quite so simple; we cannot export most items easily. But we wish we could.

I expect many will complain they bought their Amiga at the old price and now feel 'cheated' by this reduction. I sympathize with them. But what are we to do, ask Commodore to raise the price back to its original value when we said it was too high in the past? The economic history of the micro computer world is one of falling prices. Remember when a decent calculator cost around £100? A more powerful one today is under £10. Early C64 owners will also know what I mean.

You will also see an offer in the Discount Corner for Partner from Timeworks. This is a utility package that has things like an appointment calendar, address and telephone book, calculator, and access to printer for quick notes and the like. It is on a cartridge which plugs into the cartridge port as well as having a flying lead that plugs into joystick port 2. A button on top of the cartridge is pressed to call up the Partner menu. Timeworks claims it works with most other programs except those like Vizastar that are also on cartridge. However, I could not get it to work with Superscript or Superbase in my 128D.



Partner requires a separate disk to store the data used by the various facilities, so some disk swapping is required. It was obviously designed with the 128 in mind, as when used in the 128D cartridge port it requires quite a long reach around to the rear of the system box to press the button. The cartridge could be quite useful for those requiring the usual desktop facilities such as Sidekick and Spotlight provide for the PC or Superdesk does with Superbase and Superscript 128. But check that it is compatible with your favourite programs. I lent my copy of Partner 128 to someone to do a review for Commodore Computing International so cannot test it more thoroughly with other programs. Maybe another member would like to have a go and write a detailed review? But please check with Hugh or Henry first; it avoids the 'five articles on the same subject' syndrome.

Turning our attention to another program available through our discounts program, I must make my apologies. I was to have reviewed Vizastar 128, a spreadsheet from Viza Software Ltd. Time has precluded me finishing the article for this issue so it will have to wait till the next. But Vizastar is really good. I have used Multiplan on the 64 for some time now, I always felt that while it did the job, there had to be a better way. Vizastar is that better way. It has all the usual spreadsheet facilities plus a database option, graphics and macros. You really ought to see the multiple skyscraper bar graphs that it produces in full colour for up to four rows of figures at a time - very elegant; makes me wish I had a colour printer. More next time. But if you're in need of a spreadsheet ask Father Christmas to put Vizastar in your stocking. It's not cheap, but it's the best I've seen.

TO CHANGE OR NOT TO CHANGE

A couple of people have asked my views on switching to other newly launched computers particularly following the disclosure of the 1571 ROM problems. There are two things one should bear in mind in circumstances like this. First, if every time a bug was discovered in a computer, its operating system or a program, and you switched to another, you'd be ringing the changes on a monthly basis. I know of no computer system of any size and complexity which got it completely right the first time. My view is that as long as a system is supported and the bugs fixed by those that made/wrote it, then you are probably better off with the one you know than the one you don't. Changing over to a new system is not easy and a long learning period is essential before one is able to use any new system with confidence. Hasty decisions here are out of the frying pan into the fire.

Second, it is highly probable that any new system looks good not least because no-one has yet discovered all the hidden bugs and written about them. Wanna bet a fiver on a new PC clone being bug-free? One is well advised to wait a bit before purchasing any system to see what happens; bugs need to be discovered and fixed; software has to become available; prices have to stabilize (i.e. drop). None of these things happen in less than a year and most seem to take around 18 months

The 128 ROM bugs, while irksome and probably the topic of much future discussion in many popular magazines, are of only moderate seriousness. If Commodore produces replacement ROMS cheaply and for all customers their reputation might even be enhanced. IBM never produced bug-free machines, but they do take care of their customers. Consequently, many people trust them and pay way over the odds for their machines.

The 1571 ROM is another matter. The bugs here are killers. I believe Commodore has an obligation to replace at no charge the ROM in all drives. The wiping out of files places the current drive squarely in the category of 'not suitable for the purpose for which it is sold', to wit: a double-sided disk drive. Their actions on this matter could be crucial to the survival of the company. Who will buy an Amiga if they are seen as not supporting one of their major pieces of equipment? I hear from friends in the U.S. that Commodore got burned over there with the 700 machines (they call them a B128) when they dropped them without supporting the customers. The B128 User Group apparently took their case to a U.S. Government body with the result that Commodore is now forced into giving them all kinds of support at very low cost just to keep the legal writs at bay. Let hope they don't shoot themselves in the foot again over the 1571.

Happy Christmas and a Joyful New Year to all.

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## REVIEW—CAL/PLUS

by WGC Austin

This program (costing £19.95 from Parasoft Ltd., 6 Worcester Park, Surrey, KT4 7JZ; discount for ICPUG members) on a cartridge for the PLUS/4 C16 machines did not greatly impress me. It would be a good starter program for a first-time spreadsheet user, but is hardly the 'sophisticated electronic spreadsheet' the blurb claims.

Cells may be set from 5 to 20 screen columns wide and may be printed as left justified, right justified or centrally. They may be formatted to



contain literals or numbers, and these may be set to 2 decimal places (dollar format), to integers or floating point. Cell parameters may be changed globally or for individual columns/cells.

Addition, subtraction, multiplication, division and exponentiation, SUM (of a block of cells), ABS(), EXP(), INT(), natural LOG(), rounding to 2 decimals (RDOL) and rounding to nearest integer (RINT) are supported, as are complex algebraic expressions (written as in BASIC). (The % function did not work on my cartridge.)

The suggestion that the spreadsheet can be arranged as 254 columns by 63 rows might mislead naive users into thinking they can use far more cells than in fact possible. In actual use one can opt for 254 columns by 5 rows or 12 rows by 63 columns, etc, and the precise number of cells available depends on what is in them.

The program is rather slow to calculate when many cells are in use and it takes over a minute to replicate 63 cells. Replication of cell data or formulae can be relative or absolute, but one has to decide which for each cell. There is no flag to enable absolute cell references to be marked. This can be rather frustrating if one wants a large block of cells replicated in one mode.

Printouts of the sheet may be in the form of the actual data in the cells or they may show the 'model parameters' used for the sheet, showing types of cells and formulae rather than the results of cell calculations. I found it difficult to achieve a pleasing printout with proper underlining and bold print using my DPS 1101. There appears to be no way of EASILY sending control characters to the printer and so one has to use the switches on the printer. Simple bar graphs can be printed to the screen or output to a suitable printer such as the MPS 803, MPS 801 and the 1525. I could not test this.

The handbook is quite easy to follow and is generally well laid out, though not up to the standard of the Superscript manual. Some functions were difficult or impossible to trace through the index. It does not say how to output a sheet so that it can be taken up by SCRIPT/PLUS and incorporated into a report. I did not succeed in producing a satisfactory file by trial and error either.

The good news is that sheets can be loaded from and saved to tape or disk. There are some disk commands to allow disk operations from within the program, like assigning a logical filename, displaying the directory, erasing files and formatting blank disks.

I shan't use Cal/Plus, partly because I have VIZASTAR 8XL, partly because of its limitations. It is reasonably priced but not of Precision/Parasoft's usual standard.

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# C64 ARITHMETIC

by Robin Harvey

Having to do a few calculations in a machine-code routine last week, emphasised the problem of finding the required bits of code in the kernal. There is nothing particularly difficult in using these routines; it is only what BASIC would do, but without the delays of the interpreter. However, the right entry points to the routines have to be found to give the precise action required. For instance, there are several ways into the 'multiply' routine, depending on where the two numbers happen to be stored; BASIC of course sorts all this out for you.

Although various publications (including the Newsletter) have given comprehensive lists of routines and their addresses, they are scattered around the kernal in no particular order, and it seemed useful to extract just those that were purely arithmetic, with a little guidance on how to use them. All Commodore computers, of course, make use of very similar routines, but at different addresses.

One or two things are worth mentioning beforehand.

Firstly the system of abbreviations, which are fairly common, but very necessary to avoid repeating longwinded explanations.

The single letters A, X, Y refer to the normal 1-byte ACCUMULATOR, X & Y registers, which can hold integers up to decimal 255 or hex $FF. FAC1 and FAC2 refer to 2 separate 6-byte registers, which can hold fractional numbers (in FLOP or Floating Point format) up to 4,000,000,000 odd ($FFFFFFFF). FACX refers to a 3rd area which can form a temporary extension to FAC1 or FAC2. Because the two numbers to be operated on are normally placed in FAC1 and FAC2, and the result normally lands up in FAC1, these two FP accumulators are sometimes known as FAC and ARG, particularly in routine names. MEM implies somewhere else in memory. FAC1 lives at $0061-0068, FAC2 at $0069-006E, FACX at $0026-0029.

Other areas in zero page are also used as necessary for temporary storage; there are, for instance, addresses set aside for saving the contents of A, X and Y whilst these registers are used for some intermediate purpose.

Where a register or an address is bracketed, e.g. (A) or ($65), it implies the CONTENTS of that register or address. In many instances,

two registers are used to hold the two parts (lo-hi) of an address, so for instance (A,Y) is said to POINT TO address $1234 if A holds $34 and Y holds $12.

Secondly, the routines can be used without a complete understanding of how floating-point numbers are stored and manipulated, but a rather simplified explanation may be in order.

Since an FP number can be non-integral, e.g. 12.34567 or 0.0098765, the decimal form is converted to binary, and held as powers of 2 with an associated figure that shows where the 'decimal' point should be. Of the 6 bytes in the FACs, therefore, one holds this EXPONENT, four hold the MANTISSA (the number itself) and one holds its sign.

This method allows any decimal number between -2.1*10↑9 and +2.1*10↑9 (if the sign matters) or between 0 and 4.2*10↑9 (if it is unsigned; i.e. known to be positive) to be represented with an accuracy of about 9 significant figures. The rather unwieldy way in which FP numbers have to be manipulated, however, makes it almost essential to use existing routines rather than trying to write alternative ones.

Thirdly, kernal routines have been given mnemonic names, but different ones by different people. Those used here are those that seem to be most descriptive.

BCE9 ZEFAC Empties FAC1 (puts 0 into all mantissa bytes).
LDA #0/JSR $BCE9

BFB4 NEGOP Changes the sign of (FAC1).
JSR $BFB4

BC58 ABS Sets the sign of (FAC1) to positive.
JSR $BC58

BC3C FLOAT Puts a 1-byte integer (-128 to +127) in A to FP in FAC1.
LDA #INT/JSR $BC3C

B391 YFLOAT Puts a 2-byte integer (0 to +65335) in A,Y to FP in FAC1.
LDA #INTLO/LDY #INTHI/JSR $B391

BC49 FLOATC Puts a 2-byte integer (-32768 to +32767) to FP in FAC1.
LDA #LO/LDY #HI/JSR $BC49

B395 Puts a 2-byte integer (0 to 65535) to FP in FAC1.
LDY #LO/LDA #HI/STY $63/STA $62/LDX #$90/JSR $BC49

BBA2 MEMFAC Copies a 5-byte FP number from memory into FAC1.
LDA #ADDLO/LDY #ADDHI/JSR $BBA2
ADDLO & ADDHI are the two parts of the address containing the most significant byte of the FP number



BA8C MEMARG Copies a 5-byte FP number from memory into FAC2.
LDA #ADDLO/LDY #ADDHI/JSR $BA8C
ADDLO/ADDHI as for MEMFAC.

BBD4 FACMEM Copies (FAC1) into memory.
LDX #ADDLO/LDY #ADDHI/JSR $BBD4
ADDLO/ADDHI as for MEMFAC.

BC0C FACARG Copies (FAC1) into FAC2; (FAC1 stays unchanged).
JSR $BC0C

BBFC ARGFAC Copies (FAC2) into FAC1; (FAC2 stays unchanged).
JSR $BBFC

B849 PLUS05 Adds 0.5 to (FAC1).
JSR $B849

B86F PLUS Adds (FAC1) & (FAC2); sum left in FAC1.
JSR $B86F

B867 MEMPLU Adds a FP number from memory into (FAC1); sum left in FAC1.
LDA #ADDLO/LDY #ADDHI/JSR $B867
ADDLO/ADDHI as for MEMFAC.

B853 MINUS Subtracts (FAC2) from (FAC1); difference left in FAC1.
JSR $B853

B850 MEMMIN Subtracts (FAC1) from FP number in memory; result in FAC1.
LDA #ADDLO/LDY #ADDHI/JSR $B850
ADDLO & ADDHI are as for PLUS

BAE2 TIME10 Multiplies (FAC1) by 10; product in FAC1.
JSR $BAE2

BA2B MULT Multiplies (FAC1) & (FAC2); product in FAC1.
JSR $BA2B

BA28 MEMMUL Multiplies FP number in memory by (FAC1); product in FAC1
LDA #ADDLO/LDY #ADDHI/JSR $BA28
ADDLO/ADDHI as for MEMFAC.

BAFE DIV10 Divides (FAC1) by 10; quotient in FAC1.
JSR $BAFE

BB12 DIV Divides (FAC2) by (FAC1); quotient in FAC1; FAC2 is used.
JSR $BB12

BB0F MEMDIV Divides FP number in memory by (FAC1); quotient in FAC1.
LDA #ADDLO/LDY #ADDHI/JSR $BB0F
ADDLO/ADDHI as for MEMFAC.

BC1B ROUND Rounds (FAC1) to 9th decimal place; result in FAC1.
JSR $BC1B
e.g. 2.99999999 stays; 2.999999999 becomes 3.0

BC9B QINT Changes (FAC1) from FP to an integer in ($62)-($65).
JSR $BC9B
I=4096*($62)+256*($63)+16*($64)+ ($65)
($62) is $7f max, hi bit gives sign: 0=pos, 1=neg.

BDDD FLASC Converts (FAC1) to an ASCII string starting $0100.
JSR $BDDD

AB1E STROUT Prints to screen the string pointed to by (A,Y).
LDA #STRLO/LDY #STRHI/JSR AB1E.

Lastly the kernal routines contain many constants, stored in FP form, for specific arithmetical purposes, but which can be used by a programmer. A list of these and their addresses is attached.

FP CONSTANTS IN KERNAL

| | | | | | |
|---|---|---|---|---|---|
| AEA8 | 3.14159265 | PI | E08D | 11879546 | |
| B1A5 | -32768 | -2^16 | E092 | 3.92767774 | E-4 |
| B9BC | 1.0 | UNITY | E2E0 | 1.57079633 | |
| B9C2 | 0.434255942 | | E2E5 | 6.28318531 | 2*PI |
| B9C7 | 0.576584541 | | E2F5 | 42.0077971 | |
| B9CC | 0.961800759 | | E2FA | -76.7041703 | |
| B9D1 | 2.88539007 | | E304 | -41.3147021 | |
| B9D6 | 0.707106781 | 1/SQR(2) | E309 | 6.28318531 | 2*PI |
| B9DB | 1.41421356 | SQR(2) | E33F | -6.84793912 | E-4 |
| B9E0 | -0.5 | -1/2 | E344 | 4.85094216 | E-3 |
| B9E5 | 0.693147181 | LOG(2) | E349 | -0.0161117015 | |
| BAF9 | 10 | | E34E | 0.034209638 | |
| BDB3 | 99999999.9 | | E353 | -0.054279133 | |
| BDBD | 1 E9 | | E358 | 0.0724571965 | |
| BFBF | 1.44269504 | 1/LOG(2) | E35D | -0.0898019185 | |
| BFC5 | 2.14986737 | E-5 | E362 | 0.110932413 | |
| BFCA | 1.4352314 | E-4 | E367 | -0.142839808 | |
| BFCF | 1.34226348 | E-3 | E36C | 0.19999912 | |
| BFD4 | 9.614011701 | E-3 | E371 | -0.33333316 | |
| BFD9 | 0.0555051269 | | E376 | 1 | UNITY |
| BFDE | 0.240226385 | | | | |
| BFE3 | 0.693147186 | | | | |
| BFE8 | 1 | UNITY | | | |

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# REVIEW—SWIFTCALC 128

by Brian Wise

Swiftcalc 128 is a spreadsheet program from Timeworks (UK) Ltd., one of the few programs written especially for the Commodore 128 computer; in fact it is one of a range of products which can be used by itself or interfaced with other Timeworks software, i.e. Data Manager 128 of Word Writer 128.

I have always insisted that the businessman only requires three pieces of software - spreadsheet, wordprocessor and a database - as from these he can design his own business needs instead of adjusting his accounts to fit an off-the-shelf accounting packages. It was therefore with great interest that I approached Swiftcalc 128; not only was it interfaced with the other programs but also it had Sideways, an option that permits printing wide spreadsheets on narrow paper by automatically rotating them 90 degrees as they print out.

Swiftcalc 128 comes complete with a very comprehensive manual and is extremely well presented, explaining every function clearly. One section is very helpful, as it comes complete with sample spreadsheets for everday uses; these can be easily adapted for your own purposes or to help the beginner understand the layout and construction of a good spreadsheet.

The program self-boots and after you have selected the method of printing, i.e serial, RS-232 or parallel, draws your attention to their Customer support service, a very useful feature of all Timeworks programs, and one we hope will force all other software houses to follow suit. No 'serious' software package should be considered for use unless it offers help to the user by means of a simple telephone call. When the program is loaded, a framework of rows and columns appears. You can select a colour for the background and also change the character colour. A nice feature of Swiftcalc is the pull-down menus, to help you use the program as easily and as quickly as possible. You use the escape key to call the menu headings, which appear at the top of the screen, and the right and left cursor keys to highlight the one you want; you then press return and the menu for that heading will pull down. Use the up and down cursor keys to select the option you want, and press return again to execute that option.

The largest part of the Swiftcalc display is the spreadsheet window, which contains the rows and columns that make up the spreadsheet. It has the standard headings - a,b,c, etc across the tops of the columns



and numbers down the left side of the display for the rows. The window on your screen is only a part of a larger spreadsheet with 250 columns and 250 rows (62,500 cells) in which you can place information. As you can see, this is a very large work area, taking spreadsheets of all shapes and sizes. Information is entered into the cells in three ways, label (titles), values, or formulae. A label is a title that you give a column or row. A value is a number that you enter into the spreadsheet. Values are often used by the computer to perform calculations. A formula is a simple mathematical sentence telling the computer which mathematical operations to perform. A formula can include values from the spreadsheet or cell addresses indicating values to be used, or it can include values that are not used in the spreadsheet. When the value in one cell is changed, all formulae containing that value will be recalculated automatically using the new value.

As Swiftcalc was designed for the C128 it has special function keys and these can be found easily by use of the help key, which brings a window containing a list of Swiftcalc's program commands to the screen. F1 inserts a row or column; F2 edits a cell; F3 deletes a row or column; F4 clears a cell; F5 recalculates; F6 is the 'goto' command; F7 quick entry, F8 freezes a row or column. In fact function keys can be used with the Commodore key, and also with the control key, giving a very comprehensive set of multi-key commands to one keystroke. Swiftcalc also includes a help screen which contains information on the program's mathematical functions.

Another very useful feature is the quick entry key: with this one can enter days of the week, month, year or a series of numbers entered as a label, in any direction by use of the cursor; e.g. enter Monday in the first cell, press f7, move the cursor, and it enters Tuesday in the next cell, Wednesday in the third, Thursday in the fourth, etc. You are able to freeze a column or row, but not both, on your screen while you move around the spreadsheet.

Swiftcalc includes six different types of graph which you can use to display your numerical data. Bar charts, which are commonly used graphs, display values as vertical bars on the graph and Swiftcalc includes two types of these. The vertical charts display bars that run up and down on your screen. The three-dimensional charts are more complex and visually interesting, with bars that appear as solid blocks. More than one set of data can be displayed and compared (such as sales data for different products for months of the year) on 3D charts. A scatter plot (also known as a pointer cluster diagram) shows your data as a series of points on a graph. In a line plot, your data

is represented by dots on the graph. Then the dots are connected to make trends in the data clearer to you. A pie chart can display values using a 'pie' format. The size of each pie 'slice' will vary according to the size of the value represented by that 'slice'. An exploded pie chart is like a pie chart but with the slices separated and looking as if they have been forced from the middle of the pie outward.

All of Swiftcalc's cells default to a 9-character width, but you are able to select a width between 3 and 20 characters, for any column or range of columns. Other features included are Search and Replace, which locates information within your spreadsheet and automatically replaces data at your command; Insert and Delete, which inserts or deletes rows or columns at the press of a key; Formatting - choice of five formats: Decimal (up to 9 places): Exponential Notation; pound sign and commas; Automatic Cursor - automatically moves the cursor in any direction you specify, after each data entry.

Timeworks Swiftcalc 128 is extremely good, particularly easy to use, and ideal for anyone who needs a spreadsheet for serious business use.

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# PACKET RADIO AND COMPUTERS

by Robin Harvey

The link between hobby computing and amateur radio is a very strong one with a good proportion of radio amateurs owning and using computers as part of their hobby. Mike Todd shares both hobbies and has mentioned a number of times in his ICPUG magazine articles that he would like to encourage more on the subject.

The purpose of this offering is to explore another facet of amateur radio which really follows on from Mike's series of articles in so much as it relates to digital communication as against the more widely accepted voice communications aspect of amateur radio. The transmission of digital data has historically been based on a land-line communications path going right back to the early days of Baudot and his telegraphic communication system. There is not much wrong with this because, generally, line-based systems offer a consistent transmission path and once the link is established, reliable communications can be expected.

Applying land line techniques to radio communication paths presents the system with a path that in no way can be described as consistent and therefore using a technique that does not recognise this, will cause problems in the form of less than 100% communications. What makes matters worse is that the communications path may deteriorate causing corruptions that may not be noticed. If the material being transmitted is text of a language you understand, then this may not be too much of a problem. For example receiving:

'If you ade not clear adout how to herform an operation, read the full fescription in yfor reference sention.'

is unlikely to cause any real problems, but what if you were sending data and you received the following:

'20 E4 FF F0 FB A2 92 DD 21 20 F0 85 CA 10 F8 30 ED'

It is unlikely that the errors would become immediately apparent and may only show up when you attempt to use the data.

Radio communications therefore require techniques that allow data to be transmitted in a form that can guarantee to the recipient that what arrives on his desk is accurate. In other words, WHSIWYG (What he sent is what you get). A number of different techniques exist for achieving this ideal.

There are two fundamental techniques for achieving error-free communications. The simplest to achieve is what is called 'Forward Error Correcting' (FEC). In this mode of operation, the transmitted signal is enhanced with extra coding so that the receiving station can not only examine the received code and note if any errors were received, but as long as only one bit of each character code was corrupted, correct the error.

The advantage of this system is that the transmission path is uni-directional and the system is relatively simple to implement. Where it falls down is when the communication path deteriorates beyond just single bit errors or fades out completely, then the transmitting station cannot have any indication that reception is corrupt and incapable of correction.

The second method addresses the problems of the FEC mode and insists that the receiving station acknowledges that the transmission was received correctly and if not, it must be re-transmitted. The system does not perform any miracles by guaranteeing that transmission will always be possible, but it does guarantee that what was received and presented to the recipient was indeed correct. This system is often referred to as 'ARQ', meaning 'Automatic Request-Repeat'.

This system has been used commercially for a number of years on the dubious quality HF bands and more recently by amateurs using a system with the acronym AMTOR (Amateur Microprocessor Telegraphy Over Radio). With low cost computers the complete system can be implemented quite cheaply, less than £50 on the Commodore 64.

AMTOR has been demonstrated as providing very reliable communications on the HF bands and indeed has been optimised for their particular characteristics, i.e. a noisy communication path with a highly variable path loss. One thing it does not provide is high-speed communications, its overall communication rate being not too dissimilar to the original Baudot transmission speed of about one word per second. The reason is simple, it was adequate for the purpose it was required for, mainly hand-typed text. The emergence of commercial and amateur radio users wanting now to send large quantities of data reliably, with the emphasis on reliable, has led to new communication techniques.

Moving data quickly between communicating stations can be achieved but the problem is compounded some what by the fact that we do not now have keyboards talking to keyboards but computers to computers. If all the world were equipped with Commodore 64 computers, then this would create no great technological problem, but alas, there are other types of machine ranging from the . . . you know them as well as I do. So how



does one type of computer talk to another if they are all different?

Enter stage left the White Knight on his charger with the answer. This white knight is the International Standards Organisation (ISO) which decided a number of years ago that a standard was required such that if all computers could implement it, all computers could talk to all other computers. Unbelievably this attempt at setting a world standard has worked with the introduction of an Open System Interconnection (OSI) model which sets out the various protocols to allow this to happen.

The model consists of seven layers which allow computers, programs and terminals to communicate with any others. The basic concept is that the original data is split up into discrete packets and each of the seven layers adds to the packet extra control data to satisfy its particular task. It is not intended to make this article a tutorial on the OSI standard but for interest I will just list the seven layers and their functions:

| DATA INPUT | | DATA OUTPUT |
|---|---|---|
| 7 Application | | Interface to user program |
| 6 Presentation | | Restructures data from format used |
| 5 Session | | Set up and control the communication channel |
| 4 Transport | | Optimises use of network |
| 3 Network | | Provides message routing for data transfer |
| 2 Data Link | | Forms packets, controls flow and error recovery |
| 1 Physical | TRANSMISSION | Encodes/decodes & physically transfers packets |
| SOURCE (Layer 'names') | | DESTINATION (Layer 'functions') |

Notice the words 'network', 'error recovery' and 'message routing' in the above model. This suggests that we are talking something more

grandiose than point-to-point communications but rather the concept of a communication network that includes intelligence, not only to ensure reliable communications, but also includes passing message packets via alternative routes in the network to optimise throughput. This is the heart of the concept and one that offers new challenges to the radio amateur.

Many people believe packet radio to be one of the greatest revolutions in the way amateurs communicate and, as befits the educational and experimental nature of the hobby, there has been no shortage of amateurs who are exploiting these new techniques. Progress so far has been limited to the OSI model layers 1, 2 and 3. It is worth reminding ourselves that the OSI model defines the various interfaces and protocols required for the system to work: what it does not do is tell you how to implement them.

Layer one, the Physical layer, is concerned with the actual transmission path and the interfaces to it. In the amateur's case this is from the output of the source of data, say the Commodore 64, to a modem to convert the DC output of the 64 to audio tones, and hence to the radio transmitter itself. This will include a control wire to switch the transmitter on and off. The actual transmission path is a radio transmission on any of the amateur allocated frequency bands to the recipient receiver. Here the received audio tones are sent to the modem, demodulated into DC pulses, and hence fed to the computer terminal. That is all the physical layer does and does not represent any great technological challenge.

The next layer is the Data Link layer and it is here where most of the real work is done. The purpose of this layer is to define how the data is split up into packets and add the extra information required so that a data-link may be established, maintained and finally released at the close of the communication. Each individual packet (which can be made up of one or more frames) is self-contained and follows a closely defined format.

The final layer to be discussed is the Network layer. Its purpose is to allow a network of interconnected stations or nodes to exist and be recognised such that an originator can address a message to another station on the network with the network deciding and controlling the actual communication path used to get it there. This may not necessarily be a direct path; the packet may be sent via a number of different nodes to obtain the optimum routing. It's important to note that the originator of the message does not need to get involved in deciding routing, he merely throws his addressed message into the



network and forgets it. The network layer will ensure it gets there and the link layer will guarantee that is was received correctly.

So how does all this effect the amateur? If we go back a bit, what we set out to achieve is a reliable communications path for shifting quickly large quantities of data. Some pioneering amateurs in Canada and the USA saw that the package communications being advocated for commercial use could be adapted to satisfy the amateur's need. Implementing the Physical layer presents no great problems, modem modems and transmitter/receivers with interface connectors easily solved this problem.

But what about the next two layers? It was recognised that the establishment of a number of networks would involve a lot of work and to enable amateurs to be involved immediately, it was proposed that the Data-Link layer be implemented first followed by the Network layer. Within the last year or so, virtually all the worlds amateur radio national organisations have adopted the OSI Data-link layer called X.25 Level 2 protocol as the standard. The X.25 standard has been modified to cater for the special needs of amateur radio and is now called AX.25.

If we look at a typical information frame in AX.25, we see that it is made up of seven separate fields. The first field is a FLAG and is just 1 byte containing $7E, ie 01111110 (I am using the more familiar byte rather than the AX.25 preferred term Octet). This flag provides synchronization and identifies the start of the packet. This character is unique and must not appear anywhere else. If it occurs as a legitimate character in the data being sent, that character is modified slightly to make it different.

This is followed by the ADDRESS field and this is where AX.25 differs from the normal commercial standard. Normally this would be just one byte and would contain the destination address of the packet. The AX.25 protocol extends this frame from between 14 and 70 bytes allowing the amateur callsign of the source and destination communicators plus up to eight intermediary call signs. This is a powerful addition because it allows a form of networking to exist before the standardisation of the level 3 network layer. I shall explore this feature a bit later.

The next field is the CONTROL field, and is just one byte which identifies what type of packet this one is as well as a few more supervisory functions. A single-byte field called the Protocol Identifier (PID) comes next and is used to identify the type of Level 3 protocol used if any. This is followed by the INFORMATION field which not surprisingly contains the text of the message or the data

being sent. The length of this field is generally variable but in amateur AX.25, its maximum length is 256 bytes.

The penultimate field is the FRAME CHECK SEQUENCE consisting of two bytes and is similar to a checksum. Checking the received packet with the FCS information will provide a very reliable indication of whether the packet has been received 100% correct. Finally the packet is terminated by another FLAG field identical to the start flag. This is the indicator which starts the complete packet checking sequence.

Clearly, implementing that lot on a home computer is not a task for the faint-hearted but it is helped considerably by the availability of a chip that will look after all the error-checking sequence and protocol conversion for you. In general, all the above is put together in one package called a 'Terminal Node Controller' (TNC). Apart from power, all that is required is a simple interface lead to the transmitter/receiver and an RS 232 connection to a home computer with a simple terminal-emulator program running. One particular offering plugs directly into the cartridge port of the Commodore 64 and, besides implementing all of the packet radio functions, gives normal RTTY, AMTOR and Morse code as an added bonus.

One of the original objectives was to increase the speed of communications from the rather slow Baudot (typically 50 bauds) to something faster. Depending what frequency bands are used, packet radio offers 300 or 1200 bauds. This is of course the communication rate of the signal, not the information rate. The difference is important, especially when one wishes to compare different forms of communication for efficiency. Communication rate is the speed of transmission through the medium in use: 50 baud for example means that each intelligence element (or bit) is 20 milliseconds long. Information rate is the speed at which the data to be transmitted arrives at the destination. Not included in this this figure will be all the control information added to a packet, time spent in acknowledging receipt or otherwise of a packet and many other factors.

Nevertheless the overheads of packet communications need not be that great and in practice, a significant increase in data flow can be achieved. There is one qualifier that has to be mentioned and that comes back to the point that the HF radio bands are not the friendliest from the communicator's point of view. They are subject to noise, signal path fading, interference and just plain overcrowding. When the going gets tough, it is likely that packet radio with its fast data rates will fail to maintain a path before some of the slower, more



resilient types of signal like AMTOR.

That last comment may seem a bit gloomy but it can be overcome in a most efficient way and this leads us back to the networking concept. Let's consider a community of amateurs situated in Gloucestershire who wish to communicate using packet radio. Here most of them will be sufficiently close to not require communications using HF bands but able to use with ease VHF or even UHF amateur bands. These frequencies do not suffer from many of the disadvantages of the HF bands and can sustain high speed communications (1200 bauds) without any real problems. There may be a similar community in Avon and Somerset (there is!) and obviously members of both networks will wish to communicate. This is where the modifications to the Data Link AX.25 layer come in.

Let's assume that my amateur radio station, call sign G4BBR, wishes to establish a connection with a fimed, call sign G2AFD. He is well in range and I can simply establish the connection by sending the following command into the TNC:

CONNECT G2AFD (or abbreviated, C G2AFD)

Note that I did not need to enter my call sign, the TNC has been previously told who I am. In this case the TNC will switch on my transmitter and send out a 'connect' packet which the G2AFD system will receive, if it's switched on, and reply with a 'connected' acknowledgement. That's all that is required and I am now free to exchange data. However, it may be that I wish to communicate with a station in Crewkerne, call sign G3CQE, who is out of my range but who is in the range of G2AFD. I now modify my command to the following:

CONNECT G3CQE VIA G2AFD (or C G3CQE V G2AFD)

In this case the G2AFD system will receive my message, acknowledge that it has received it correctly, and then proceed to send its connect message to G3CQE. Once that is established, the station at G2AFD acts as what is called a 'digipeater' (Digital Repeater) and passes all messages between me and G3CQE. That is not the end of it, because the system allows a connection to be established using up to eight digipeaters in cascade.

When two stations establish a contact direct or via a digipeater, all transmissions share a common frequency. This may seem strange or even impossible but because each packet is quite short in time, typically less than a second, there is plenty of time for other users to use the time intervals between other stations packets. The AX.25 system senses when another transmitter is using the frequency and only transmits when

it detects the frequency is free. Obviously life is not that easy and occasionally two stations will try and access the same frequency at the same time with the result that both will fail. The receiving stations will be unable to acknowledge the reception of good packets and the two transmitters will repeat their packets. To avoid further simultaneous collision, it is normal for transmitters to wait a random period of time before re-transmitting repeated packets of data. Each of the links between digipeaters is at 1200 bauds and as each link is relatively short and reliable, efficient connections can be maintained with ease over quite long distances.

In this country it's now possible to link station over most of the South-West to the Midlands and in the USA, there are established digipeaters from North to South California and from Florida to New York on the East coast. Well-established reliable digipeater links are not restrained to 1200 bauds and for maximum efficiency, can run at much higher speeds, typically 9600 bauds.

HF communications allow world-wide coverage but this is not a barrier to packet radio because it is possible to link networks separated by long distances by HF radio using the more resilient but slower 300 baud speed via a 'Gateway'. It does not finish there. The next generation of amateur satellites (yes, there are a number of them) will contain Digital Communication Experiment (DCE) packages that will allow Gateways to send packet data at high speed to the satellite for either direct retransmission or for down-loading when the orbiting satellite is over another continent. This is not a pipe dream, it has been done with experimental packages on existing amateur satellites.

Packet radio is a rather new innovation and it clearly will develop at quite a prolific rate. One area that is now being addressed is the implementation of the level 3 OSI protocol. This network level should avoid the need for existing users to specify the routing of their packets because a true network system will allow a community of amateurs to set up their own network with the inclusion of a system allowing one to simply address your destination contact within the network, and the network will automatically do the routing for you. An extension of this will be to allow different network communities to communicate via Gateways.

One area that has not yet been mentioned is cost, and it is here that one is in for a big surprise. An amateur with a transmitter/receiver and a home computer that can act as a terminal with an RS232 interface, needs only to buy a Terminal Node Controller to be an active 'packeteer'. If you have a soldering iron, kits are available for a TNC



at under £150 or just over £200 assembled for you.

I said in the very beginning of this article that the link between computers and amateur radio was a strong one and I think the exploitation of packet radio well demonstrates the level of sophistication that has already been achieved. Quite what will exist in 10 years time is perhaps the title of another article by someone with a vivid imagination and a crystal ball.

--oOo--

## THE MPS1000 WITH THE AMIGA

by Brian Fowler

I recently took delivery of an MPS 1000, which I chose mainly for its ability to work both with the 64 and the Amiga. With the 64 it is a joy to use, not only much faster than the old 801, but also producing a much better quality of hard copy.

With the Amiga, I found the printer worked fine using notepad - whether in draft mode or using the Amiga's own fonts. I loaded up BASIC - and disaster struck! All I could get from the printer was listings or straightforward printing - no access to all the printer's features such as doublestrike, bold, margin settings and the rest. I spent hours typing in ESCape codes as in the printer manual. I read and re-read the AmigaBasic manual - all to no avail. Eventually I phoned CBM's technical support people (now based at Maidenhead). All was revealed . . .

A very helpful man at Commodore kindly sent three or four sheets of explanations on using printers with Amiga. It turns out that the Amiga has its own list of codes for printer control. When one of these is received the Amiga uses the Preferences setting to convert to a code understood by the target printer. All good stuff! Well, so much for the theory, but would it work?

No. Not only do you have to use the Amiga's own codes, but you can't use LPRINT to send them. The Amiga only understands these codes if you open a file to the printer and use PRINT# (familiar territory?) I opened a file, as shown below. Now would it work?

Yes, it did, and now the house is full of listing paper adorned with every possible combination of type from the printer.

I found it a lot easier to write a SUB for the most-used facilities, and I include a listing of the SUBs I use, together with a short demo routine:

```
' PrinterSubs
' Brian Fowler    17/10/86
' save as "PrinterSubs",a
' and MERGE with your programs
' - works with MPS1000
' - should work with others

SUB lpsetup STATIC
  SHARED tumon,tumoff,esc$
  OPEN#"prt:" FOR#OUTPUT#AS#199 'unlikely this number in use !
  tumon=1
  tumoff=0
  esc$=CHR$(27)+CHR$(91)
END SUB

SUB lpfinish STATIC
  PRINT#1,""
  CLOSE 199
END SUB

SUB page STATIC
  PRINT#199,CHR$(12)
END SUB

SUB type STATIC
  endchar=0
  last$=RIGHT$(text$,1)
  IF last$=";" THEN text$=LEFT$(text$,LEN(text$)-1):endchar=1
  IF#last$="," THEN text$=LEFT$(text$,LEN(text$)-1):endchar=2
  IF endchar=1 THEN PRINT#199,text$;
  IF endchar=2 THEN#PRINT#199,text$,
  IF endchar=0 THEN PRINT#199,text$
END SUB

SUB lpreset STATIC
  PRINT#199,CHR$(27)+CHR$(99)
END SUB

SUB lpinit STATIC
  PRINT#199,CHR$(27)+CHR$(35)+CHR$(49)
END SUB

SUB lf STATIC
  PRINT#199,CHR$(27)+CHR$(68)
END SUB

SUB normalchar STATIC
  SHARED esc$
  PRINT#199,esc$+CHR$(48)+CHR$(109)
END SUB
```



```
SUB italics (state) STATIC
  SHARED esc$
  IF state=1 THEN PRINT#199,esc$;CHR$(51);CHR$(109);
  IF state=0 THEN PRINT#199,esc$;CHR$(50);CHR$(51);CHR$(109);
END SUB

SUB underline (state) STATIC
  SHARED esc$
  IF state=1 THEN PRINT#199,esc$,CHR$(52);CHR$(109);
  IF state=0 THEN PRINT#199,esc$;CHR$(50);CHR$(52);CHR$(109);
END SUB

SUB boldface (state) STATIC
  SHARED esc$
  IF state=1 THEN PRINT#199,esc$;CHR$(49);CHR$(109);
  IF state=0 THEN PRINT#199,esc$,CHR$(50);CHR$(50);CHR$(109);
END SUB

SUB elite (state) STATIC
  SHARED esc$
  IF state=1 THEN PRINT#199,esc$;CHR$(50);CHR$(119);
  IF state=0 THEN PRINT#199,esc$;CHR$(49);CHR$(119);
END SUB

SUB condensed (state) STATIC
  SHARED esc$
  IF state=1 THEN PRINT#199,CHR$(15);
  IF state=0 THEN PRINT#199,CHR$(18);
END SUB

SUB enlarged (state) STATIC
  SHARED esc$
  IF state=1 THEN PRINT#199,esc$;CHR$(54);CHR$(119);
  IF state=0 THEN PRINT#199,esc$;CHR$(53);CHR$(119);
END SUB

SUB shadow (state) STATIC
  SHARED esc$
  IF state=1 THEN PRINT#199,esc$;CHR$(54);CHR$(34);CHR$(122);
  IF state=0 THEN PRINT#199,esc$;CHR$(53);CHR$(34);CHR$(122);
END SUB

SUB doublestrike (state) STATIC
  SHARED esc$
  IF state=1 THEN PRINT#199,esc$,CHR$(52);CHR$(34);CHR$(122);
  IF state=0 THEN PRINT#199,esc$;CHR$(51);CHR$(34);CHR$(122);
END SUB

SUB NLQ (state) STATIC
  SHARED esc$
  IF state=1 THEN PRINT#199,esc$,CHR$(50);CHR$(34);CHR$(122);
```

```
  IF state=0 THEN PRINT#199,esc$;CHR$(49);CHR$(34);CHR$(122);
END SUB

SUB superscript (state) STATIC
  SHARED esc$
  IF state=1 THEN PRINT#199,esc$,CHR$(50);CHR$(118);
  IF state=0 THEN PRINT#199,esc$;CHR$(49);CHR$(118);
END SUB

SUB subscript (state) STATIC
  SHARED esc$
  IF state=1 THEN PRINT#199,esc$,CHR$(52);CHR$(118);
  IF state=0 THEN PRINT#199,esc$;CHR$(51);CHR$(118);
END SUB

SUB line8 (state) STATIC
  SHARED esc$
  PRINT#199,esc$,CHR$(48);CHR$(122);
END SUB

SUB line6 (state) STATIC
  SHARED esc$
  PRINT#199,esc$,CHR$(49);CHR$(122);
END SUB

SUB formlength (lines) STATIC
  SHARED esc$
  DIM l$(3)
  l$=STR$(lines)
  FOR i = 1 to LEN(l$)
    l$(i)=MID$(l$,i,1)
  next
  PRINT#199,esc$;l$(2);l$(3);CHR$(116);
END SUB

SUB skipperf (howmany) STATIC
  IF howmany<0 THEN EXIT SUB
  IF howmany>9 THEN EXIT SUB
  SHARED esc$
  IF howmany=0 THEN PRINT#199,esc$;CHR$(48);CHR$(113);
  IF howmany)>0 THEN PRINT#199,esc$;CHR$(48+howmany);CHR$(113);
END SUB

SUB margin (left,right) STATIC
  SHARED esc$
  DIM l$(3),r$(3)
  l$=STR$(left)
  FOR i = 1 to LEN(l$)
    l$(i)=MID$(l$,i,1)
  next
  r$=STR$(right)
```



```
  FOR i = 1 to LEN(r$)
    r$(i)=MID$(r$,i,1)
  next
  PRINT#199,esc$;l$(2);l$(3);CHR$(59);r$(2);r$(3);CHR$(115);
END SUB

SUB ClearMargins STATIC
  PRINT#199,CHR$(27);CHR$(35);CHR$(51);
END SUB

'*************************
'
'  test prog starts here
'
'*************************

DEFINT tumon,tumoff,state,left,right,howmany ' saves all those %'s

lpsetup                          'get ready
  a$="This is a test string. "   '
Margin 15,25                     'set left margin=15, right=25
  type a$                        '
elite tumon                      'change to elite typeface.
  type a$                        '
ClearMargins                     'Clear margins to defaults.
doublestrike 1                   ' and engage doublestrike mode
  type a$+";"                    ' equivalent to
                                 'LPRINT a$;
superscript 1                    ' print as superscript
  type a$+";"                    '
superscript tumoff               'dispense with superscript.
  type a$                        '
condensed 1                      'change to condensed type
  type a$                        '
lpfinish                         ' close file & empty printer
buffer

END
```

Note that some facilities (e.g. italics) are not supported by the MPS 1000, but I use them as I also have access to an FX-80.

The above list is not exhaustive; you can easily add to it using the codes contained in the CBM bulletin.

--oOo--

## NETWORK NEWS

by Brian Grainger

Not very much news to report this time I am afraid. At the AGM a new Prestel Editor, Jim Clavier, was appointed and since then I have been going through the process of preparing him for editing. Jim's credentials are that he was already a Prestel Editor and lived in London where the phone calls to the editing computer are cheap! Hopefully Jim will soon be underway and providing a more frequent update of pages.

I think I have mentioned in the past the British Rail timetables on Prestel which are really useful. On passing through Kings Cross recently I realised why. In the Travel Centre one can find a viewdata terminal with the exact same database as on Prestel available for travellers' use. It includes a printing facility so the traveller can print off their own timetable from the viewdata pages. Perhaps British Rail is getting there after all!

A mention of future Prestel enhancements is perhaps in order. The next one likely to be seen is the keyword search capability. This enables one to go to certain pages by description rather than number. For example the front page of ICPUG will be obtained by keying *ICPUG# rather than *8102132#. This mimics a facility that has been available on Compunet for a while but is very welcome. Some Prestel computers already have this facility although it is restricted to certain classes of users. Full implementation is expected by the end of the year. Another enhancement mentioned on the Micronet pages a while back was a link to Telecom Gold. Now this would be very useful and if we all have Gold mailboxes it will allow much improved facilities over mailbox. I have no idea of implementation timescale and more importantly cost but I await this development with keen interest.

Not much else to say, really, except to thank all those who responded to my request for information on the RS232 on the 128. It shows you are still reading the pages despite the slow updating cycle. Many thanks.

--oOo--



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## ROUND THE REGIONS

by Brian Wise

I have taken over from Tim Arnot and have been checking our regional records. If you are a regional organiser, and I have not yet contacted you, please would you supply me with the following information:

Name and address of regional contact with telephone number and, if possible, and systel or Compunet IDs; location of meeting place with day and time; also your National membership number.

For example, I am the membership secretary of ICPUG South East Region, so information is as follows:- Contact Brian Wise, 17 Knighton Close, South Croydon, Surrey CR2 6DP. Telephone: 01-668 3017; systel: 016683017; cnet BW2; we meet at the Charles Darwin School, Jail Lane, Biggin Hill, Kent during school time and at Biggin Hill Library when the school is closed, on every Thursday except the 1st Thursday in the month, at 7.30pm; my ICPUG National number is 310453.

I hope to keep all regional organisers up to date with reports on committee meetings, and on any help we can supply. I have attached a report by David Murray on the Canterbury Group, which appeared in South East's newsletter; if any organiser would like to write a similar piece, it will be published in the national newsletter, and with any luck it will give ideas to others and help in obtaining new members for local regional groups.

## CANTERBURY TALES

by David Murray

How the Canterbury Group formed from an early meeting at Biggin Hill is past history, but it may be of interest to give details of our present strength. We are a small group, with some two dozen members who regularly attend our meetings at the university, where a wide range of topics are demonstrated and discussed. Visits to other establishments are arranged to see the systems being used.

Our most recent outing was a evening at the Kent and Canterbury Hospital to see the intensive use of Commodore machines (from 2000 to 8000's) in the production of everything from labels to the calculation of dispensing quantities for patients on drip-feeding, allowing for body weight and daily loss of fluids. Other machines were in use for stock control and economic ordering of supplies, with costing, overheads and other incidentals being included. How we managed with



card indexes and bits of paper in the old days is still a wonder to me.

Our group's interest covers the whole range of Commodore machines and PC-compatibles, while the Amiga is still a star on the horizon which we watch with interest.

Our meetings are held on the first Wednesday of the month, from October to June, from 7.30pm to 10.30pm, in the Physics Laboratory of the University of Kent at Canterbury. All ICPUG members are very welcome to drop in for any meeting and if you are unsure of our location, a call to Ron Moseley (Secretary) 0622-37643, or myself, David Murray 0227-274962, to confirm date, time and directions is all that is required.

--oOo--

## PC LIBRARY

by Peter Reynolds

The library is flourishing and now stands at 65 'volumes' as our American benefactors like to call their disks of public domain software. More programs are always welcome provided that we have not got them already, they have adequate documentation on disk and the donor knows that they work and can be interesting, informative, useful or amusing.

All the files in the present ICPUG collection are believed to work on IBM PCs and most clones: any exceptions that come to light will (given enough help) either be remedied, excised or given a warning notice. There is plenty of work to be done in such areas as Utilities where programs often overlap or duplicate in function and new collections wait to be compiled from the best. The popular disk 5 is such a collection but already there are better routines deserving to oust some ageing favourites: let's have your nominations for the component programs of a good disk for a) BASIC utilities b) DOS 2 utilities c) Hard disk utilities. No prize is offered but a good winner will be recognized in the naming of the disk. To make certain of such fame, why not submit your choice as a collection on disk, with helpful comment in a README file?. You can draw from ICPUG's or any other public domain source.

Copies of library disks are free to members quoting current membership number and sending suitable disks (double-sided, formatted with 9 sectors per track: ie the usual DOS 2 standard) and return postage and decent mailing material. Order by disk number and include labels if

you want to know what is on each disk. The ration is two at a time, with occasional exceptions for members who have helped the library in some way or where a piece of software runs to more than two disks.

With the increasing activity the library disks have been categorized alphabetically by apparent type, eg A for Assemblers and hackers' interests, C for Comms and radio interests and three new library copiers hold approximately one-third each. Write to:

David Murray (for copies in categories A to D), at
8 Enticott Close, Tankerton, Whitstable, Kent CT5 3ET

Peter Crowder (for E to O) at
27 Crawford Drive, Liverpool L15 8AE

David Harrow (for P to Z and commercial demo disks) at
28 Phoenix Drive, Wateringbury, Maidstone, Kent ME18 5DR

Peter Reynolds (with comment, requests, offers of help/ software) at
65 Claremont Road, Tunbridge Wells, Kent TN1 1TE

While PC library affairs remain so lively the arrangements are liable to change, so check for administrative alterations as well as disk additions to be announced in each edition of the Newsletter in 1987.

Some commercial demo disks are held, experimentally, by David Harrow. We shall decide whether to continue in the light of members' reactions. Most of the demos are simply slide shows, an alternative to looking at a brochure, and have little intrinsic value except as samples of screen techniques usually unrelated to the software being described. Chartmaster demo includes animation and graphics apparently beyond the capability of the programs on offer. But Superproject, Dataease, Multiplan and Supercalc 4 allow the user some free interaction while Microchart is the full package overwritten with a spoiler message on the charts produced.

Nearly all the other disks come from one of the major libraries of public domain software for PCs, [PC-SIG, PC-BLUE (the New York ACC), PCBBUK] and the full lists for these libraries, numbering more than 1000, will be found on disks 36 to 39 in group O (Peter Crowder). It is hoped to show those library references for our disks on a future occasion in the Newsletter or even, given the help, to prepare our own library catalogue disk.

The present list of disks held is as follows:



PC-LIBAZ Public domain software for PCs — November 1986

| Disk No. | | Title | Rating | Contents |
|---|---|---|---|---|
| Available from DAVID MURRAY | | | | |
| 8 | A | Chasm | * | CHeap ASseMbler |
| 11 | A | Screen editor | | For programs: * graphics doodler |
| 34 | A | PC-Sprint | | Speed system clock (board mod) |
| 57 | A | Computer security | | Enciphering engine |
| 50 | B | Expanding lister | | BASIC listing, indented |
| 65 | B | BASIC aids | | BASIC utilities |
| 4 | C | PC-Talk | | Comms |
| 28 | C | Printer QM sort | | For QModem data |
| 47 | C | BBS | | Bulletin board pgms for radio hams |
| 48 | C | Kermit | | Comms |
| 49 | C | Procomm1 | | Major comms driver |
| 61 | C | Radio1 | | For radio hams: * satellite pics |
| 5 | D | Best utilities | * | DOS aids, now incl PCBOSS |
| 12 | D | Ultra utilities | * | Like Norton utils: recover etc |
| 21 | D | Personal utils | | Calendar alarm, letters, recipes |
| 25 | D | Deskmate | | Mem-resident clock, calc &c |
| 26 | D | DOS prompter | | On-line syntax & help (*Pascal) |
| 27 | D | DOS utils2 | | Several of UK origin |
| 29 | D | Listmate | | Various routines, incl BIGCALC |
| 40 | D | Housekeeper | | Copying, fast format disks &c |
| 51 | D | Automenu | | Front-end menu for DOS |
| 52 | D | Batch extension | | Auto-loader &c |
| 54 | D | V-filer | * | Cweep & front-end loader |
| Available from PETER CROWDER | | | | |
| 9 | E | PC Professor | | BASIC tutorial |
| 10 | E | Maths tutor | | US school grades |
| 22 | E | Typing tutor | | Practise QWERTY keys |
| 3 | F | PC-File | | Database |
| 7 | F | Pbase | | DBMS, dBIII flowchart, Recipe prgm |
| 16 | F | 1800 recipe | | Test data for disk 3 F |
| 23 | F | File express | | DBMS, 2 disks |
| 24 | F | " | | 2nd disk |
| 6 | H | Genealogy2 | | Family tree, new 11/86 |
| 59 | H | Flight simulator | | 747 jumbo |
| 30 | L | Turbo Pascal pgms | | From book "Complete Turbo Pascal" |
| 32 | L | Expert Q & A | | Pseudo AI inference engine |
| 62 | L | Prolog | | Prolog & Uniforth compilers |
| 63 | L | XLISP | | List processor for AI |
| 64 | L | Ladybug | | LOGO (early version) |
| 13 | O | DC4 | | Disk catalogue system |
| 36 | O | PC-SIG1 catalog | * | Cat 1-479 +T.COM to FIND. |
| 37 | O | PC-SIG2 catalog | * | Cat 300-572 +T.COM to SORT-dir. |
| 38 | O | PC-Blue catalog | * | Cat to 220 +T.COM to mass-copy |
| 39 | O | PCBBUK catalogu | * | Cat to 270 +T.COM |
| 55 | O | Dir analysis | | Also compacts screen dumps |
| Available from DAVID HARROW | | | | |
| 14 | R | Adventure | * | The Colossal Cave classic |
| 33 | R | Pinball3 | | 3 "Construction set" games |
| 53 | R | Fansi console | | Tricky hackers' programs |
| 58 | R | Adventure compiler | | Game construction set |
| 2 | S | PC-Calc | | Spreadsheet |
| 41 | S | Analyticalc | | Spreadsheet * (all 3 disks needed) |
| 42 | S | Analyticalc | | 2nd disk |

| | | | | |
|---|---|---|---|---|
| 43 | S | Analyticalc | | 3rd disk |
| 35 | T | PC Tips! | | 70 tips, eg "organising disks" |
| 1 | W | PC-Write v2.6 | + | Popular word processor |
| 15 | W | PC-Outline | + | Ideas organizer/ wordpro front end |
| 19 | W | PC-Spell | | Spelling checker <1500 ASCII words |
| 17 | X | dBaseIII progrms | | Home inventory; Cub pack records |
| 18 | X | 123 items | | Print formulas &c |
| 20 | X | PAM's Home budget | | 123 template, personal accnts mngr |
| 31 | X | Sidewriter | | Sideways printer for 123 |
| 44 | Y | Freeway accounts | | UK payroll + Sales & Purchases |
| 45 | Y | Freeway accounts | | 2nd disk |
| 46 | Y | Freeway accounts | | 3rd disk |
| 56 | Z | Survey soft | | For land surveyors |
| 60 | Z | EZ forms | | Design & print forms? |

LEGEND

| | |
|---|---|
| * | Categories |
| A | Assembler, hackers' tools |
| B | BASIC utilities &c |
| C | Comms, BBS, interfacing, radio |
| D | DOS aids, front-end & memory-resident prgms |
| E | Education & training |
| F | Filing, DBMS |
| G | Graphics (plots, pics & CAD) |
| H | Hobbies (eg genealogy, cooking) |
| L | Languages (eg Prolog, LISP) |
| O | Organizers for disks & directories |
| P | Personal & domestic finance (see 20 X) |
| R | Recreational (games, music) |
| S | Spreadsheets &c |
| T | Tips & articles (text) |
| W | Wordprocessors, printers &c |
| X | Add-ons for commercial 123, dBase etc |
| Y | Business accounts & finance |
| Z | Other business applications |

Ratings + Indicates users' acclaim
^ .. possible installation problems

COMMERCIAL DEMO DISKS (Available from David Harrow)

| | | | |
|---|---|---|---|
| CD1 | + | Microchart | (Type MC2 & change default drive to A) |
| CD2 | ^ | Supercalc 3 | (DEMOC or DEMOBW) |
| CD3 | | Supercalc 4 (2) | (SC4) 2 disks |
| CD4 | | GEM | (DEMO) |
| CD5 | ^ | SAGE | (SAGEDEMO) &c |
| CD6 | | Wordstar 2000 | (WS2COLOR or WS2MONO) |
| CD7 | | Multimate | (DEMO) |
| CD8 | | Multiplan | (DEMO) |
| CD9 | | Easy | (TUTOR) |
| CD10 | ^ | Superproject | (SPJDEMO) |
| CD11 | | Dataease | (DEMORUN) |



## COMMENTARY

Ratings indicate with a + the disks getting some sort of acclaim. No mark is shown for unfavourable comment but those programs are earmarked for dropping in due course, either when a better one comes along (Genealogy2 has ousted the first genealogy disk) or when, in due course, there is evidently no demand to retain them.

Documentation is often poor and sometimes frustratingly verbose, especially with some user-supported programs like PC-Write, PC-Calc and PC-File. The longwindedness may be the author's way of encouraging users to pay for registration, which is sometimes rewarded with a printed manual as well as an improved version of the software. It should be possible to compose succinct instructions for most programs on two or three pages, to go on the disk: any volunteers?

For an example of a program needing no extemal documentation see PCBOSS, currently my favourite DOS utility, now on disk 5D. One member, writing favourably of 5D, finds he also needs V-filer on 54D.

In the Comms area there are now two programs reputed to help computer talk to computer, on disks 48 and 49. The latter, Procomm, is said to be reviewed in the November 1986 issue of PC World. And disks 47 and 61 should interest radio hams.

Members interested in different programming languages should look at disks 62 to 64 for Prolog, Forth, Lisp and Logo: please report on the quality and usefulness of this free software, both to guide others and possible to influence the 'purchase' of other public domain software if and when it can be found. Note that there is no Pascal compiler in the library yet: disk 30 just holds [programs from a Pascal book.

The Recreational disks are a poor relation to the 64 library as far as colour and sound go. Pinball, disk 33, uses graphics to represent a machine and the two Shift keys operate the flippers. Fansi console (53) is for hackers only: some library lists describe this as a DOS utility.

Analyticalc runs to three disks and in spite of suggestions that disks one and two are mutually exclusive you need all three in order to get all the facilities. There seem to be many features but the program is tedious (compared with commercial spreadsheets) to set up and I never really got into it. Nor could I see that there were facilities for importing spreadsheet and other files from similar programs: hopefully someone will write to say that I am wrong, for virtually every spreadsheet program worth its salt has Import and Export facilities. Without them users would be locked into the first system they bought for years on end.

PC-Outline is enthusiastically acclaimed by Guy Kewney, who writes for PCW. He implies that most of his journalistic work is composed on it, but it seems to be necessary to use a normal wordprocessor to print out the text. Disk 15 apparently resembles Brain-storm or the outlining facility included in some more sophisticated wordpro packages.

--oOo--

## COMPUNET REFUNDS

You may have wondered why Compunet have given you a refund, and even why they have made a small administration charge for making this refund. The explanation concems Compunet's battle with the VATman to get VAT excluded from your subscriptions. Compunet were not at all pleased to find that HM Customs & Excise demanded payment of 15% VAT on all subscriptions.

After a long long battle the VATman agreed with Compunet to exclude VAT from subscriptions. Therefore future subscriptions will not carry the 15% charge. So far so good. But what about the VAT that had already been collected from you? The usual way for each member to claim back this VAT would be to go through the dealer from whom they bought their modem (complete with subscriptions), who in tum would need to go to Commodore (UK) Ltd, who in their tum would have to go and do battle with their own VATman in Corby. Then any refund would return along the same route to you less any costs incurred by CBM and your dealer.

However, Compunet negotiated with their VATman for a bulk refund for all subscribers. Eventually this principle was accepted and Compunet employed someone to calculate the amounts due to each subscriber, agree these with the VATman, and adjust the subscribers' accounts. The cost of this work was divided equally between the subscribers and Compunet with the result that each subscriber due for a refund was charged £1.30 plus VAT (no way to get out of this VAT charge) equal to £1.50 as an administration fee.

Therefore your recent account was subject to a credit of either £3.00 or £4.50 less a total of £1.50 - made up of £1.30 plus VAT. We think that Compunet have done well to get a few bob back for subscribers in this way. The other route was tortuous and could well have been less, or even non-productive.

JB

--oOo--



## 1520 GROUP RESURRECTION

by WGC Austin

Commodore, true-to-form, and one might even suspect true-to-strategy, (see Newsletter,Vol 8, No 2, p151), got it all wrong when they first released the 1520. It had a number and not a name, it was overpriced and undersupported and was advertised for the wrong market. Now CBM are no longer interested in the plotters and one can buy them for under £50 from B**ts. So why not get one to play around with?

As the hard-copy-end of a wordprocessor it might score a generous 1.9E-39 on the scale 0 to 1000. Oh, yes! you can interface it (as they say) with EasyScript and Superscript if you do some juggling and set the plotter prior to using it in the program ('The 1520 Printer/Plotter and Easy Script', Newsletter Vol 7, No 6, p 439). But it is O-h s-o s-l-o-w! The resulting copy would hardly strike fear into your commercial competitors or get you that once-in-a-lifetime job. A cringeing begging letter to rich Aunt Letitia, written on the plotter, may prove slighly more efficacious than one printed by the cheapest of matrix printers dotting its way across perforated paper, purchased from the bathroom accessories section of the local cheapo mart. Well, what sort of letter wouldn't?

As a lister of programs it is slightly better, provided you are willing to set it listing whilst you go off to prepare a 14-course meal for 12 colleagues from the office, sit down to eat it and drink a few bottles of the home brew before collecting the resultant hard copy. It is better than rapidly scrolling screens of 40-column wide ephemeral characters written by electron beams on a cathode-ray tube - Just! Many program listings in monthly magazines have obviously been printed by 1520s and they do look better than many produced by cheap matrix printers.

But as a plotter of scattergraphs, line graphs, bar graphs, pie charts, all decorated with four-colour shadings of horizontal, slanting or vertical pecked or firm lines, it is superb. When plotted in red it will give very good photocopies for inclusion in reports.

It can be programmed to plot mathematical functions, show the influence of harmonics on sine waves and print seasonally adjusted or smoothed data straight from the raw observed data. And it is good at producing a 'what if . . .' from data massaged by an optimistic program.

There are programs that produce 3D 'wire diagrams' and those that display different perspectives.

For those who wish to enter into the consultancy field, advising rich ladies on how to conduct their affair(e)s, we have a program to plot biorhythms and to print out a weightwatcher's chart!

If, like me, you had 15 Computer Enthusiasts' Diary's for 1985 and having dropped the hints to the relatives, you have now got 15 day-glo green ties but no diary this year, do not despair. We have a program that will print out a calendar for you. This has been market tested with a class of 6-year-olds and they have used it to print 1698 (sic) calendars for their (sick) parents, so it has to be foolproof, 'cos they are no fools!

Lastly, but not leastly, (leave the best selling point to the end, they tell me ) it is a fun thing! 'Do not get out of jail', all you who think you purchased that roomful of hardware not to play around with it, even a teeny bit!

Now for the punch line. We have tried to resurrect the 1520 Users' Group. We have a disk of varied programs and we would like a lot more. So we are making you an offer which we hope you will not refuse. We will send you our 1520 programs in return for your 1520 programs. In that way we will have a lot more to send to you in return for ones which you will send to us and . . .

If you want a copy of our disk please send a diskette that has a program on it, or at least one that has been formatted, together with return packing and postage to: WGC Austin, School of Geography, Faculty of Humanities, Newcastle Polytechnic, Lipman Building, Sandyford Rd, Newcastle upon Tyne, NE1 8ST.

If you would like up to 4 programs on tape please send a suitable cassette, together with names of programs and return packing and postage to: John Bentley, 38 Conway Rd, Taplow, Maidenhead, Berks SL6 0LD.

```
0 "1520 GROUP DISK1" 01 2a      3   "geometric design" prg
                                3   "conc - circles"   prg
    "* 64 UTILITIES *"          3   "conc - squares"   prg
6   "menu"           prg        6   "rotating figure"  prg
6   "qdsys"          prg        6   "changing form"    prg
2   "qd"             prg        5   "hatching"         prg
1   "c64 wedge"      prg        12  "bar-graph 1 demo" prg
4   "dos 5.1"        prg        15  "bar-graph 2 demo" prg
0   "* MANUAL PROGS *" seq      0   "*DISK UTILITIES*" seq
4   "cone"           prg        10  "directory print"  prg
3   "spiral"         prg        10  "virtual dir"      prg
```



```
7   "idcatalog"          prg        "* DATA BASES *"
    "*CALENDAR PROGS*"   seq   31   "music file"        prg
15  "calendar print"     prg   9    "music data"        seq
19  "1752 calendar"      prg   15   "run-cost"          prg
    "*  GRAPHICS  *"             "* MATHEMATICAL*"
8   "wineglass"          prg   4    "sine-wave demo"    prg
4   "screendump basic"   prg   11   "harmonicsjb"       prg
3   "screendump mcode"   prg   12   "poppyramid"        prg
18  "casslabels"         prg   11   "lissajous"         prg
7   "1520charset"        prg   3    "funcplot"          prg
    "*HUMAN INTEREST*"           "*POST MENU ADDS*"
17  "biorhythms"         prg   6    "piegraph"          prg
29  "genealogy"          prg   3    "triangles.hb"      prg
61  "weight watchers"    prg   26   "perspect"          prg
```

BREAKING AND EXITING

by Joe Bowman

A member who helped out on the club stand at the Manchester Computer Show found himself in a rather embarrassing situation. He - for reasons that will become obvious he must remain nameless - had parked his car in the UMIST car park on the Saturday morning. After the show finished that evening, and the usual visit to a place of refreshment, the luckless helper returned to the car park to find it had been closed for one-and-a-half hours.

He considered all the usual options: contact the owners, return home by train, stay overnight in a hotel, lift the barrier, zig-zag round the barriers. After discounting these for various reasons, he had a sudden brainwave. The correct tools were quickly found, and in rapid succession the barrier was dismantled, his car was extricated and the barrier was remantled (as this word is as amazing as the story itself it has not been edited out - Ed). He would like to apologise to the owners in person but is afraid of being arrested for Breaking & Exiting!

--oOo--

## ACC COMMS NEWS

by Len Stuart

(ICPUG is a leading member of the Association of Computer Clubs, a National forum which allows discussion between, and a unified voice for, the many and varied user groups and special interest groups in the amateur computing world).

### Clubspot

Over the last few months the size and popularity of the ACC Prestel Database, Clubspot 810, has rapidly increased and it is now at number three in the league table of Information Providers with over one million accesses per month. New areas recently introduced include Science Fiction, Photography and Scouts, together with a greatly increased Amateur Radio area of over 600 frames.

### PC Gateway

At the invitation of Prestel, ACC visited Birmingham recently to see a demonstration of the new Gateway 2.3 which enables a PC XT or AT to act as a gateway into Prestel. An interesting facility of this package is the possibility of running 80-column scrolling software and having the gateway convert it to 40 columns for Prestel users. Another, even more interesting, possibility is to ignore the Viewdata format completely and use Prestel purely as the distribution medium. It is possible that the ACC will be operating such a Gateway. If you have any ideas to contribute, then contact Len Stuart as soon as possible (see end of article for Mailboxes). Possibilities include keyword search databases, private 'members only' areas, differential charging for members and non-members and many other facilities that are not available on the main Prestel database. Remember, that once you are through the Gateway, any type of microcomputer can be attached and any type of software can be run.

### FIDO

The ACC is currently running two systems on machines donated by Sperry. Both are linked into the international FIDO mail network. The first of these, Log-on-the-Tyne, is being run by ComputerTown North East on 091-477 3339; V21 and V23. The second one is being run by the Stockton Amateur Computer Club on 0642 605838 from 6pm to 6am; V21 only at present.



### Common Ground

This public domain conferencing system has been set-up by NetReach with help from the ACC and Paxdata. Full details of Common Ground are in the December 1985 issue of Byte (p239), an issue devoted to computer conferencing; or try it yourself on 01-928 7960. By the time you read this, however, it is possible that Conexus will be running. This is a far more advanced system with facilities for mail, conferences, bulletin boards, filing and much more besides.

### Caucus

This is a newly available conferencing system for the PC, based on Confer 2 as used by Metanet. A unique feature is the availability of multi-user versions as well - in fact up to 80 simultaneous users of a VAX8600. A single-user version has been installed on one of the ACC Sperrys and is now available on 0403 752492.

### Mailboxes for Len Stuart

Prestel - 013373747
Gold/Dialcom/Microlink - 83:JNL007
JANET/ARPAnet - LEHS@ALVEY or 620@NJIT-EIES.MAILNET.
Common Ground, Caucus, Conexus, Geonet - Len

--oOo--

★★★ *NEWSFLASH* ★★★

## PLUS 4/C16 LIBRARY LAUNCH

Richard G Hunt, forthwrite member of ICPUG South East Regional Group, says 'A library of Plus 4/C-16 programs is now officially launched . . . I have created three diskettes so far, none of which is by any means full but at least it's a start. The three sub-titles are Utilities, Games and Other. The usual conditions apply to those wishing copies.'
This library remains under the terms of all other ICPUG libraries with the usual disclaimer relating to public domain material.

Here are the directories as they stand.

```
0 "plus4 lib/games " 01 2a
56   "conqueror"        prg
24   "manilla"          prg
43   "pontoon"          prg
18   "blackjack!"       prg
22   "afo"              prg
14   "battleships"      prg
32   "forestwalk"       prg
9    "geiger counter"   prg
15   "hangman"          prg
8    "jotto"            prg
21   "life expect"      prg
9    "mastermind"       prg
22   "three dox's"      prg
12   "twinbagles"       prg
359 blocks free.

0 "plus4 lib/other " 01 2a
15   "auto-graph"       prg
4    "factors.vic64"    prg
3    "surprise!"        prg
9    "bar graph"        prg
14   "weatherman"       prg
4    "cascade"          prg
615 blocks free.

0 "plus4 lib/util  " 01 2a
1    "load addr"        prg
6    "align test"       prg
3    "frame maker"      prg
1    "turbo instrs"     prg
14   "p4 tape fastload" prg
5    "change dev no"    prg
2    "datamaker plus4"  prg
9    "unicopy inst"     prg
8    "unicopy.p4"       prg
9    "directory sort"   prg
6    "disk rename"      prg
14   "display t&s"      prg
4    "falign check"     prg
2    "load address"     prg
3    "read any seq"     prg
16   "rel file"         prg
14   "c16 t-fastload"   prg
547 blocks free.
```

No distinction has been made between Plus-4 and C-16 programs. Obviously Unicopy is the main contender for not running on C-16. Please send anything you think may add to the list.

Richard's address is:

45 Cumberland Road,
Bromley,
Kent,
BR2 0PL

Please note that he has a wife and five children to deal with before copying disks &c. Therefore it may be a day or five before he gets round to it.



## AMIGA LIBRARY

There are now available quite a few disks of public domain software for the Amiga. The most famous of these are the ones known as Fish Disks - the name being that of the arranger of these PD disks, Fred Fish. Mike Todd is now rearranging these Fish Disks to exclude such things as source code and generally to tidy things up for the benefit of the ICPUG user.

About 40 disks of public domain software are now held in our library and, should you be interested in obtaining copies of any of these, please send an A5-size stamped self addressed envelope to John Bickerstaff - address inside front cover - marking the envelope Amiga software.

The disks available include the original Fish Disks although those filleted by Mike Todd will be substituted as soon as completed. Other disks are from the AMICUS Public Domain Software Library and there are some general demonstration disks.

JB

--oOo--

## ICPUG SAYS THANK YOU

Many of you responded with enthusiasm to our request for volunteers to fill committee positions becoming vacant on the 27th September. We were very pleased to hear that you were willing to give so much of your free time to help other members in ICPUG.

Each person's abilities were considered carefully, by the relevant officers, whose recommendations were then put before the whole committee. The decision of the commitee was indicated in the names put forward at the Annual General Meeting with the results that you will see elsewhere in this newsletter.

Your committee would like to record here their thanks to all applicants and to say to those of you who were not elected that we appreciate your offers of help and regret any disappointment non-elected members may feel.

John Bickerstaff, Secretary and Vice Chairman.

## C128 LIBRARY

Since the last time I listed the disks available for the C128, another FIVE disks have been added. A short description of each will follow. If anybody has written any programs for the C128 I would be very interested in evaluating them for the C128 Library. We are very short of programs written in C128 mode. These can be adventures, subroutines, utilities or any other good or interesting programs. Remember, it is the programs that YOU send in that keep the library growing - don't leave it to everyone else!

The new disks available are:

Disk CU3.
---

This is a utility disk that contains a patch to convert your existing version of CP/M to the latest version. Also included are a modem program and a keyboard-configurator-type program.

Disk CL2 & CL3
---

This is a version of PASCAL for use in CP/M mode. Disk CL2 contains JRT Pascal version 2.00 and disk CL3 is the manual for using Pascal. It is strongly recommended that these two are ordered together.

Disk S1
---

This is the 'SuperDesk' mentioned in the Super* column in July/Aug 86 newsletter. This is an office utility disk based on Superbase and Superscript 128.

Disk S2
---

This is a stock control suite of programs for use with Superbase 128, written by Paul Smith and suitable for small businesses or shops.

TJH-S

--oOo--

128 Library
Would the member who sent Joe two 8050 disks please contact him as soon as possible?



## SOFTWARE LIBRARY REQUESTS

One or two hiccups have occurred recently with some members requests for software from the club's Software Library. Whilst members are requested to be patient in their dealings with software librarians, if you have sent disks with a request for software and are still waiting after more than one month please contact Joe Griffin immediately. Joe's address is inside the back cover, and don't forget to include an SAE for his reply.

## DISCOUNT CORNER

Please refer to pages 82 to 85, 188 to 190, 276 to 278, 352 to 353 and 449 to 451 in the earlier 1986 issues for general information and details of other discounted items. You should quote your 1986 membership number when you purchase an item mentioned in one of these discount corners.

Please remember that postage has increased and first class is now 18p.

CBM have done it again! First they announce to dealers and us that the NEW 64C PACK will come with GEOS on disk. Then they let slip that instead there will be a voucher inside the box allowing you to buy GEOS for only £29 and finally out comes the CONNOISSEUR PACK without either. Only the high price (RRP £249.99) remains. How do they manage to muck up the chance of selling lots of high-priced disk drives to people who say 'a free disk, let's get a drive to use it on'?

On the other hand Mr K. has been persuaded to offer to genuine Commodore owners (are we not all genuine owners?) £500 off Amigas until the 30th November - just like they did in the US of A last fall in $ not £, but then Commodore UK think these are the same. Please remember, if you want a good buy on any Commodore hardware, call me for details first.

STOCK (see page 449). We have - subject to prior sale - a few items left. These include 3 EasyScripts on disk, 1 Pascal on disk, 2 1531 cassettes with 1530 adaptors. There are several Intro to Basic's parts 1 & 2 on disk and on cassette.

Timeworks (UK) Ltd, now Timeware Ltd, are allowing us a discount of 25% on their new product the PARTNER cartridge, which is an unaltered USA product. The price to members when purchasing through me is £44.63. This new product is mentioned elsewhere in this issue. Timeworks advise that their other programs are all converted for use here and their packs carry a note 'UK edition' with a Union Jack. Just in case there are still programs imported from the USA left in the shops, and if you buy from a store, please make sure you only get one marked 'UK edition'.

Viza Software Ltd, are producing Vizawrite for the Amiga to sell at £149.95 RRP but the ICPUG members' price will be only £97.45. Available around the turn of the year. Orders through me as usual, please, with cheques made out to Viza Software Limited and a stamp for forwarding your order.

Transworld Publishers have advised that due to increased costs (exchange variation and postal increases) their books will be subject to a surcharge. Please call me for the actual additional cost before ordering.

Brain Boxes IEEE interface is now available only in the switchable 64/128 edition at £69.95 plus VAT. Their C64/128 RS232 interface costs £49.95 plus VAT, Centronics to parallel printer cable costs £19.95 plus VAT and the IMB PC to IEEE bi-directional interface costs £199.95 plus VAT. All items are subject to 15% discount to members against direct purchases.

First Analytical Ltd of 6 Newcomen Street, London SE1 1YR, who distribute GEOS in this country, are now releasing additional programs. These may be purchased directly, but please call me for details and ICPUG discounted prices.

Parasoft Limited, of 6 Park Terrace, Worcester Park, Surrey KT4 7JZ, market two programs in cartridge form for the Plus4: Script Plus and Calc Plus, which retail at £19.95 each. These are available to members on direct application at £15.95 each, £29.90 if ordered together. Call 01-330 7166 for further details.




# Serious software that's simple to use

Digital Solutions Inc.

**Pocket Writer (64 or 128) - a word processing system**

A sophisticated easy-to-learn word processor with on screen formatting, wordwrap, bold, underline, italics, on screen help, spelling checker, 80 or 40 column display. Files compatible with Paperclip.

**Pocket Writer Dictionary**

A 32,000 word dictionary that can be accessed by the spelling checker facility of Pocket Writer 64 or 128. Saves creating your own dictionary from scratch.

**Pocket Planner (64 or 128)**

A beginners (and yet powerful) spreadsheet. For household budgetting or business accounting, Planner has 16 digit accuracy, sideways printing for large spreadsheets, on-screen help, compatible with VisiCalc files, 80 or 40 column display, creates 4 kinds of graphs - Bar, stacked bar, line or pie - that can be used with word processing files.

**Pocket Filer (64 or 128) - a database system**

Organise mailing lists, telephone numbers, inventories, recipes etc. Can use data with Pocket Writer to create personalised letters. Up to 255 fields/record (up to 2000 chars/record), 9 sort criteria, print labels in multiple columns. Reports with headers and footers, passwording and limited access for security, on screen help and arithmetic facilities in reports.

These products are advertised monthly in the front cover of **Commodore Computing International**
The normal price for the dictionary is **£19.95** - the other products are normally **£39.95** for the **64** version and **£49.95** for the **128** version (prices include VAT). Club members get a **25% discount**, add **£1.00** for post, package and insurance. Cheques should be made payable to Haba Systems Ltd and sent with orders to:
John Bickerstaff, ICPUG Vice Chairman, 45 Brookcroft, Linton Glade, Croydon CR0 9NA.
**Digital Solutions Inc.** products are distributed in the U.K. by **Haba Systems Ltd.**, 01-751 6451

**SPECIAL OFFER**

# 25% off to club members

Haba Systems Ltd are marketing the products of Digital Solutions Inc in this country. Their 64 & 128 integratable programs are Pocket Writer, Pocket Planner and Pocket Filer. Members' prices (25% less than RRP) for the three 64 programs - £29.96 each and for the three 128 programs - £37.46 each. The dictionary for use with Pocket Writer is £14.96. Please add £1 for postage to each item and forward your orders through me enclosing a first class stamp. Haba can supply Softwood's Program MiAmiga Ledger at £74.96 to members (RRP £99.95).

Dialog Software. This company has ceased to operate.

Microtext, suppliers of a teletext adaptor which sells at £69.95, have agreed to sell this item to members at the special price of £64.95 including postage and packing. This product was reviewed on page 306 of the July/August newsletter. If you would like further information please call Terry Cassell on 0705-595694 or write to him at 7 Birdlip Place, Horndean, Hants PO8 9PW.

H & P Computers are now offering their latest product, the FINAL CARTRIDGE II, to members at £35.00 against the RRP of £39.00. Please contact them directly, advising them of your membership when ordering. (There is no discount on upgrades.)

Hardworks Ltd are miffed with us and have withdrawn their discounts.

C.W. Systems, 37 Cecil Street, Lytham, Lancs, FY8 5NN (see their advert in this issue) will allow members discounts on their products. THE LAST ONE for the 64 (or 128 in 64 mode) is £31.00 to members (RRP 57.50), and the Hints & Tips book is only £5 to members - both prices post free. Also 5 DS/DD disks are priced at £4 plus 35p p & p. Send an SAE to Chris Wright at C.W.S for details on the 64 and the IBM PC versions (£50 off IBM list price to members).

FINALLY, AGAIN . . .
It would be appreciated if, as I have previously requested, calls could be made only after 8.30 pm Monday to Friday (I do not usually get home from work until late) and after lunchtime at weekends. Please do not call in the mornings. Should you get my ansafone, please leave your name and number and I will call you back.

JB



# READERS WRITE . . .

## CORNERCOPEIA

Richard Hunt, South East's forth man, rises to the bait in the last issue's Notebook (as did Brian Grainger - see p504)

Really you should beware of asking rhetorical questions such as 'How many comers can one rectangular newsletter have?' I can appreciate that logic dictates that there must be a finite answer to your question, but there is always going to be someone like me who rises to such an attractive bait . . .

Of course the newsletter is not just rectangular. That would imply that it is limited to two dimensions, and we all know that there are no claims that the newsletter is a limited edition. You may say that it has three dimensions, being quite thick (in the nicest possible way). Some may venture even to say that it has four dimensions because it takes time to read it.

Now, with three dimensions immediately the number of comers doubles from four to eight. As there are a number of pages (does that make time a fifth dimension?) and each page has two sides, each page probably has eight comers. Mathematics determines the number of comers as the product of the number of pages (including the front and back covers, naturally) and eight. But, as we have reached out into pan-dimensionality, literary reference tells us that the answer is 42. That alone should satisfy the average ICPUG member.

Without doubt however you are saying to yourself that this fellow Hunt has not gone to so much trouble to tell me that there should be 42 comers in the mag. Without doubt you are right. I will (note, not shall - will) - I will now give you two definitive answers to your question. (Please don't interrupt with trivial quibbles about how many definitive answers there may be to any given question. That is as bad as replying to rhetorical questions in the first place . . .) For the first I quote from the eminent 19th century mathematician, sometimes known as Lewis Carroll. His answer has a certain elegance to it:

> 'Taking three as the subject to reason about -
> A convenient number to state -
> We add Seven and Ten, and then multiply out
> By One Thousand diminished by Eight.
>
> The result we proceed to divide, as you see,
> By Nine Hundred and Ninety Two:
> Then subtract Seventeen, and the answer must be
> Exactly and perfectly true.
>
> The method employed I would gladly explain,
> While I have it so clear in my head,
> If I had but the time and you had the brain -
> But much yet remains to be said.'

(From the Hunting of the Snark, Fit the Fifth, the Beaver's Lesson)

For the last, (no, not the second. Never the second) I give you simply that the ultimate comer is what you originally must have surmised: a FORTH comer.

MD Weaver of 21 France Hill Drive, Camberley GU15 3QE writes:

I have read with interest the recent correspondence in the Newsletter regarding the pros and cons of the 1541 Quiet Drive Stop and its associated program '1541 Physical Exam' marketed by Evesham Micro. My experience with this product may be of help to others.

Having reason to doubt the good health of my 1541 last Christmas, I invested in Evesham Micro's '1541 Physical Exam' which, on running, apparently confirmed my fears. With no little trepidation I disassembled the Drive and gave it the full treatment, following the instructions to the letter and achieving an excellent display at the end. The job was not particularly difficult, though it was time-consuming and could not be hurried. With pride in a job well done, I reassembled the 1541 and restored it to its normal place next to the C64. Imagine my consternation when, on re-running the program as a final check, Track 35 would not read at all.

To keep this short I will gloss over the many dismantlings, reassemblings and tearings of hair that followed. It seems the 1541 simply did not like the position in which I put it, namely, alongside the 64 and below and to the left of the monitor - a 1702. Moving it further to the left as far as my desk allows restored everything to - more or less - normal, though being now below the printer there is a marginal change depending on whether the printer is powered or not. It is even possible to detect a change on powering the 26"TV in the next room - 3'6" away through a brick wall!

So my advice to anyone contemplating buying '1541 Physical Exam' is to ensure first that their problem does in fact lie in the drive and is not merely due to proximity to high levels of magnetic flux; move the drive as far as possible from the monitor or TV. If the problem then persists by all means spend your money. Certainly the purr of the head against the spring drive stop is a lot less horrendous than the little man with a pneumatic drill that Commodore build in!

I enclose printouts of the physical examination of my 1541 under the various conditions mentioned. I hope all this is helpful to others.

GEOPOLITICS

AH Potten, 14 Foxmead, Rivenhall End, Witham CM8 3HD has reservations about the US GEOS version he bought.:

Having caught a glimpse of GEOS at the PCW Show and not being naturally patient, I order a copy as soon as I saw an advert for it, as it sounded really super. It arrived promptly. It would not load at the first, but did at the second, and indeed I always have to enter the LOAD command twice to get it up. But worse, the alarm and file-dating functions, and the coms software and games on the reverse of the disk all do not work because I have the US version. I wrote to First Analytical but am still awaiting a reply. So what do I find in the Sept/Oct N/letter but a review of GEOS by Brian Grainger with no mention of these drawbacks - but perhaps he had a different version for review [we understood it was the US version he had - Ed].

Despite the frequent advice from ICPUG, I never seem to learn. I paid £49.95 for my copy: insult added to injury? So here are three points for those about to purchase software: (1) make sure it's fully compatible with your computer and all its peripherals (2) check if you can get a discount (3) check up first to see if it has been reviewed and, preferably, try to get it demonstrated.

In the excitement of getting a new program it is all too easy to overlook one or more of these points and then comes disappointment. Never assume a program will be all you have a right to expect.



Copies of printouts under various conditions

```
OUTSIDE OF TRACK   C   INSIDE OF TRACK
  -8-7-6-5-4-3-2-1 0+1+2+3+4+5+6+7+8

 1          •I• • • • • • • •I• •          present 'normal' 1541 position
16        • •I• • • • • • • •I• • • •     under printer (printer off)
35    • • • •I• • • • • • • •I•           18" from monitor

STOP CHECK = 0000    SPEED = 299.3 RPM
```

```
OUTSIDE OF TRACK   C   INSIDE OF TRACK
  -8-7-6-5-4-3-2-1 0+1+2+3+4+5+6+7+8

 1          •I• • • • • • • •I• •          original 'normal' 1541 position
16          •I• • • • • • • •I• • • •     alongside C64 and below & to left
35           I           • • •I           of monitor
                                          8" from monitor
STOP CHECK = 0000    SPEED = 299.3 RPM    note impaired ability to read track35
```

```
OUTSIDE OF TRACK   C   INSIDE OF TRACK
  -8-7-6-5-4-3-2-1 0+1+2+3+4+5+6+7+8

 1            I• • • • • • • •I•          1541 on plinth alongside monitor
16          •I• • • • • • • •I•           touching left hand side of monitor
35           I           •   I           note virtual inability to read high
STOP CHECK = 0000    SPEED = 299.3 RPM    numbered tracks
```

```
OUTSIDE OF TRACK   C   INSIDE OF TRACK
  -8-7-6-5-4-3-2-1 0+1+2+3+4+5+6+7+8

 1      • • •I• • • • • • • •I• •
16        • •I• • • • • • • •I• • • •     present 'normal' 1541 position
35    • • • •I• • • • • • • •I•           printer powered

STOP CHECK = 0000    SPEED = 299.3 RPM
```

```
OUTSIDE OF TRACK   C   INSIDE OF TRACK
  -8-7-6-5-4-3-2-1 0+1+2+3+4+5+6+7+8

 1        • •I• • • • • • • •I• •
16        • •I• • • • • • • •I• • • •     TV in next room powered
35      • • •I• • • • • • • •I•           3'6" away through wall

STOP CHECK = 0000    SPEED = 299.3 RPM
```

# CBM SALE

**Following a change of computer system, all of these CBM products are available from an ICPUG member (who is an advertising copywriter, not a computer dealer). They were acquired over a period of five years, most of them were bought new and all were the subject of maintenance contracts.**

**CBM 8096 (8032 upgrade), £400, with 50 Commodore magazines and all the ICPUG Newsletters from January 1981 to Nov/Dec 1986 FREE.**

**PERIPHERALS**

**8050 disc drives (two), £300 each. 4040 disc drive, £300.**
**4023 dot matrix printer, complete with 10 new ribbons, £150.**
**All the above complete with cables.**

**ACCESSORIES**

**Switchbox, 2-way, £40. Switchbox, 4-way, £50. Interped, with cables, £25. Unidirectional Serial Interface by Small Systems Engineering. Type C100. PET/ASCII. complete with power supply. £50**

**SOFTWARE**

**Dataview Executive (Wordcraft 80 word processor plus Manager database; with dongle) for 8096 and 8050, £150**
**Sumlock Graphics Pack (with dongle) for 8096, 4040 or 8050 and HP 7470A Plotter, featuring charts, drawing and text programs. £200**
**Custom Sales Ledger Program for 8096 and 4040, especially devised for invoicing Clients' fees. Ideal for professional, self-employed person or small business. £200**

**All above prices include VAT at Standard Rate. Offers considered for single items or the complete system. Please contact:**

**Frank Pycroft**, PI-COPY, 70 Parkview Road, London SE9 3QW. 01-850 5975. (T)



FORMATTERY

Paul Schofield writes from Switzerland (Dorfstrasse 82, CH5303 Wuerenlingen):

Just a quick note regarding Brian Cutt's problems in formatting disks in MFM formats. As one has come to expect, this is made difficult because of incomplete and incorrect information in the Commodore manuals. The following short program will format a disk in IBM-8 SS format.

```
10 C$="UO+CHR$(6)+CHR$(129)+CHR$(0)+CHR$(2)+CHR$(39)+CHR$(8)
20 OPEN 1,8,15c$:PRINT#1,"UO"+CHR$(4):GET#1,a$:SB=ASC(A$)-48
30 IF DS>1 OR SB<>0 THEN PRINT "FORMAT ERROR ";DS$:ELSE PRINT "OK"
```

the parameter changes required for other MFM formats supported can be found by looking at the DPB tables at the end of the CP/M BIOS source file CXDISK.ASM.

CAVEAT EMPTORES

Matt Limb, of Grantham (tel 0476 60645) has a warning about a software vendor he is having to take to court. The program was an accounts package supplied for the 64/128D by a Mr Ely of Dialoug Software in Saffron Walden. Apart from not running on the 128 when he upgraded from the 64, it got its VAT knickers in a twist and let him make a large overpayment to the VATmen that they will not refund to him [funny - we can always correct our errors, not that - touch wood! - we've made any large ones yet- Ed]. Multiple promises of a new version just about to be available, and then 'in the post today' [we thought that only referred to cheques - Ed], produced nothing so now Matt is off on that tiresome trail to the County Court. Let others beware!

HELPS WANTED

Does anyone have the instructions for the VICREL interface for the VIC 20? If so, please lend them to Joe Bowman, 42 East Crescent, Swanton Morley, Dereham, Norfolk, who will send them back, plus your postage, by return of post.

Can anyone let ME Ventham, 49 Gills Hill Lane, Radlett WD7 8DG (tel Radlett 6059) have a circuit diagram for the UPC1 Cartidge from Trigsoft? (He retumed his under warranty and they apparently stopped trading before replacing it: he is left with the modules and software - and it was very useful - he needs a replacement.

RN Higinbotham, 55 Cleaver Sq, London SE11 4EA (tel 01-735 8870) is having problems with an MPP 1361 and his 710 and wants to know how to set the left and right margins so he can do an 80-column screen dump in the middle of the 1361's 132 columns, without using Superscript. And how to set the 1361 margins generally, as he can't find any secondary addressing instructions covering the margins.

## FOR SALE & WANTED

4032 PET/4040 drive, with IEEE cable,manuals, TRIOS chip, sound box, 'bishboxes' and assorted disk software £400 ono. Peter Irwin, 5 Crowndale Rd Knowle, Bristol BS4 2DZ

4032 PET and 2040 drive + large collection of disk software, including Superscript, etc. Terry Devereux, 22 Windmill Lane, Southall, Middx UB2 4ND, tel 01-574 2709

C64, C2N, 1541 and Ram Centronics Interface, all hardly used. Communications moden and VIC, both unused. Variety of software on disk and tape, and selection of books. Offers to R Baines, tel 01-399 8292

The Newsroom (Springboard) £30. Nick Higham tel 061-789 2532 (Manchester)

4040 (upgrade) drive £225; 4022 (upgrade) tractor printer £100. Trevor Livesey, 50a South View Rd, Benfleet SS7 5ND, tel 01-387 9466 (day) 0268 755420 (evenings)

MUSTANG cartridge for downloading Commodore telesoftware by modem. 3 months old. Cost £49.99 accept £25. M Spira, 5 Marlborough Rd, Luton LU3 1EF, tel 0582 22536

CBM MODEM used only twice £40. I Jones, 11 Reading Close, Hastings

8032/8050, MX100 Epson printer, all in perfect condition; accounting software, Budgicalc, Pegasus invoicing and Sales Ledger; 120 floppies. Offers (for the lot, unwilling to split) to R Woolfson, tel 0932 55538 (daytime)

SDF 1001 disk drive (1Mb) £200; Brainboxes Interface cable (64/128 switchable) £40; 1541 drive £95; EasyScript £20. All boxed, hardly used. Reasonable offers considered by D Webb tel 0903 42334 (Worthing - evenings/weekends)

1541 drive (2 available) + C64, with all documentation. Ken Durkin, tel 0386 734045

C64 (2 available)/1541 drive/1701 monitor, CBm modem, B300 IEEE/RS232 bidirectional interface, 4040 drive (upgrade), IEEE cartridge (JCL), Assembler cartridge (JCL), Comal cartridge, Currah speech cartridge, Centronics cable, User port to 64-relay interface, Superscript, Superbase v2, Multiplan, Logo, books, 3032 PET with BASIC Editor Expander. Offers to Jonathan Cooley [our printer] on 0784 39208/34630 [try both - he's always at the other] any time (Egham, Surrey)

PET ODDMENTS: SADIE programmable IEEE/Centronics/RS232 interface from CMC (cost $300) £60; Votrax voice synthesizer £30; Epson IEEE interface for MX printers £10; 5 2-way ROM boards £5 each (with BASIC 2 ROMs free if required); 2 Instant ROMs £25 each; Calc Result spreadsheet for CBM8000 £20; all plus postage and packing. Send SAE for list of other items for PET and 64. Peter Reynolds, 65 Claremont Rd, Tunbridge Wells TN1 1TE.

1541 drive, 8050 drive with IEEE-PET Brainbox, MPS801 matrix printer, Phillips V7001 monitor with sound cable for C64, Micro-simplex 64 V6.24 for 8050, Micro-simplex V6.2 accounts package for 1541, CBM utilities program disk. All in original boxes, complete with manuals, almost unused, except 8050, bought completely overhauled from Micro-simplex 18 months ago. Any reasonable offers for part or all considered by BC Bethell, 123 Snells Mead, Buntingford, Herts SG9 9JH

WANTED

ACCOUNTING SOFTWARE - accounting, book-keeping, or invoicing software for 8050/8096 wanted by Peter Petts, The Herbary Prickwillow, Ely, tel 0353 88 456/Systel 366500846/Telecom Gold 72:MAG6006

C64 in good nick urgently required (already have peripherals, with Plus 4). Contact Mary Ingram on 0709 816544 (Rotherham)

1541 drive: contact Peter Irwin 0272 773735 (Bristol) (address above)

Disk or listing of editor and assembler for VIC-20 Forth cartridge (Datatronic 1.1) wanted by MJ Curtis, 6 Park Ave, Stalbridge, Dorset DT10 2RA, tel 0963 62445



SOFTWARE ORGANISERS

PET - Joe Griffin
Clovelly
Lynwick Street
Rudgwick, Horsham
W Sussex RH12 3DJ

64 - Dave Vorburg
46 Fensome Drive
Houghton Regis
Dunstable,
Beds LU5 5SH

VIC - Brian Wise
17 Knighton Close
South Croydon
Surrey
CR2 6DP

128 - Tony Harrison-Smith
(see below - software Librarians)

SOFTWARE LIBRARIANS

PET*
Joe Griffin
(see above)

128
Tony Harrison-Smith
150 Moreland Ave
Benfleet, Essex SS7 4JW

VIC-20
Brian Wise
(see above)

*also responsible for 64/VIC programs on 8050 disks

64 LIBRARY - DISK/CASSETTE

UK ADDRESSES, SURNAMES BEGINNING WITH -

A or D Kenneth J Hill, 25 Mount Avenue, Rayleigh, Essex SS7 7HS
B Fred Owens, PO Box 3241, RAF Mildenhall, Suffolk
C R Burns, 48 Grasmere Rd, Royton, Oldham, Lancs OL2 6SR
E I J K Mike Hingston, 1 Stafford Rd, Eccles, Manchester M30 9HN
F G Geoff Crowther, 60 Fleckney Rd, Kibworth Beauchamp, Leics LE8 0HE
H David Miller, 38 Exeter Gardens, Ilford, Essex IG1 3LB
L N O Nigel Corry, 4 Horsted Way, Rochester, Kent ME1 2XY
M Ray Medford, 4a South Grove, Brooklands, Sale, Cheshire M33 3AU
P U V) X Y Z) Bill Hull, Rocklea, Pilling Lane, Preenall, Blackpool, Lancs
Q R T Peter Crowder, 27 Crawford Drive, Liverpool L15 8AE
S Brian Wise, 17 Knighton Close, South Croydon, Surrey CR2 6DP
W Chris Wright, 37 Cecil Street, Lytham-St-Annes, Lancs FY8 5NN

Germany including BAOR
Capt R Harrison, Ord Svcs Berlin, BFPO45

Overseas other
Joe Griffin, as above

128 LIBRARY

A-C + all 8050/8250 requests - Chris Wright, 37 Cecil Str, Lytham, Lancs FY8 5NN
D-J Damien McEnroe, 11 Pentridge Close, Eastfield Chase, Cramlington, Northumberland
K-R Paul Smith, Egdon House, Nottington, Weymouth, Dorset
S-Z Bill Gardner, 156 Henwood Rd, Compton, Wolverhampton, WV6 8PA
All overseas requests - Tony Harrison-Smith - see above