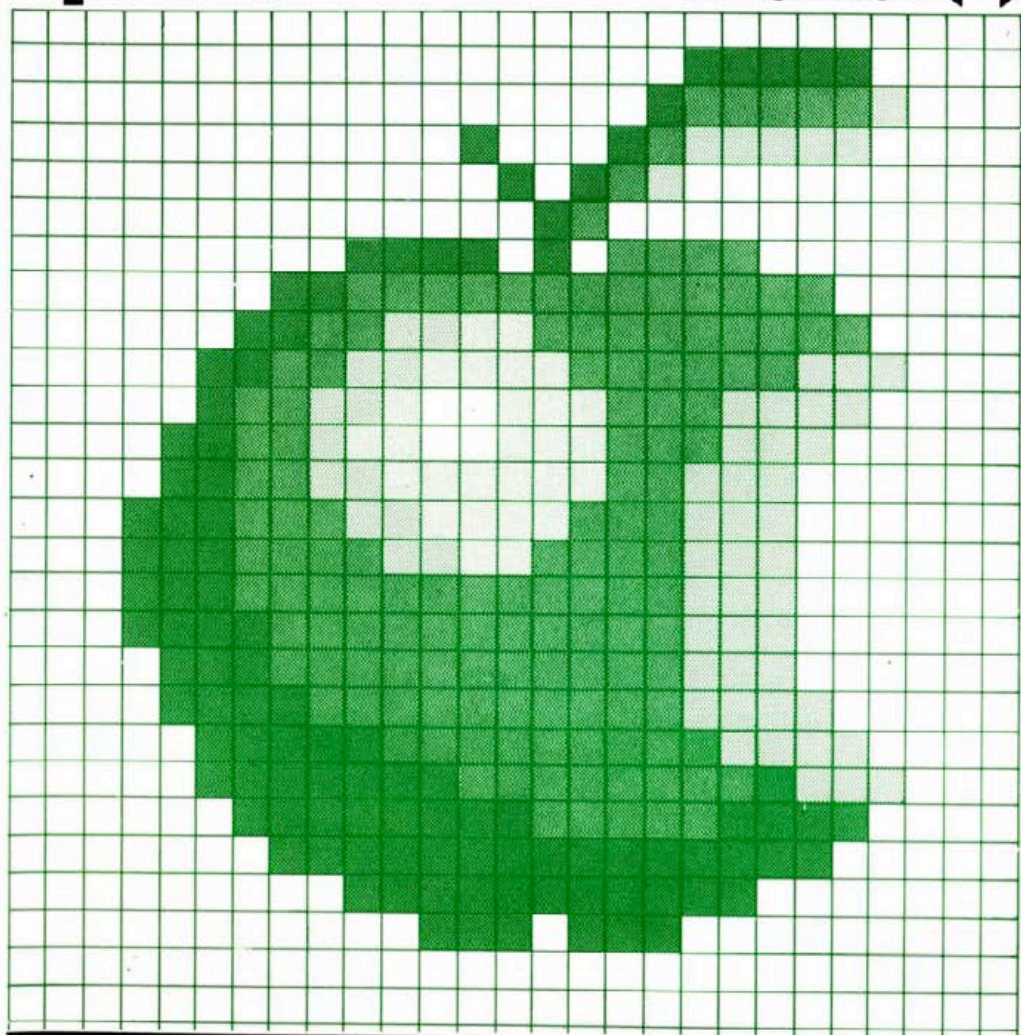


hardcore

April 1985

Volume 5(2)



BRITISH · APPLE · SYSTEMS · USER · GROUP

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THE JOURNAL OF THE BRITISH APPLE SYSTEMS USER GROUP

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Founder members of the Association of Computer Clubs.

The front cover and HARDCORE logo were designed by Stefan Mucha. Our thanks to Norah Arnold for all her work on the covers of previous issues.

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The fully justified proportional space printing in this issue of Hardcore was done with the aid of Format 80, mostly using a Madeleine daisywheel.

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Editorial

Going into colour should enhance the appearance of HARDCORE considerably but, as with all first attempts, one feels a certain apprehension. Certainly, Stefan's original rough cover had considerable visual impact, even though it only used shades of a single hue. So here's hoping our readers like it as well. Be sure to let us know.

For future covers, we expect to vary both colour and design with each issue, but always preserving our 'house style' by having the design on a squared background. We hope to link the covers with some aspect of the magazine's contents, though we will always welcome any compatible illustrations sent by members.

Our new HARDCORE logo has also been hand drawn and designed by Stefan, and thanks to him, BASUG now owns the copyright.

We are pleased to have two articles in this issue which are rather more serious than the usual run of items found in a club magazine. Ewen Wannop sent us his paper on disk transfer protocols and there is surely some significance in the fact that he considers HARDCORE to have sufficient status to contain the first published description of his new technique. The other item, by Chris Clare and Carl Payne, on the Data Protection Act, deals with important legislation which will have a far reaching impact on the public at large, as well as computer owners and operators. Apart from being immediately informative, their article will serve as a starting point for those who require more detailed information.

The local groups have sent very little to HARDCORE since Christmas. Thus, that section is short, though there may be more in the Update. If you want information to be included in the main magazine, please address it to this journal and make sure it arrives before the copy date. We are still trying to encourage people with special interests to write occasionally for HARDCORE and will always be glad to discuss projected articles with authors. Sheila will put you in touch with Ed, and you can get her on the new Administration phone number. Articles can now be sent via 'The Force'. We are not in Hawaii, but our ID is BSG050!

PRODUCT NEWS

By Peter Baron.

Not strictly news now, I suppose, but I note with interest that Chris Bonnington is going to take an Apple IIc on his forthcoming Everest expedition. The computer will help, among other things, to plan the climbing strategy. Good luck Chris.

By now you have probably heard something about the Shuttle, made by Dark Star Systems. We expect to carry a review of this hardware/software device, which enables instant switching between two or more programs, in the next issue of HARDCORE. Dark Star also sell the Image Maker series of upgrade EPROMs for the Epson 8132 (EPC1), Imagewriter (SSC1) and old Cirtech (CPC1) printer interface cards. These EPROMs all greatly enhance the functions of the originals, enabling various graphics and other capabilities which were not previously available (£25 each).

In the last issue, we published a review of Superbase, made and sold by Precision Software who have asked us to point out that two drives can be used - the file can be split between two disks. A ProDOS version of Superbase is due out soon. Another Precision Software package, called Superscript II is now available for Apples II/e and II/c. The disk includes a spelling checker, which creates its own dictionary, and top line menus.

P & P Microdistributors have just produced a new 86 page catalogue of software, hardware and other goodies, which can be obtained free from any of their branches. Amongst the new products to be marketed by P & P are Mail Center, for the Mac, designed to make use of Apple's low cost personal network. It enables one to view different 'mailboxes' and send a variety of information to other people.

Coastal Computing and Supplies have told us that RAMDRIVE e/c has now replaced RAMDRIVE II/e. It is compatible with the Apple II/c and has other extra features. CP/M RAMDRIVE II/e, for the Apple II/e only, offers speed improvements when used with programs like Wordstar and dBase II. Original purchasers of RAMDRIVE II/e can upgrade for £10.50.

Chairman's Corner

By 'Q'

As many of you will be aware BASUG is undergoing a metamorphosis at present. The most immediately obvious change is Hardcore's new cover which is in colour for the first time and is work of one of our members, Stefan Mucha. I think you will agree that it is an improvement, and heralds the start of a 'new-look' 'Hardcore'. What we need now is much more input from all the members who may have a little program or routine somewhere which would be invaluable to others. We also need articles on hardware projects, hardware and software reviews and in fact anything which YOU think will interest other members. I mentioned in my last 'corner' that we wanted volunteers to assume the mantle of 'Guru' in various special interest areas and this still applies. With the agreement of these volunteers, we would like to publish the names and telephone numbers of these SIG managers in each issue of 'Hardcore'. This way a member can telephone the appropriate person direct and everyone can become more involved with what the club was originally established for.

In this issue you will see the first of several adverts for 'SPEEDLOADER' a program written by Cornelis Bongers, from whom we have negotiated distribution rights. This program can be described as incredible, and a comprehensive review appears elsewhere in this issue. For £15.00 plus postage, it represents fantastic value for money and its benefits in time-saving alone make it an essential addition to your software library.

By the time you read this 'The Force' will be under way on Telecom Gold and proving to be the most significant communications facility provided by any usergroup worldwide. To those members who took up their options before the live date we want to say 'thankyou' for your confidence and hope that you enjoy considerable benefit from the service.

Unfortunately there are two sides to every coin. BASUG has undergone a significant change in its administration. As the subject has occupied many hours of committee time and a degree of acrimony it is only fair, because this concerns your

membership fee, that the record is put straight. As those who attended last year's AGM will remember, BASUG Ltd traded at a loss of some £4,000 during the year 1983-84. In the latter part of 1984 the committee were advised by the treasurer at the time, that we were in considerable financial straights. In fact he was of the opinion that, unless BASUG Ltd. curtailed its expenditure immediately we would be substantially overdrawn by mid-1985. There are two areas of major expenditure in BASUG Ltd.: 'Hardcore' is of course one, and the other is the post of administrator which was let as a contract. As the committee believes that the production of 'Hardcore' is fundamental to what BASUG is about, then it is an area for expansion rather than curtailment. On the other hand, the provision of a substantial administrative function was regarded as an area which had to be radically changed. Fran Teo, who has been an extremely efficient and able administrator, indicated to the committee that she would not be prepared to renew her contract with BASUG Ltd. We have therefore been fortunate in recruiting the services of Sheila Hirst as our administrative coordinator. Sheila's association with BASUG goes back to the early days when she assisted John Sharp and David Bolton in running the club. However, in order that we could engage Sheila, there have been several changes in terms of dispatching orders. As before, the administrator is the first point of contact for all enquiries and orders, but orders will be dispatched by various members of the committee in an effort to contain expenditure. If you have particular problems direct them through Sheila. We are confident that we can still provide you with a good service.

Please note that the old administration telephone number must NOT be used but instead use the number listed in the front page of 'Hardcore'.

In closing this 'Chairman's corner' I would like to apologize to members whose orders have been delayed and to new members whose applications took some time to process. However, this has now been remedied. BASUG have booked a stand at the 1985 APPLE USER SHOW in Hammersmith and I hope to get an opportunity to meet many of you there. The show runs from the 8th to the 10th of May and promises to be excellent. MAY THE FORCE BE WITH YOU!



THE FORCE



(Formerly BASUG GOLD*)

By Tony Game.

Why did you join BASUG? Was it because you wanted to share your computing interests with other like minded people? Because you wanted to gain from others' experience and expertise, and to share your own with them? Because rather than being a solitary Apple user you wanted to be a communal one? I put these questions to you because I have heard it suggested that the club has concentrated too much on communications. Of course this can never be. BASUG is all about communicating with one another, and communications over the phone lines is just a particularly efficient way of doing this. THE FORCE then is not a thing on its own. It is about Pascal and CP/M; about Peeks and problems; about spreadsheets and hardware; about Macs and pre rev 7's. It is even about contacting people world wide, for whatever reasons you may have, singly or collectively. It really is the best thing since sliced bread!

Telecom Gold is basically an immensely powerful messaging system running on sophisticated mainframe computers. There are similar computers running the same DIALCOM software world wide. All these computers can talk with one another, and so BASUG's service on the Telecom Gold system, which we have called THE FORCE, will be able to talk with other computers holding such systems as The Source and Compuserve.

THE FORCE is a Closed User Group within this system, it is not something apart. On the contrary, members of THE FORCE, will have the full use of all Telecom Gold, (TG from now on) facilities, as well as those within the private section, which will be the club's own. This private section will contain a bulletin board on which you will be able to post all your problems and solutions to share with the rest of us. You will also be able, with equal ease, to send a message to either a single member, or to every member belonging to THE FORCE. For example in one simple operation you will be able to send a letter to every member

of the club committee, or to all the owners of Mac's.

Normally joining TG costs £100, with minimum charges of £10 monthly. BASUG has been able to negotiate a deal enabling members to obtain a place for a single payment of £23, and monthly charges of £3.45. These monthly charges do not include your usage costs, which are dealt with later. This is by any standards an incredible bargain, and all of you with modems should not hesitate for a moment to take advantage of it. Those of you without modems now have a really good reason for digging into the housekeeping and getting one.

The TG charges are 5.5p per minute from 7pm to 8am, and to this you must add the cost of the telephone call. However, the phone call will be a LOCAL one for the great majority of you already, and for all of you eventually. The reason for this is that BG is accessed by Packet Switch Stream. This is a very efficient way of using the lines for data transmission. It does not make any difference to how you use the line, except that for most people it only involves a local call. For those of you who are used to using the Bulletin boards about the country on long distance call rates, the total cost of using THE FORCE, when all is taken into account, will be rather less than this, with all the extra advantages.

You have all had a leaflet with the last Hardcore explaining the additional features that BASUG GOLD (now -THE FORCE) will provide, and I shall not repeat them here. If you want more, do write to Richard Boyd and ask. We are extremely anxious to see as many of you as ever possible joining up, because we know from our own experience that it is something you will never regret, and because we believe that it will greatly enhance that sharing and fellowship that BASUG was originally created to promote. Come on in, the water's lovely.

*BT would not allow BASUG to use 'Gold'.



Nemo

By Anthony Rose
& Robert Desbiens



Introduction

The 'Apple Macintosh' is an 85-foot advanced-material yacht built for the 1985 Whitbread Round The World Yacht Race (WRTWR). As the name suggests, the main sponsor for the yacht is Apple Computer.

'Apple Macintosh' is designed to win, and little effort or expense was spared in making it as competitive as possible. The hull is made of Kevlar and Nomex, and the interior fittings are made of F-board, which is an aluminium honeycomb sandwiched between a layer of fibreglass on either side, giving it half the weight and twice the rigidity of timber of the same dimensions. It is a maxi-class yacht, having a mass of 29500kg, including the 14000kg keel.

With all the effort going into the boat, the instrumentation aboard would naturally have to follow suit. Project Nemo is the computer hardware and software which will help the boat to race faster and more efficiently.

This article describes some of the functions of and reasons for computers on yachts, and in particular, Project Nemo.

Background

The use of instruments on board racing yachts is recognized as an important tactical tool, giving strategic information that is an invaluable aid to the crew in their decision making. Sailing has traditionally used instruments for navigation, but it is only for the past two years that computers have been allowed on racing yachts. The first wave of nautical computers have appeared in the form of single-board dedicated 8-bit systems, capable of reading sensor data every half second, then processing and displaying the data on LCD displays located around the boat. Some data processing functions that are important to immediate tactical

decisions are included, but, because of their lack of programmability and minimal power, they are limited to simple operations and calculations.

A typical instrument system will be connected to boatspeed sensors, windspeed & angle sensors, heel angle sensors and a compass. They will then display any of the directly measured quantities on the LCD displays that they support. The new computer-based instrument controllers will, in addition, calculate indirect quantities, such as true windspeed, taken by vectorially adding the apparent windspeed, obtained at the mast-head sensor, to the boatspeed. Whilst this may seem a simple calculation to a computer owner, it is regarded by the yachting fraternity as a new and powerful tool, and at present, very few boats have computerised instruments.

Project Nemo supplements the yacht's Fusion 256 computerised instrument controller with two 512k MacIntosh's, each with an external disk drive. The Mac's are connected to each other via a high-speed serial link, and one Mac is connected via a separate serial link to the Fusion, from which it can extract any instrument information.

The computers support the following functions:

- Gathering of data and displaying of information from sensors.
- Calculation of optimum day-to-day heading given predefined starting and ending positions.
- Monitoring of efficiency based on previously analyzed data giving the optimum performance of the yacht under most sailing conditions.
- Processing of tactical information based on wind and sea conditions, yielding optimum routes.

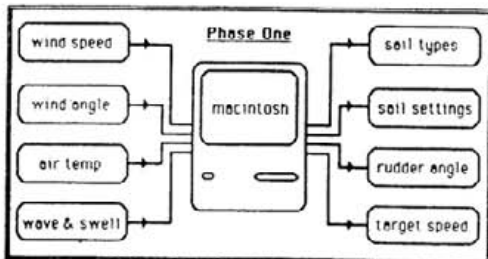
Project Nemo.

The computer found to be most suitable for this was the Apple Macintosh, which combines a fast 32-bit processor (the 68000) with half a megabyte of RAM and 800k of disk storage, including the external drive. The fact that it is housed in a small light package and uses less than forty watts of power, makes it ideal for use aboard a racing yacht. Because of the important role played by the Macintosh, and the harsh conditions likely to be encountered, it is imperative that a backup Mac accompany it. The second computer will function not only as a backup system, but will also be used for tactical 'What If?' type questions, word processing, entertainment, and the daily updating of the ship's log.

'Nemo' stands for 'Nautical Efficiency Monitor' and this is what the Mac spends its time doing. It constantly reads in wind speed & direction, and, from information contained in its database, informs the crew on the optimum sail & rudder settings to use, as well as predicting the maximum boatspeed attainable under these conditions. This, with extra facilities, will constitute phase one of Project Nemo.

Phase two will add computerised tactical decision-making, which is completely new to yacht racing. Here the Mac's will contain wind and ocean current maps of the routes covered by the race and will help compute optimum paths based on the theoretical winds & currents, as well as the actual ones up to that point. The yacht will be aided in making tactical decisions, the most important of which will be in choosing the courses and places where the yacht will tack or gybe.

Phase one - the efficiency monitor.



The first stage in the development of the efficiency monitor will be the construction of a database which will contain the combination of sail types and mounting configurations, rudder angle, wind angle and others which were found during trials to give the maximum boatspeed.

In order to construct this database, the system will be put into 'record' mode for a few weeks, during which time it will constantly record the wind speed and angle, as well as the sail and rudder parameters. This data will be stored on floppy disks during the recording process. When sufficient data has been recorded to map a reasonable section of the database, the system will scan all data, searching for the sail combinations which gave the highest boatspeed, and will store these combinations in the database.

During the race, the computer will recommend the sail settings to use, based on the wind speed and angle, by finding the particular cell in the database which contains the sail settings previously found to be optimum. Air pressure, density and humidity, as well as wave and swell height are also taken into consideration by the system.

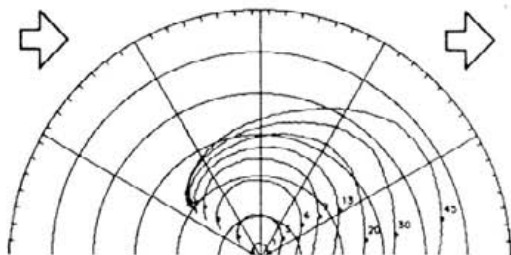
All outputs are displayed in a user-friendly and easily scannable manner, with icons representing the various functions. The mouse, combined with the icons and pull-down menus will make the system extremely easy to use. The mouse offers another advantage in that it requires little of the limited desk space available, and is usable in even the severest conditions. The aim is to make as much of the system as possible operable without the keyboard. In practise we found mouse operation unaffected by severe heel angles, although a mouse-trap is to be designed to prevent the mouse from sliding around when not being held.

Several windows are provided, each of which is independent of the others and handles a section of the system. The screen dumps shown were prepared at the time of the Cape-to-Uruguay race and show some of the software ready to that stage. The three windows described are:

Polar Window: This window shows the polar chart for the boat. The polar chart is the maximum attainable boatspeed vs. apparent windangle, plotted for various wind speeds, and is probably the single most important performance aid for a yacht. It says, for instance, that if you wanted to go directly downwind in a 30-knot wind, then your boatspeed would be highest if you sailed at 35 degrees to downwind, but you would get to the marker soonest if you sailed at 20 degrees to downwind.

Nemo Course Selection

Nemo polar diagram



Course Window: Course window aids in course selection by choosing the best heading given the polar chart, which is built up by the computer during the recording stage. It will compute the best heading and tack/gybe points, and display them, along with other expected readings.

Tactical Window: This window does not help the yacht's performance, as do the previous two, but shows the daily progress of the competitors, giving course, distance covered and heading on a daily basis. The information is taken from the daily radio position reports, which, depending on the skipper involved, can sometimes be regarded with some suspicion. The progress of the other boats can be an indication of the weather patterns in their area, and could influence the course taken.

As one might expect, the software is confidential and would be of great interest to competitors, so not all is being described here, and that which is, cannot unfortunately be described in great detail.

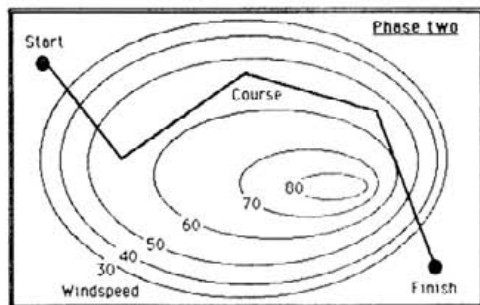
Phase two - the tactical helper.

After the stage one system allows the yacht to maximize its speed along a given

route, phase two aids in the choice of an optimum route - ie/ one that will minimize the route length whilst finding areas with high wind speeds in the required direction.

Navy charts contain contours of probability of given wind speeds and ocean currents for the main sea routes. The computer will use the data contained in these charts aid in determining the course and tack/gybe points. For instance, in the drawing below, in which known wind speeds are displayed, the navigator could choose different routes, trying to minimise the distance and number of tack/gybe changes, whilst keeping with favourable winds. The computer could then evaluate a possible route and hence help the yacht find an optimum path, based on both the theoretical charts as well as the present position and present known winds and currents.

The second Mac would be the system running the phase two software, deriving its instrument inputs and other information via a high-speed serial link to the first Mac, which would be connected to the instruments and would run the phase one software. In this way, it is possible for the boat to be held at maximum efficiency, with the first Mac



displaying necessary sail changes, whilst the navigator used the second machine to compute an optimum route.

The software

The software was written by Robert and myself in Forth, specifically MacForth, for several reasons: MacForth allows interfacing with any of the Macintosh toolbox routines, including creation of

windows, menus, and serial drivers; and Forth is fast enough to do the computations required without causing objectionable delays. (MacForth is about twenty times the speed of MacBASIC or MacPascal in computation). Forth also allows the flexibility of different data structures and it is the program rather than the language which decides how data is stored and manipulated. This becomes important when one realizes that the compressed performance database occupies about 300k of RAM. Finally, the Forth object code is compact. Even so, the apparently unlimited 512k RAM dwindles rapidly when confronted with 300k of data, 50k of system, 40k Forth kernel, and 50k program object code & miscellaneous data records.

We hope the above description, though necessarily limited, provides an insight into the systems aboard the 'Apple Macintosh'. This is the yacht to watch in the Whitbread race, if only to see if it starts executing circles in mid-Atlantic due to some software bug, whereupon we shall change our names and move to Rio.

Prizes

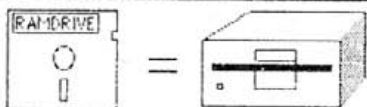
We said, in the last issue of Hardcore, that prizes would be awarded for three types of contribution. So now for the good news. After great deliberation we award the following, for contributions to the February 1985 edition.

1. The best letter prize of £5.00, goes to Doctor Sheppard for his constructive suggestion regarding the possibility of starting a Tricks and Techniques column. Andy Jackson has made a start on the column in the current issue, but please do not feel that it is exclusive. As ever, we welcome both questions and answers which can be included in it.

2. For the best quick tip, R. C. Lowe will get £5.00. How do we get it to you out there in Hong Kong?

3. The box of disks goes to Tony Game, for his article on 'Working the Bulletin Boards', because it was not only interesting, but, we felt, also of relevance to a large part of the BASUG membership.

RAMDRIVE e/c



Apple Disk Emulation

by RICHARD KRAEMER

Copyright 1984 Precision Software Milwaukee

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64k or 128k EXTENDED 80 COLUMN CARDS

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RAMDRIVEe/c features audio-visual access indicators, re-initialise directory ability, easy setup for turnkey operation, and menu driven documentation. The program may be modified and is copyable.

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RAMDRIVEe/c includes SPEEDOS a fast DOS Utility and RAMCOPY a disk copy utility for use with 1 or more disk drives. RAMCOPY is compatible with all non-protected DOS 3.3, Pascal 1.1, CP/M and ProDOS software.

Reviewed in Apple User and Hardcore August 1984.

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SIG Mac Notes by Peter Trinder

Another two months has passed so rapidly in the Mac scene with some interesting news of new products both hard and soft.

The **MacWrite** saga rolls on. We keep reading about versions higher than 2.20 but still they don't appear officially. I am currently testing 3.8 but 3.96 was sent to me from the U.S. (unfortunately the post crushed the hub of the disk so it was unreadable). There is a version over 4.0 in the States. However unless you have a Fat Mac or hard disk the 3.8 is slower than 2.20, because of the disk writes.

Davong have announced their volume division software for their hard disk. I have had one of these disks running here since November but the current Finder does have a struggle to handle what it regards as one 10mb floppy disk. It also allocates blocks of 20 k so a text file of 1.5 k takes up a lot of disk space. When I receive the volume division software this problem should disappear.

Steve Capps has been working on an upgrade of the **Finder**. I don't know the version that will eventually be issued but 2.5 is around with the UK developers.

There is a new **Imagewriter Driver** on the Helix program disks. It is called "Imagewriter 15" and as its name implies it will drive the 15" Imagewriter but it will also work with the 10" one which most people have. The really interesting feature is the 50% reduction option. I tried this with Multiplan and got 13 columns and 87 rows on a standard 8.5 x 11 sheet. It is quite legible using the Seattle Font. Beware, there is an

earlier driver on the **Microsoft File** disks dated in the "Get Info" box 17th Dec 1984 and this works with File but will not allow 50% reduction of MS Basic 2.0 listings whereas a later one on Helix will (dated 8/1/85). I have tried this one with all my programs and it works very well. When this driver will be issued officially remains to be seen.

I have seen a Beta Test version of the "**Application Switcher**". This utility by Andy Hertzfeld allows on a Fat Mac upto 4 applications to be loaded and you can switch between them by pressing Command [. The change is instantaneous but you can you select an animation mode in which the applications scroll in and out of the screen to left or right. Very impressive. It may appear in public domain or be issued by Apple.

Microsoft Word is out now, it arrived in mid February, as well as **File** and they both come with what appear to me to be excellent manuals. **Microsoft Basic** version 2.0 is miles better than the old one and is well worth the money if you are a first time buyer. There is a new manual which covers all the extra commands that have been added to create your own Menu Bars, Dialog boxes and windows. If you have the old version an upgrade will cost you £50 plus vat, which seems steep. Microsoft are soon to announce the **MacEnhancer**. This is a box with 4 ports, 3 DB9's and one DB25 which I think is parallel and a software driver which is a desk accessory to allow a number of devices to be run from one Mac communications port. Microsoft have a version of **Multiplan** that has Currency in the Format Menu instead of Dollars. If you run the Localiser on this disk and select UK you will get £'s instead of \$'s. If your heart is set on this option it will cost £25 to upgrade.

Talking of desk accessories - **MockTerminal** is a 10k Terminal program that sits under the Apple Menu and can be selected from within any application so that you can go on-line when you are in the middle of your spreadsheet or a letter. You can save the subsequent dialog to disk (selected from a pull down menu which is installed to the right of the existing application menu items). It runs at 1200 or 300 Baud. I have used it to send messages typed in Macwrite, cut to the clipboard and then pasted into MockTerminal. I have found two other accessories, DiskInfo which lets you view your disk and their file catalog from within an application, and Delete File which lets you do just that from within an application. (I have sent the Editor some dumps of these so that if he has space)

MacAuthor should be nearly ready by the time you read this. It will now support footnotes and you can set-up your own styles so that with one Command + letter keystroke you can set the style of a paragraph, or Title or superscript etc. Compared with Word, where you would have to do upto four keystrokes to achieve the same function, you do the style set up once, it is then installed in the Style Menu and can be saved with the document. MacAuthor has another unique feature, and this is the ability for you to "tear" a hole in the text and insert graphics with the text one either one or both sides of the graphics block! Now that is something MacWrite and Word can't do. Into the hole you can place symbols or formulæ or fancy letters from the Albums. These, when selected, appear in a window at the top of the page, the window has horizontal scroll bars, and some MacPaint like tools for customising the insertion.

Mactel is a new bulletin board for Macintosh Users on 01512 2180777 - you must register and be approved. The sysop ran another public board but had to close it

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because of the "wallies" who abused it. The Board it is hoped will fulfill a need for programmers who wish to exchange news, and those people genuinely interested in Mac programming.

Penguin have now altered their **Transylvania** disk so that you can use the Localiser on it to change the Keyboard if your disk has a US layout.

The **Desk Accessory Mover** on SIG Mac No.5 has a problem. It does not mark the accessory as purgable from memory, so once selected it remains in memory. I have replaced the old one on No.5 with a later version w.e.f. 1st March 1985, if anyone has had trouble sent me a disk and I will put it on.

MacAdvantage by Softech is a Pascal development environment for the Mac, and Steve Hyland wrote about it in the February Washington Apple Pi. He said that is exactly what he was looking for in a development system. MacAdvantage comes on two disks, neither of which is copy protected. The documentation for this not only supplements the documentation for the P-System, it makes a good companion to Inside Macintosh. This is completely a Macintosh environment and is run separately from any other p-System software. In fact, if it is your intention to develop exclusively for the Mac, you don't need to purchase anything else from Softech (They also do The Designer Series USCD Pascal).

Disk 1 is a bootable disk containing the USCD Pascal compiler, an editor, several libraries, the p-machine, and several utilities. It also contains a file called empty program that contains the standard program resources. Disk 2 has a resource compiler, a librarian, a debugger, an error-handler, the code for the interfaces to the ROM routines, and a sample program that runs a Macintosh

application. With These, you can write Macintosh programs using all of the ROM calls. You can also have access to the extensions to Pascal found in USCD Pascal.

Typically, you enter your program using the editor, which functions similarly to MacWrite. You must also create a resource file for any resources you will use in your application. Next, you compile your resource using RMaker. Once this is done, you click on the compiler icon and the code will be compiled into P-code. The compiler prompts you for the filename, output filename, resource filename, and the listing filename. In testing the compiler, Steve found it compiled the test program at a rate of 498 lines per minute. After your program has been compiled, you use the Set Options application to point to the locations in the Pascal Runtime library, the Mac Library and the P-Machine. Other choices on this menu allow you to set various startup options such as a default window and some debug options, and to set the finder bundle bit which puts the application icon on the desktop. Finally you can run your application, and debug it if it does not work. Steve had not used the debugger yet, but with it you can do all the normal debugging operations such as single stepping and setting breakpoints, and examining and patching memory, as well as some unusual things like performing monitoring either on your Mac or by hooking up another computer directly or over a modem. The other facilities MacAdvantage gives you are a Librarian to create and maintain libraries, and an error handler that does a number of things including allowing you to create custom error handling routines.

Once you have compiled and debugged your application, you can put it on a bootable disk. All you need besides your application are a Pascal Runtime and p_Machine applications, and the system folder with

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whatever system resources you need in there. The documentation for MacAdvantage extensive as it is, should be viewed as a supplement for Inside Macintosh. SofTech has provided the source for all the interfaces to the ROM, but explanations of the calls are minimal. A rewrite of Inside Mac is not their intention. What they do provide is clear documentation on the use of MacAdvantage and its utilities, an overview of USCD Pascal which primarily points out it's differences from non-Mac versions, and some good chapters on Mac interfaces, resource file creation, managing memory and p-Machine architecture. It's rounded out by the appendices which contain the ROM interface source code, error listings, and p-code listings. MacAdvantage costs \$150.00 from SofTech MicroSystems, Inc., 16875 W. Bernardo Drive San Diego CA 92127 (619) 451-1230

MacHints

In **Macwrite** if you don't want to break several words like "Apple Computer Ltd" so that Apple appears on one line and Computer on another especially if you use Fill Justified Mode try using OPTION SPACE together, it glues the words together. You can prove this by double clicking on the word and they will and be selected.

Happy Mousing.....

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Beginners' Columns

So Your Program Doesn't Work ?

By John Sharp

Typing programs in from magazines or writing them yourself is not the easiest of jobs at the beginning. So a few tips for a beginner are always welcome.

The most important thing you should do before you start is type NEW. Otherwise you will have a number of lines of another program you don't want. If you have not typed NEW, as you type in your program, you will delete some of the previous program lines by writing lines with the same number. Others you will leave. Your program will then be trying to sort out the logic of the previous program and of yours as well. This is tedious to sort out as you have to go through the listing line by line.

If you are typing from a listing then, providing it is correct, your program will run without any problems. If not there are two possibilities. If you are typing in from a listing and you have confidence that it is a correct listing, then you could go through it character by character to see if you have made an error. If you have done this or you are writing your own program then there are a number of debugging tips you can follow. These are not foolproof, so it is worth looking at common problems with copying listings.

The first thing you should do is run the program. This will tell you that the program does run without syntax errors being present. That is of course providing you access all the lines. Sometimes you might not take a particular option and so miss going through a subroutine or even one particular line. Then it becomes difficult to find that error. If you have done this and there is a problem, you will be presented for example with- ?SYNTAX ERROR IN 45 and you could go back to the listing and check line 45 character for character. It could be that a simple mistyping of INPIT instead of INPUT has been made. The most

common type of error is a missed character. In particular, the colon ":" and "semicolon ";" are the crucial parts of many lines, so it is worth looking at what they do. Consider the following program :-

```
10 A = 51
20 PRINT "APPLES ARE"
30 PRINT A
40 PRINT "PENCE EACH"
```

This would print :-
APPLES ARE
51
PENCE EACH

If you wanted to print
APPLES ARE 51 PENCE EACH
it is necessary to add a semicolon to the end of each line because a semicolon means carry on printing where you left off last. Normally a program would not present the information on three lines but as a single line :-

```
10 A = 51
20 PRINT "APPLES ARE"; A ; "PENCE EACH"
```

Now consider the case of an input statement :-

```
10 INPUT "HOW MUCH DO APPLES COST ";A
```

This would set the cursor after the question. If the question was put after a PRINT statement as follows, and the INPUT separately then it is still possible to place the cursor waiting for the input next to the question by adding the semicolon:-

```
10 PRINT "HOW MUCH DO APPLES COST ";
15 INPUT A
```

Sometimes it is necessary to do it this way, and continue on the same BASIC line. Thus lines 10 and 15 would come together as

```
10 PRINT "HOW MUCH DO APPLES COST";
:INPUT A
```

Another common error is to leave out the "\$" sign at the end of a string variable or put one in when there should not be one. The variable "A" is a numerical variable. The numerical variable "A\$" is a string - a set of characters.

Mistyping would not give an error of syntax because the computer sees no problem. So the error comes up further in the program. Suppose as follows there is meant to be a string response in line 100 and the following is typed in:-

```
100 INPUT "A RESPONSE ";A
```

a lot more program

```
810 PRINT MID$(A$,2,1)
```

This time nothing is fed back in the way of errors. When line 810 is reached, an attempt to print the second character of A\$ is met with a blank, because although you meant A\$ to be created in line 100, it wasn't. A response to a numerical variable was made. If you had tried to enter an alphabetic character then the response ? REENTER would be made by the computer.

The opposite problem of adding the "\$" when it shouldn't be there gives a response as follows:-

```
200 INPUT "THE NUMBER"; A$
210 B = 20 * A
```

gives a value of zero for variable B, since no value has been assigned to A. If you tried :-

```
220 B = 20 * A$
```

you would be greeted with:-

```
TYPE MISMATCH ERROR IN 220
```

This means the type of variable (a string) is wrong.

This would also arise if the "\$" was left off in the following case:-

```
300 ? LEFT$(A,3)
```

Taking the third from the left character of a number is not possible directly. This time there would be a syntax error and so the computer would drop back into immediate mode.

TIPS, TRICKS & TECHNIQUES.

By Andrew Jackson

First answers to the two questions from Dr Sheppard.

The renumber program is actually written in machine code which is tacked on the end of the Applesoft program. This explains why it is so short and the size in CATALOG is big! The last line of the Apple program is a CALL statement which relocates the machine code and initialises everything so that when & is typed the renumber program is called. The GOTO 220 is actually mistake! If you try typing anything but a return or ^c you will get an Undefined Line error!

The Applevision program operates in a similar but slightly different way. If you type LIST 0,1 you will find various POKES, LOMEM, and HIMEM statements followed by a GOTO 0. What this does is move BASICs pointers to where the program is stored. Hence there are two programs in Applevision. The reason for all this leaping about is, again, some machine code which is present to generate all the graphics, sound and text. Applevision is a very interesting program since it contains a full HIRES text generator - complete with cursor positioning - try disconnecting DOS, running Applevision and see what happens. To disconnect DOS go into the monitor and type 0^P^K - this removes the DOS IO hooks, to reconnect hit RESET. Although I have not done so it should be possible to use the text generator from Applesoft to label all those HIRES graphs.

Next, well not really a trick or technique but a useful source of reference - the original Apple][reference manual, published in January 1978 (The big RED A4 one). This contains various pieces of utility software which I have often found useful. These are Sweet 16 interpreter (pseudo 16 bit machine), mini assembler source listing (useful if you haven't got an assembler), and floating point routines. Also buried in the book is a small circuit diagram and a software listing, to use one of the annunciator

outputs as a serial port: I used this with a printer until I could afford a serial card. Unfortunately, when Apple adopted the A5 size manuals they did not include these items, so they are heard about rather than seen!

More next issue. I will poke about with Applevision in the meantime and let you know how I get on. Does anybody like the idea of soft/function keys on the Apple without paying pounds for one of those Videx things? I wrote a program which uses one of the switch inputs on the paddles to do this - makes life lots easier! Interested?

Ed. Please write to Andy c/o 'Hardcore'

By Q.

Here's a 16/13 sector hardware mod: (Allows you to switch between DOS 3.2 & 3.3 without Basics Disk by simply flipping a switch). Remove P5A chip from P5 socket. Get the original P5 (DOS 3.2) chip. Bend out pin 20 on both chips and place the P5 chip on top of the P5A chip (piggyback). Solder pins 1-19 of P5 chip to pins 1-19 of P5A chip. Insert one end of a wire into pin 20 of the P5 socket and solder the other end to the common (center) connector of a SPDT switch. Insert the 2 piggyback chips into the P5 socket (pins 20 of both chips should not be inserted into the socket or connected to anything at this time). Solder pin 20 of P5 chip to one of the 2 free connectors on the SPDT switch. Solder pin 20 of P5A to other switch connector. Be sure there are no shorts, that you followed directions before turning on power. Flipping switch in one direction or the other selects between either DOS when booting.

NOTE: This will definitely VOID your warranty. If you make this mod you do so at YOUR OWN RISK. Had to say that so I don't get sued (but the mod WORKS).

CHATTERBOX LISTING

By David Pearce.

```

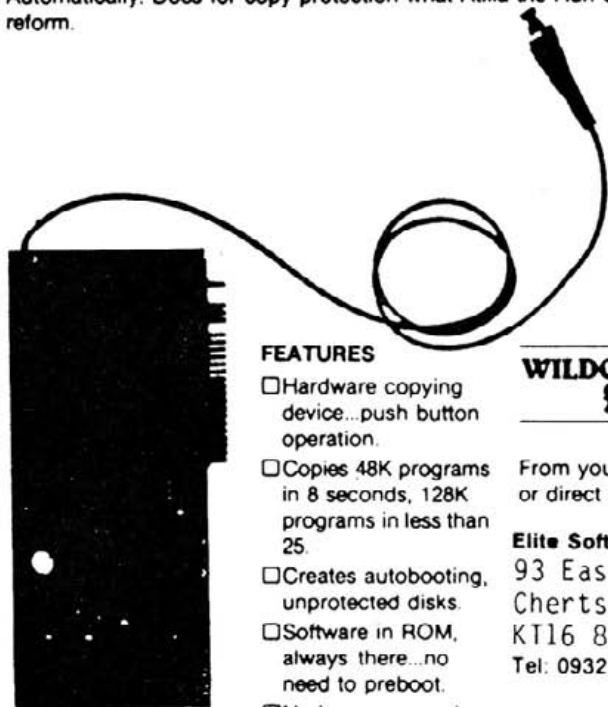
1 TEXT : HOME
5 PRINT "      ** CHATTERBOX M/C
  SPEAKER **"
6 PRINT : PRINT
10 PRINT "HAVE YOU EVER TYPED IN ALONG
  M/C LISTING FROM A MAGAZINE WHICH
  DOESN'T RUN      BECAUSE OF A TYPO
  ERROR?"
20 PRINT "WELL, THIS UTILITY WILL BE
  USEFUL IF YOU HAVE A WILLIAM STUART
  CHATTERBOX"
30 PRINT "      YOU CAN CHECK THE
  LISTING IN THE MAGAZINE WHILST
  LISTENING TO THE      LISTING BYTE BY
  BYTE."
40 PRINT : PRINT "PRESS ANY KEY TO
  RUN"
50 GET A$
100 TEXT : HOME
110 DU$ = ""
120 PRINT "DO YOU WANT TO BLOOD A FILE?
  ";: GET AN$: IF AN$ < > "Y" THEN
  GOTO 160
130 INPUT " ENTER THE NAME OF THE
  BINARY FILE TO TALK! ";NMS
140 PRINT CHR$(4);"BLOOD ";NMS
150 REM THIS PROGRAM WITH A WILLIAM
  STUART'S CHATTERBOX WILL READ
  MEMORY ALOUD
160 REM WHILST YOU CAN CHECK A
  MAGAZINE LISTING
170 P$ = "0123456789ABCDEF"
180 TEXT : HOME
190 PRINT CHR$(7);
200 OL = 16:NB = 10
210 INPUT " HEX STARTING MEMORY
  LOCATION $";OLS
220 GOSUB 730
230 ST = NW
240 PRINT CHR$(7);
250 INPUT " HEX ENDING MEMORY LOCATION
  $";OLS
260 GOSUB 730
270 FI = NW
280 FOR Q = ST TO FI
290 X = PEEK (Q):Y = INT (X / 16):X =
  X - Y * 16
300 Y$ = MID$(P$,Y + 1,1):X$ = MID$(
  P$,X + 1,1)
310 A = Y: GOSUB 450
320 A = X: GOSUB 450
330 DU$ = "" : HOME
340 OL = 10:NB = 16:OLS = STR$(Q)
350 GOSUB 730
360 VTAB 10: HTAB 5
370 PRINT DU$ " "Y$X$
380 DU$ = "" : Y$ = "" : X$ = ""
390 PRINT : PRINT
400 PRINT "PRESS ANY KEY TO CONTINUE";:
  GET A$
410 M = FRE (0)
420 NEXT Q
430 PRINT CHR$(7);: PRINT "DO YOU
  WANT ANOTHER MEM SPEAK": GET A$: IF
  A$ = "Y" THEN GOTO 100
440 END
450 RESTORE
460 FOR W = 1 TO A + 1
470 READ W1$
480 NEXT W
490 REM
500 FOR L = 1 TO ( LEN (W1$)) STEP 3
510 Z = VAL ( MID$( W1$,L,3))
520 WAIT 49360,1,1
530 POKE 49360,Z
540 NEXT L
550 POKE 49360,0
560 RETURN
570 DATA "67 53 02 "
580 DATA "67 46 15 11 02 "
590 DATA "67 13 31 02 "
600 DATA "67 29 51 19 02 "
610 DATA "67 40 58 02 "
620 DATA "67 40 06 35 02 "
630 DATA "67 38 12 42 55 02 "
640 DATA "67 38 07 35 02 07 11 02 "
650 DATA "67 20 17 02 "
660 DATA "67 56 06 11 02 "
670 DATA "67 20 02 "
680 DATA "67 28 19 02 "
690 DATA "67 43 19 02 "
700 DATA "67 33 19 02 "
710 DATA "67 19 02 "
720 DATA "67 07 40 02 "
730 REM HEX-DEC-HEX
740 HEX$ = P$
750 IF OL = NB THEN 1280
760 IF OL < > 10 THEN 780
770 NW = VAL (OL$): GOTO 870
780 J = LEN (OL$):K = J
790 FOR I = 1 TO J:K = K - 1
800 CV$ = MID$(OL$,I,1)
810 FOR L = 10 TO 36
820 IF CV$ = MID$(HEX$,L,1) THEN 840
830 NEXT L: GOTO 850
840 VD = L - 1: GOTO 860
850 VD = VAL (CV$)
860 NW = NW + ((OL Δ K) * VD): NEXT I
870 I = 1:SN = NW
880 Y = SN / NB:Y(I) = (Y - INT (Y)) *
  NB
890 I = I + 1:SN = Y
900 IF INT (Y) > 0 THEN 880
910 FOR K = (I - 1) TO 1 STEP - 1
920 W = Y(K) + 1:DU$ = DU$ + MID$(
  (HEX$,W,1)): NEXT
930 RETURN

```


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Using 'Snapshots' to Debug Programs.

By Roger Harris.

This article concerns a short, extremely simple software utility which may be used to display numerical and string variables for the purpose of debugging programs. Such displays are called 'snapshots' and are often discussed in books of programming practice. The term does not describe the copy system known as "Snapshot" which is marketed by Dark Star Systems Ltd.

It may be essential during the writing and testing phase of program development to confirm the accuracy and correctness of the contents of memory locations or string or numerical variables.

Very often the performance of a program will confirm its logical and arithmetic correctness but sometimes one may wish to trace the changes in variables, locations or execution which are the result of the execution of a particular program line or subroutine.

What was the effect of an ON--GOSUB, ON--GOTO or IF--THEN instruction? Has a subroutine been called? Are the results of a series of calculations those which were anticipated, or are they garbage, because of an undetected logical error earlier in the program?

Snapshots are screen displays or print outs of variables used in a program. At predetermined points, the execution of a program will branch to a snapshot subroutine which will show whichever variables are required. A STOP instruction may suffice as a simple alternative but it can be very tedious to wait for and then manually service each STOP as it occurs.

My ideal snapshots have two parts:
1..an optional filter subroutine which will only call the snapshot if certain conditions are fulfilled.
2..the snapshot subroutine.

First of all, let us look at the snapshot sub-routine. A sample program contains simple variables A,B,C and D and a two dimensional array E(1,9). (The string variable S\$\$ in line 55000 should contain the name or line number of the

instruction which called the snapshot thus identifying its source).

```
55000 INVERSE: PRINT S$$: NORMAL: S$$=""
55010:
55020 PRINT "A=";A, "C=";C
55030 PRINT "B=";B, "D=";D
55040 PRINT
55050 FOR X = 0 TO 9
55060 PRINT "E(0,";X;")="; E(0,X);
55070 HTAB 20
55080 PRINT "E(1,";X;")="; E(1,X);
55090 NEXT X
55100:
55110 GET T$: RETURN
```

Below is an instruction from within a sub-routine which will call the snapshot. Note that it goes to a line-number different to that of the sub-routine above.

```
293::: S$$="290 INPUT": GOSUB 50000
```

Here and elsewhere in this note the three colons are deliberate. They not only make the line stand out in a listing but also form a kind of "On/Off" switch. In each case, replacing <::> with REM will switch off that line whilst leaving it intact for later use or deletion using a REM stripper. Replace REM with <::> to switch on the line.

The string "290 INPUT" gives the line number just prior to the call as well as the name of the operation performed by the calling sub-routine.

The filter sub-routine lies at line 50000, hence GOSUB 50000. It can perform several optional functions.

- 1.. RETURNS to the calling sub-routine without calling the snapshot.
- 2.. Makes logical IF-THEN tests to determine whether to call the snapshot.
- 3.. Calls the snapshot, and then RETURNS to the calling sub-routine.
- 4.. Calls different snapshots depending upon the results of execution or keyboard instructions.
- 5.. Activates a printer.

```
50000 ::: GOTO 50030
50010 ::: IF PEEK(49152) <> 217 THEN
        RETURN: REM KEYBOARD TEST
50020 ::: IF A > E(1,4) THEN RETURN: REM
        LOGICAL TEST
50030 ::: GOSUB 55000: REM SNAPSHOT
50040 RETURN
```

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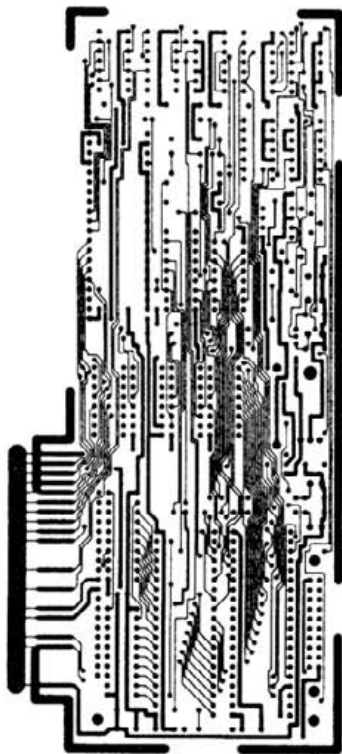
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Line 50010: location 49152 is the memory location through which all keyboard input passes. (See Apple II Reference Manual, page 6). If you want snapshots, type <Y>, (Yes), once the program is running. Type any other key to cancel. (The code for <Y> equals ASCII <Y> plus 128).

Line 50020: Logical test.

You may choose to route the snapshot to a printer. The necessary instructions may be added to either the filter or to the snapshot itself, or by inserting a sub-routine between the two. (Occasionally I have had difficulty with Epson MX70 printer instructions given from within nested sub-routines).

FELIX

BY Ian Sidwell.

This utility can be used for long catalogs, it splits the catalog into 2 columns - if a file is too long it shortens it in the catalog only - ie. the full name will still have to be typed. Mundane things such as the lock/unlock asterisk, the number of sectors etc. can be removed from the catalog to reduce the chances of this happening.

```

10 REM FELIX - CATALOG utility to
   split catalog into 2 columns.
20 REM By Ian Sidwell
1000 REM POKE SUBROUTINE
1005 A = 47721
1010 FOR X = A TO A + 39
1020 READ B
1030 POKE X,B
1040 NEXT
1050 DATA
      72,173,133,186,133,36,201,0,208,8,32
      ,47,174,169,20,76,125,186,169,0,141,
      133,186,104,32,237,253,96,0,32,47,17
      4,72,169,0,141,133,186,104,96

```

```

2000 REM DEFAULT CODES
2020 A = 44537: COSUB 10000: REM
   FILETYPE CODE
2030 A = 44542: COSUB 10000: REM SPACE
   AFTER FILETYPE CODE
2040 A = 44643: COSUB 10000: REM SECTOR
   LENGTH CODE
2050 A = 44560: COSUB 10000: REM SPACE
   AFTER LENGTH CODE
2060 LT = 11: REM DEFAULT NAME LENGTH

```

```

3000 REM CODE DELETIONS
3010 REM A = 47745: COSUB
   10100:LT=LT+1:REMMOVE FIRST REMTO
   DELETE LOCK/UNLOCK CODE
3020 REM A=44537:GOSUB10100:LT=LT+1:
   REMREMOVE FIRST REM TODELETE
   FILETYPE CODE
3030 REM A=44542:GOSUB10100:LT=LT+1:
   REMREMOVE FIRST REM TODELETE SPC
   AFTER FILETYPE CODE
3040 REM
   A=44643:GOSUB10100:LT=LT+3:REMMOVE
   FIRST REM TO DELETESECTOR LENGTH
   CODE
3050 REM A=44560:GOSUB10100:FT=FT+1:
   REMREMOVE FIRST REM TODELETE SPACE
   AFTER SECTOR LENGTH CODE

4000 REM POINTERS & LOOSE ENDS
4010 POKE 44567,LT: REM LENGTH OF FILE
   NAME
4020 POKE 44518,105: POKE 44519,186: REM
   POINTER TO SUBROUTINE
4030 POKE 44456,32: POKE 44457,134: POKE
   44458,186: REM POINTERTO COLUMN
   INITIALIZER
4040 A = 44578: GOSUB 10100: REM
   SUPPRESS <LF>
4050 END
10000 REM POKE COUT POINTERS
10010 POKE A,32: POKE A + 1,237: POKE A +
   2,253: RETURN

10100 REM DELETE COUT POINTERS
10110 FOR X = A TO A + 2
10120 POKE X,234
10130 NEXT
10140 RETURN

```

POKES & CALLS

FOR APPLE II s

Just for fun try doing a POKE 33,90. Then try listing your program. You might also want to try POKE 50, 99 or POKE 50,250 or POKE 50,127. Everything can be brought back to normal with RESET. Have fun! CALL -9582. Catalog (also A56EG from monitor).

CALL -3973. Load Integer.
 CALL -3776. Save Integer.
 CALL -6090. Run Integer.
 CALL -8117. List Integer.
 CALL -8192. End and clear work space (Integer Basic kill!).
 CALL -167. Set text mode CALL -1998. Clear graphic screen.
 CALL -1953. Change color by +3.

A STANDARD FOR A DISK TRANSFER XPROTOCOL

By Ewen Wannop

While considering what features I should include within my terminal program DATA HIGHWAY, I examined the XMODEM file transfer protocols, first formulated by Ward Christensen. These protocols allowed a file to be sent, from one computer to another, with virtually no possibility of errors being generated in the transfer. It is achieved by a simple means of lead-in codes and check-sums. If only textfiles are sent, then it does not even matter what type of computer is at either end. I intended to use this means of file transfer, among others, in DATA HIGHWAY as it had been well and truly tested, both in its CPM original form, and in various other programs since. Most notable of which is ASCII EXPRESS PROFESSIONAL for the Apple. It is now the standard form of protocol filetransfer for many computers. My thoughts started to roam round possibilities of the whole process, and finally turned to the RWTS routine, sitting in DOS. It was clear that sectors could be simply lifted from a disk at one end of the system, and deposited on a second disk at the other end with great ease. All that was necessary, was to modify the standard XMODEM protocol in order that it would not be recognised as a normal filetransfer by any receiving XMODEM program.

First of all I would need to see what problems there might be, and then to work out how I should go about the whole process. As a great deal of information would need to be passed, it made sense only to send that data that was needed. It would not be necessary to send zeroed out sectors. I considered using the normal Catalog and the Track/Sector lists to decide what should be sent, but this precluded the transmission of 'custom' disks. By using the normal RWTS routine, however, I could only send 'unprotected' disks, and so would avoid the problem of Copyright being broken. I would of course rely on the integrity of the user not to send 'unprotected' copyright material.

With all these factors in mind, and because the standard sector on any Apple disk, whether PRODOS, CPM or standard DOS, is 256 bytes long, it seemed logical, therefore, to make the block that was being sent 256 bytes long, rather than the usual 128 bytes. If the telephone line was so bad that a 256 byte block could not be received without too many errors, then it was unlikely that a transfer would be continued to its conclusion. This settled it, and the 256 byte block was decided on. There remained, then, the type of header to construct. More information was needed than on a simple file transfer, and the header must of course be rejected by the normal XMODEM protocol, and any variation on it used by other programs.

Perhaps, before I go any further, I should explain how the normal XMODEM protocol works. The file to be sent is split into 128 byte blocks, the last one being sent is padded out to make 128 bytes. These are then sent out one by one, with a header preceding them, in the following format:

```
<soh><blk#><255-blk#><128 data bytes><cksum>
```

in which:

```
<soh>      = $01
<blk#>    = no. of block being sent,
             starts at $01 and wraps to $00
<255-blk#> = ones complement of blk#
<cksum>    = the sum of data bytes only,
             toss any carry
```

at the end of transmission of all the blocks, an <eot> \$04 is sent.

The transfer starts by the receiving end sending out a <nak> \$15, at timed intervals, the receiving end on getting a <nak> sends the first block. The receiver checks it is <blk#> \$00, and that the <cksum> tallies with that sent. If all is

correct the receiver sends an <ack> \$06 and awaits the second block or the <eot>. Time outs are given before requesting retransmission, and usually ten tries are allowed before aborting the transfer. If by any chance a block is re-sent by mistake, a <nak> is given and the receiving end waits for the correct block. Normally the only possible problem is that an <ack> is received by mistake with noise on the line, the sending end gets one block ahead and 'synchronism' is lost. The program should abort at this point. The data is sent in the 8 bit format, so that the full range of 256 possible bytes may be transmitted.

For disk transfer, I needed to convey considerably more information than simply the block number. The destination track and sector must be sent out with each block, since I did not intend to send any 'zeroed out' sectors. Various other information would be needed in order to correctly set up the disk at the other end. A unique first header was necessary to start things rolling, and then a header for each block, which was not recognised by normal XMODEM programs. I finally settled on the following format:

Initial header:

```
<$81><init><255-init><dos><255-dos><volno>
<255-volno>
```

where:

<\$81> = is a unique start, <soh> with hi-bit set, ignored by XMODEM

<init> = flag to tell whether to initialise the receiving disk SFF to initialise, \$F0 not to initialise. Chosen not to conflict with the second byte of the header used in normal protocol transfer by ASCII EXPRESS PROFESSIONAL and DATA HIGHWAY, to transfer the file type from the host to the receiving end

<255-init> = ones complement of <init>

<dos> = type of disk being transferred. HEX \$43 for CPM = 'C' any other value for other DOS disks, but usually 'D' for DOS 3.3 and 'P' for Pascal and Prodos disks

<255-dos> = ones complement of <dos>

<volno> = volume number that was found on the disk being sent

<255-volno> = ones complement of <volno>

This is all quite different from either the normal XMODEM header or, as already mentioned, the special header used by APPLE protocol transfers. The receiving end, as usual, sends out a <nak> until the header is received and if the header is correctly received is acknowledged with an <ack>. The sender then waits for 90 seconds for the receiving end to initialise the disk. When ready a <nak> is once more sent, and transfer begins. The format of the normal blocks is as follows:

Block header:

```
<$81><blk#><trk#><sct#><cksum><256 byte
block><cksum>
```

where:

<\$81> = start of header

<blk#> = block number being sent, start at \$01 and wrap to \$00

<trk#> = destination track#

<sct#> = destination sector#

<cksum> = check sum on

<blk#>+<trk#>+<sct#> toss any carry <256 byte block> a complete sector

<cksum> = check sum on 256 byte block, toss any carry

At the end of transmission an <eot> is sent as before. The normal use of <nak> and <ack> and ten tries of each operation are used. But it is necessary to give a longer time-out, typically 90 seconds, to allow for the time which may be taken to scan the disk over zeroed sectors. These are not, of course, sent to cut the time of transmission. If the <dos> CPM command is received, then all sectors during initialisation are written out with \$E3 rather than the usual \$00. This is the normal form of a CPM blank sector.

The receiving end should initialise with the <volno> received. It is advisable to initialise this way, because the <volno> must match the DOS of the original disk or a crash on 'boot' will follow. An option to not initialise should be given to allow the resumption of a transfer from a previously aborted transfer, at the <trk> where transfer was aborted. This also allows for instance the possibility of not sending the DOS tracks, and thus save time, if required.

I included also in DATA HIGHWAY a Cyclic Redundancy Check (CRC). This was simply a bonus to tell both ends whether the transfer had been totally successful. It is always possible that a garbaged block also includes a garbaged checksum, and that the two match and the block is accepted. The CRC will in that case not match the other end, and it will be clear an error has occurred.

Normally, disk transfer will take some time, and a speed of at least 1200 baud is required to attain a reasonably short period. 1200 baud with 75 baud acknowledgment works well, and has been proved successful using DATA HIGHWAY with combinations of SUPER SERIAL CARD's, II's, MASTERCARDS and II's. Any modem can be used, though all testing was done using a Nightingale multi-standard Modem. During testing, and since, many many transfers have been made. Some even with such bad telephone lines that we have had up to fifty checksum errors, but in every case the disk has transferred cleanly.

It is best, at the sending end, to start with a clean disk. That is, one that has been freshly initialised and prepared, with only the required files and DOS written to it. By that means no sectors will be present with data that is not relevant and only those sectors which contain meaningful data will then transfer. There is no need for it to be a DOS disk, any disk that copies with COPYA will be read by the RWTS routine and can be sent. A typical disk will transfer in about 10-15 minutes at 1200 baud, while a full disk will take about 40 minutes. At 300 baud these times would be 40-60 minutes and 2hrs 40 minutes, an expensive business!

By publishing these protocols, I wish to place on record, what I hope may become a

standard for disk transfer by XMODEM. The ground work was done by Ward Christensen, I only provided the frills that allowed Apples to send disks to each other. All kinds of uses of disk transfer spring to mind, from the back-up of data disks, to the sending of complete program disks to satellite users. DATA HIGHWAY itself, was sent, for duplication, by means of its own disk transfer routine, from my own home in Wiltshire, to PACE in Bradford.

Reference:

'Modem File Transfer Protocols' by Ward Christensen and David Back CPAMUG UK

Items utilised.

'Ascii Express Professional' by Bill Blue-United Software Industries. 'Data Highway' by Ewen Wannop- PACE Software Supplies. 'Super Serial Card'- Apple Computer. 'Mastercard Serial Card' and 'Nightingale Modem' - PACE Software Supplies.

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THE DATA PROTECTION ACT

BY CARL PAYNE & CHRIS CLARE

THE DATA PROTECTION ACT 1984

INTRODUCTION

The Data Protection Act was given Royal Assent on 12 July 1984. It affects nearly every Commercial or Business organisation which uses computers in the UK and it also affects the export of computer generated information to other countries. The aim of the Act is to provide certain rights of access for the individual to any data or information of a personal nature which concerns that individual and which is held in computerised form. A useful reference is provided at the end of this article.

THE PURPOSE OF THE ACT

Strangely, the Act itself does not refer to the word "computer". Instead, it defines its scope as covering data and information stored and processed using "equipment operating automatically in response to instructions given for that purpose". However, it is generally accepted that this statement refers to any computer system ranging from the smallest microcomputer to a large mainframe. The only type of computer system which could be exempt is a dedicated word-processing system with no data processing (i.e. numeric or manipulative) capabilities. The Act specifically excludes systems which are entirely manual in their operation. Hybrid (manual and computerised) systems are covered by the provisions of the Act in respect of the data processed by the computerised parts of the system.

The Act requires that:-

- (i) All computerised data of a 'personal' nature and the users of that data are to be registered.

- (ii) No such data should be exported to other countries unless the details of the data and the use to which it is to be put are registered and agreed by the Data Protection Registrar.

- (iii) Any person about whom such data is held has the right to be informed of what the data is and how it is used. Personal data is defined as data relating to living individuals who can be identified from that data alone or from its amalgamation with other data held by the user.

As with all legislation, the Data Protection Act will be subject to interpretation by

- The Data Protection Registrar
- Any Data Protection Tribunal
- The Law Courts

and it will not be possible to foresee the full ramifications of the legislation until a number of judgements have been made in any test cases which may arise.

THE PARTIES INVOLVED

The Act identifies three parties:

The Data User

This refers to the individual or organisation which has collected and computerised any personal data relating to other individuals. The Data User needs to apply to the Data Protection Registrar for his or her data to be entered on to the register. The user will receive notification of acceptance or refusal of the registration and may only proceed to process and store data that has been successfully registered. The user may also be subject to the receipt of the enforcement notices, which instruct

the user to amend the system in accordance with the Act, transfer prohibition notices, which restrict the export of data or information, and de-registration notices which will be presented if the user is found to be in breach of the Act. These latter notices would restrict any further processing of the data to which they refer.

The Data Subject

This is the individual to whom the personal data refers. The Act gives the Data Subject the right to request from the Data User copies of any data records relating to the subject. Should any such records prove incorrect or inaccurate the Data Subject has the right to request that any errors be corrected. Finally, the Data Subject has recourse to the Data Protection Registrar, any tribunal or the courts, if the Data User is felt to be in breach of the Act.

The Data Protection Registrar

The function of the Registrar is primarily to be responsible for the Data Protection Register. He/She will also promote the observance of the Act and advise Users and Subjects on any matters relating to it. The Registrar will also have a responsibility for investigating any complaints emanating from Subjects.

THE AXIOMS OF THE ACT

To support the general requirements of Data Protection Legislation, the Act introduces eight principles:-

1. The information to be contained in personal data shall be obtained, and personal data shall be processed, fairly and lawfully.
2. Personal data shall be held only for one or more specified and lawful purposes.
3. Personal data held for any purpose or purposes shall not be

disclosed in any manner incompatible with that purpose or those purposes.

4. Personal data held for any purpose or purposes shall be adequate, relevant and not excessive in relation to that purpose or those purposes.
5. Personal data shall be accurate and, where necessary, kept up to date.
6. Personal data held for any purpose or purposes shall not be kept for longer than is necessary for that purpose or those purposes.
7. An individual shall be entitled:-
 - (a) at reasonable intervals and without undue delay or expense:-
 - (i) to be informed by any data user whether he holds personal data of which that individual is the subject; and
 - (ii) to have access to any such data held by a data user; and
 - (b) where appropriate, to have such data corrected or erased.
8. Appropriate security measures, shall be taken against unauthorised access to, or alteration, disclosure or destruction of, personal data and against accidental loss or destruction of personal data.

These eight principles should be followed by all data users. Computer bureaux must abide by Principle 8 but the users of those bureaux are covered by 1 to 7.

THE RIGHTS OF THE DATA SUBJECT

Every Data Subject has the right to demand to see a copy of the personal data which relates to him.

Each such demand relates to the data covered by one entry on the Register, and, if a Data User has more than one application registered, then the Data Subject must make requests for each entry if he wishes to inspect all the data. Direct interrogation of the computer system by the subject is not required; a printout or transcript will suffice although all codes should be translated into meaningful terms. Any response to such a request must be made within 40 days of the request and the response must not contain details of anyone other than the Data Subject.

The Data Subject also has the right to request corrections or proper amendments to his personal data. If a reasonable request is not complied with the Data Subject may be entitled to seek legal compensation. Compensation claims may relate to:-

- the authorised disclosure of personal data to third parties,
- damages resulting from inaccurate or incorrect data,
- unauthorised use of data,
- failure to disclose details of data held.

EXEMPTION FROM THE COVER OF THE LEGISLATION

The legislation has identified four basic categories of exemption. These are detailed as follows:-

1. Exemption from the Entire Act

There are a number of specific cases where personal data is exempt from the cover of the Act. These include data which is held solely for payroll purposes (i.e. for the calculation and payment of wages

and salaries, but not for any other purpose), data which consists of names and addresses to be used only for distribution purposes (but only with the agreement and approval of the data subject), data held specifically for personal affairs (e.g. household accounts) and data which, by other law has to be made public (e.g. electoral rolls, registers for shareholders, etc). Other exemptions are of a more general nature such as if "exemption is required for the purpose of safeguarding national security".

2. Exemption from the Obligation to Allow Access to Data Subjects

This exemption covers the part of the Act which specifies that all Data Subjects should be allowed access to personal data held which relates to themselves. Three specific areas have been quoted and these cover data held for the purpose of

- (a) the detection and prevention of crime
- (b) the apprehension and prosecution of offenders
- (c) the assessment and collection of taxes or duties

Other, more general, areas for exemption under the clause have been outlined and these include:-

- data concerned with medical or social work records where disclosure may be judged harmful to the subject,
- data held for statistical or research purposes if that data does not identify individuals,
- data held by a lawyer under professional legal privilege together with other examples.

One other type of exemption under this category concerns back-up data. Where this is used only for security purposes it is exempt from the obligation to allow access.

3. Exemption from the Requirement Not to Disclose Data to a Third Party

The Act requires that all uses of the data are registered. This includes any disclosure of any of the data to a third party, without the permission of the Data Subject. There are, however, exemptions to this requirement and these include:-

- data which must be disclosed as the requirement of a court order or an Act of Parliament.

- data held for the purpose of

- (a) the detection and prevention of crime
- (b) the apprehension and prosecution of offenders
- (c) the assessment and collection of taxes or duties

- data which must be disclosed in order to prevent injury or harm to someone's health (e.g. data concerning medical history) and, of course, data required "for the purpose of safeguarding national security".

4. Exemption from the First Principle of the Act

The only specified case for this type of exemption covers data held for the purpose of

- the detection and prevention of crime
- the apprehension and prosecution of offenders
- the assessment and collection of taxes or duties.

THE REGISTRATION PROCESS

All users of personal data are required to register that data and its use with the Data Protection Registrar. The Registrar will require details of:-

1. The data user e.g. name, address, company registration number.
2. The personal data that is to be held and what it is to be used for.
3. Where the data originated.
4. Who will receive the data and for what purpose.
5. Any other countries to which the data will be exported.
6. How the Data Subjects can gain access to their records.

It is likely that information will only be required in general form (e.g. not the exact record structures of the data). Users can make one single entry on the Register which covers all personal data held on their computerised information system or they could make a number of separate entries, one for each application area or one for each geographic area. The former course of action would be cheaper in that only one registration fee would be paid. The latter may, however, be a better cause of action in that it would require the Data Subject to specify the area for which access to personal records is required. Since the registration fee is likely to be small (e.g. \$50) it would seem a small price to pay for the convenience of only having to deal with record accesses to one application area at a time.

THE EDUCATION PERSPECTIVE

As an example of how the Act can affect any type of organisation, the work of a school, college or university can be studied. Educational Institutions hold and process large amounts of personal data which relates to "living individuals who can be identified from that data alone or from its amalgamation with other data". In other words data relating to staff

and to students. Those systems which process such data need to be identified in order to ensure that they are properly registered or to ensure that they are exempt from the provisions of the Act.

There is no need for panic measures merely a careful evaluation of what data is processed and why it is being processed. This evaluation is a useful exercise quite apart from the requirements of any new legislation.

Turning to specific systems, many educational institutions run the type of systems outlined below. The following, is not intended to convey expert legal opinion, merely the computer user's view.

1. Word Processing

The use of computers to prepare textual documents (letters, memos, reports etc) are specifically excluded from the Act provided the data is not also used for other purposes. This restriction applies to the processing of personal data, for example by a program running on the machine which runs the word processing package or by a program on another machine which could read data from the WP files. At the moment this is not a facility which is widely used - word and data processing are usually separate.

2. Payroll

Data held in a payroll system for the purpose of calculating and paying wages and salaries or pensions in respect of employment is exempt. However the data must only be used for those purposes. It must only be disclosed to

- people making payment (e.g. banks, building Societies, giro etc)
- people for the purposes of obtaining accounting/actuarial advice.

There is already, however, confusion concerning payroll data. According to the management consultancy Ernst and Whinney, certain data such as Department, Union Membership, grade of staff etc could be used for other purposes and should therefore be registered.

3. Personnel System

Many institutions run a computerised staff records system containing personal details of all members of staff. This has to be registered and the obligation to allow access for data subjects applies. Such a system should incorporate mechanisms for:-

- staff to be given copies of their printouts,
- any changes to be readily incorporated,
- staff to be able to obtain a copy of their printout 'on-demand' (the Act allows 40 days).

4. Course Leader Systems

Many teachers operate computerised system for calculating and summarising the end-of-year results for courses. Any Course Leader is faced with very complex calculations concerning weightings between examinations, coursework, phase tests etc. The natural solution is a computerised system.

The problem is that this data is personal. General policy is not to divulge specific marks to individual students. However, the Act requires 'obligation of access' and the possibilities of exemption from this need to be explored.

5. Library System

Many libraries now have computerised cataloguing and book loan and return systems. However, the data is personal and the system needs to be

PRINTERS

	OUR PRICE
BROTHER	
EP 22	£109
EP 44	£179
HR 5	£119
HR 15	£399
HR 25	£595
HR 35	£795
HR 1 (16½" Carr.)	£299

CANON/KAGA	
NLQ, 80 Col	£299
NLQ, 156 Col	£399

EPSON	
RX 80T	£189
RX 80FT	£239
RX 100FT	£399
FX80	£359
FX 100FT	£479
DX 100	£419
LQ 1500	£999

JUKI	
6100	£349

MONITORS

KAGA	
12" hi-res (green)	£109
12" hi-res (amber)	£109
12" med-res (PAL/RGB)	£199
12" hi-res (RGB)	£259
12" super hi-res (RGB)	£359

SANYO	
12" norm-res (green)	£69
12" hi-res (green)	£109
14" norm-res (RGB)	£239
14" med-res (RGB)	£349
14" hi-res (RGB)	£499

VACANCY

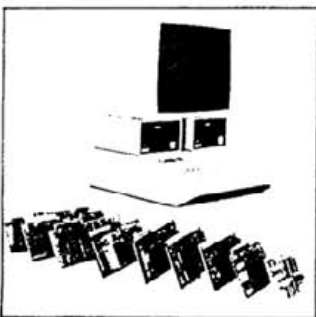
Young person with Apple experience required. Contact Len.

NORMENDE

14" TV/RGB monitor £169

DISC DRIVES

Cumana (half height) £139
Apple drive £199



SOFTWARE

Format 80 (Enhanced)	£99
Magicalc	£59
Multiplan	£149
Sage Acc	£375
Sage Payroll	£195
Format PC	£199
Ormbeta Accounts	£335
Ormbeta Invoicing	£95
Fast DOS	£19.95
Copy II Plus	£39.95

P&P: For Printers, Monitors, Computers and Sheet Feeders £8 + VAT per item
For others: Under £100 - £3 + VAT,
Over £100 - £5 + VAT.
All prices add 15% VAT

Merlin	£49
Routine Machine	£39
Microsoft Compiler	£119
Omnis 1 database	£140
Omnis 2 database	£280
Omnis 3 database	£440
Niceprint	
(gives L.Q. print on Epson + Gemini)	£75

Note: Omnis 3 is available in Multi-User version
Also format 80 available for MS-DOS & PC-DOS

ACCESSORIES

52 key Ascii encoded keyboard (upper and lower case)	£59
Power supply	£59
AC cooling fan	£29
40/80 jet switch	£12
Inverse video chip for 80 col	£6
40/80 serif switch	£14

PERIPHERAL CARDS

NB: Rosco printer cards are CP/M, Pascal & Applesoft compatible with full graphic dump.

Printer Centronic	£38
Printer - 16k buffer	£89
Printer - 64k buffer	£129
Printer Cable	£12
80 column (Not Ile)	£44
80 column Inc inverse video chip. (New version, Not Ile)	£54
Expandable 80 column (Ile)	£49
Extended 80 column (+64k)	£89
Disc controller	£38
16k RAM	£44
Eprom writer up to 2764's	£54
RS232 (serial card)	£42
280 CP/M	£44
A to D (16 channels)	£69
RGB card (for II)	£55
Pre-graph printer card	£38
Wabaah disks (10)	£13
Datalife disks (10)	£19

D Rosco Ltd

289 Birchfield Road, Birmingham B20 3DD. Tel: (021) 356 7402.

Telex: 334303 TXAGWMMG



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registered. This is important in that.

- it would be easy to draw conclusions about an individual from the book they read, I might not want everyone to know that I keep taking out books by Margins de sale
- data concerning defaults may be required by other systems, such as the student fee systems.
- the system, by its very nature needs to be freely accessible, and this poses security problems.

There are just a few of the many systems operated by PSB. Some are covered by the provisions of the Act, some are not. However, as with many things in life, it is better to be safe than sorry!

CONCLUSION

Each Data User organisation needs a member of staff responsible for ensuring compliance with the Data Protection Act. This person should also ensure that all staff in the organisation are fully aware of the provisions of the Act and of the ramifications of unauthorised use or disclosure. All data held should be checked and where personal data is held, its storage and processing should be fully justified. All security procedures should also be checked to ensure against unauthorised access.

REFERENCE

"Guide to the Data Protection Act", R A Elbra, NCC Publication.

Chris Clare is a principal lecturer in and Carl Payne is Head of the Department of Mathematical Sciences and Computing, Polytechnic of the South Bank, London SE1.

Ed. We would be interested to have readers letters on this article.

Readers' Letters

Hoting,
Sweden.

Dear Sir/Madam,

I have now been a member of BASUG for more than a year and I really appreciate 'Hardcore'. It contains lots of valuable tips, interesting articles and the software library is super!

I think your organization proves that the Apples have more life in England than in Sweden; and that is the reason I write to you.

I would in this way like to get in touch with Appleusers (II+ with CP/M) for exchange of ideas, opinions and programs.

If you are interested please write to:
Kjell Olsson,
Liljeströms IP,
S-141 00 Huddinge,
Sweden.

Yours sincerely,

Kjell Olsson.

Ed. Apple UK please take note !

Hampstead,
London

Dear Sir,

I would like to pass a few comments about the almost non-existent BASUG Prestel pages.

These pages have not changed for the past 6 months as far as I can see. Not only that, but there is a feeble excuse that our database has not been set up yet.

While I appreciate it takes work to set this up, its staticness over the past 6 months suggests to me we have forgotten about it altogether. I suggest that while advertising to Apple Prestel users that we exist, it is also advertising to a certain non-efficiency. Another thing that irks me is that to join you have to WRITE to BASUG, - is there no way to join via Prestel, and perhaps even write via Prestel asking for details as is the norm for most other IPs.

I realise that a lot of work is involved, and I would suggest a post is created to do the work. I am afraid at the moment I am rather ashamed of these pages.

On the good side of BASUG I am glad to see that you accept Apple CP/M formatted files. I think CP/M has been much neglected - somebody told me there are more Apples running CP/M than Apple DOS in the world - with this in mind is it not sensible to have more on CP/M, especially with the cheap CP/M cards on the market nowadays. It is definitely getting better however - I notice in the latest issue of Hardcore that the Epson pages were dedicated to CP/M as well as a DBase-II course in the future. Is there a BASUG CP/M SIG? If not is anybody interested in starting one?

Finally, where does one get a copy of CP/M Muffin?

Yours faithfully

Ian Sidwell.

Ed. I am putting a copy of CP/M Muffin on your disk Ian and - coincidentally - see Ewens piece on Prestel.

London NW3.

Dear Editor,

After examining quite a lot of programs written by English and American subscribers to clubs and magazines, I have come to the conclusion that many of these excellent programs are in need of a little polish when it comes to 'presentation' on the screen. It is a shame that much work which warrants attention for technical merit, does not appeal or get used because it suffers from messy screen-appearance.

To give some help and guidance to those that may be interested - I have taken a common program, known and available to almost every Apple user, and revised it to show 'before' and 'after' - when work is done to present the program with a neat and tidy screen. No graphics have been used and yet some drawing is achieved simply by using ordinary Applesoft (text) commands. The technique used is really quite simple but does not seem to be commonly used by programmers.

The program used for illustration comes from the Apple 'Disk Operating System' Masterdisk. This was chosen because it will be known to many. It is the 'Phone List' program. The modified version, original version and instructions are on the enclosed disk. Apple Computers have kindly agreed to allowing any distribution to BASUG members and I donate this disk to the Club so that copies may be given to anybody interested.

Yours sincerely,

Tony Corinda.

Chueng Chau N.T.,
Hong Kong.

Dear Mr. Editor,

I would like to know if the Library or any members have a M/C routine that will function like the INSTR function of MBASIC. For those not in the know, INSTR takes two strings and tests to see if one is contained in the other, if it is not then the function returns to zero, if it is then it returns the position of the substring in the main string.

For example:-

```
INSTR ("abc","dge")
returns zero,
INSTR ("abcdef","cd")
returns 3.
```

I am writing a quiz program that would be made a great deal simpler if I had such a routine, I am, however, not a good enough M/C programmer to write it myself but for the many experienced programmers out there I don't think it should be difficult. The main problem (I think) would be passing the two strings to the routine. I think the best way would be for the routine to search through the string variable table for two preset names in the table (which would be the first two strings used in the program). If the routine was called through the USR function then that would provide a simple way of returning the result.

I am sure someone out there will have or be able to write such a routine and I am sure that both the Library and Hardcore as well as many members, would be pleased

to see it. If we have it in hardcore then how about a detailed description of how it works, so lugs like me can understand it ?

[Andy ?]

Why does CALL 985 (under DOS 3.3) make the Apple moo like a cow - sometimes once, sometimes twice, sometimes not at all ?

Why does POKE 44457,88 : POKE 44458,252 clear the screen before every DOS 3.3 catalog ?

Why does CALL-3100 reveal (but not erase) hi-res page 1 ?

All these examples from 888 number 6, but I don't exactly think they can claim copyright on a CALL ! (not that I think they would mind anyway).

Yours,

R. C. Lowe.

[Are you there 888 - let us have a letter if you hear us].

Hampton,
Middlesex.

Dear Dr. Baron,
I enclose a trifle for 'Hardcore'.

HAPPY FAMILIES - Apple //e.

Ferretting through the //e Monitor ROM listings recently, I was amused to find that when Rick Auricchio and Bryan Stearns modified the old Apple II Monitor, they found room to embed their Christian names at \$FC5C and \$FEC5 respectively. Mr Auricchio even adds the comment 'our hero' to his entry, but Mr. Stearns is more modest!

If you have not come upon this before, the following short program will reveal all.

```
10 FOR X = 64604 TO 64609: PRINT CHR$(PEEK(X));NEXT
20 PRINT
30 FOR X = 65221 TO 65225: PRINT CHR$(PEEK(X));NEXT
```

Yours Sincerely,

Walter Anderton



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Speedloader Disk Utility.

By Ewen Wannop

In those heady days when I first replaced my cassette recorder with a disk drive, it seemed impossible that I could have tolerated the slowness of that cassette recorder. Up to 20 minutes I remember for one adventure game to load. Since then I have used various DOS systems that have speeded up the process, and we now have PRODOS which is the fastest from Apple themselves so far. However, all of these have been full DOS operating systems, that only did their work once loaded in the machine. Some programs once loaded, do not need disk access, these waste time by having to load in DOS before they themselves can be loaded and run. Various proprietary disks have provided their own means of fast-loading, and we have often sat back in amazement wishing all our software could load as fast. Well those days have now come, and we have to thank Cornelis Bongers and William Schouten for such a program called SPEEDLOADER, written to run on any model of the Apple II family.

SPEEDLOADER is not a DOS replacement, it is an adjunct to DOS and is probably the most important program handler that we have had since DOS itself. It simply does as it says, 'speedloads' programs into memory, and if you need DOS then this can be loaded in as well, complete with all its page 3 pointers. After 'speedloading' your Apple does not know that things are any different than from a normal booting, only it has all happened in a flash.

Just to whet your appetite for what is to come, let me tell you that I did some timings on my favourite assembler MERLIN. Drives take some time to zero the head, typically about 4 seconds, so to get the true loading time this must of course be subtracted. With ordinary DOS, MERLIN takes 24 seconds to load the DOS and itself into memory. With a fast-dos, a time of 13 seconds was achieved. With SPEEDLOADER, the program was running and DOS installed in 6 seconds flat! That means that it took 2 seconds to load in the DOS and MERLIN. If that does not seem

fast, then take the DEMO disk that was originally sent to BASUG as an example. On the disk are eleven Hi-Res pictures, these are speedloaded and then displayed by a Basic driver. I first prepared a normal disk with the same number of pictures and took these timings, 1 minute 35 seconds with ordinary DOS, 25 seconds with a fast-dos to load in and display the eleven pictures. Then I ran the demo disk, and got an impressive 6 seconds time with SPEEDLOADER! Also on the demo disk were FID and COPYA, from its own menu FID took 3/4 second and COPYA 1 second to load and run!

Where's the catch you ask, well as far as I can see there is none. The only question in my mind, is that the proper check-sum is made on the disk sector as they are loaded. If that was not the case, then errors could creep in. But when the description of how the process is achieved is explained, there seems no reason why the check-sum is not being done. The only other catch seems to be that the disks must be specially prepared for all this to be achieved. However this is a once-per-disk process, and the disks may even be copied by suitable means, thereby preserving the fast-load process. A comprehensive Master disk for the System covers all eventualities. All functions are accessible from a menu, and once the loader is in memory some new commands are added. These use the ampersand routine, and give you & LOAD, & RUN, & LIST, which lists the fastloader directory, and & NEW which loads a new directory if you have changed disks.

How is it all achieved then? Well, normally to run a standard or fast-dos disk we need to boot in the disk operating system (DOS). Once in memory, the DOS will look for the required program in the Catalog, seek the Track/Sector list and using the information there, load in the sectors one-by-one into its DOS buffer, and then finally send them to the destination address. This all takes unnecessary time. SPEEDLOADER simply lifts the sectors sequentially from the disk, and deposits them at the destination address directly, a similar process to PRODOS. However to make things happen as fast as possible,



SPEEDLOADER maintains its own separate Directory, it need only know where the first sector of the program is on disk, how many sectors are involved, and where it is to go in memory and what to do with it once loaded. The programs are laid out in blocks on the disk, and the sectors taken up are marked as used in the normal disk directory. To further achieve speed, the tracks on a SPEEDLOADER initialised disk are arced to give optimum reading time. A disk that has been initialised by SPEEDLOADER, has no DOS on it at all, only the Loader is present. The Loader and its directory take up the normal DOS space of Track 0, if DOS is required, then it is prepared by a special program that is provided on the master disk, and resides as a binary file to be loaded and run by SPEEDLOADER. An option is provided to allow any memory location to be accessed during loading, so that language cards for instance may be switched on, or screens be toggled. The only kind of file not catered for are Text files, these normally would not be loaded into memory as such, as they would more naturally be opened by DOS and read either sequentially or randomly. All other types of file, Binary, Applesoft and Integer, may be SPEEDLOADED.

When the master disk is booted, a menu is displayed. The menu allows both DOS 3.3 and speedloader functions. DOS 3.3 functions include cataloging and deleting files and selecting whether 1 or 2 drives are to be accessed. Speedloading functions include initialising disks, copying files from DOS to speedloading, renaming files, cataloging and deleting files. A special function toggle is also given. This allows clever things such as displaying sectors passed over but not read, so that you may adjust the sector interleaving for maximum speed of loading.

The master disk is used to prepare special disks for fastloading, unused areas of the disks may be used normally for standard DOS files. Or you may prepare your favourite program as an ultra-fast loading disk. You can arrange for some files to load and others to run within an auto-boot facility. So you can for instance have DOS running, some

binary tables loaded and an Applesoft program operating, all automatically on boot. Once the loader is in memory you can continue to use it from the two Basics. The loader can be anywhere in memory, and you can specify its destination if you need to.

Quite impressive you must agree. The whole program is contained on one disk, and on the back of the disk is a lengthy manual (43 pages) in the form of Appewriter text files. A text-reader is provided for those without a word-processor or printer. The manual is well laid out and very informative. It tells you all you will need to know about using the program, and includes actual examples in Basic. In addition, there is a section for machine code programmers, with a full discussion of how the program works.

BASUG has arranged the UK rights to sell SPEEDLOADER. We regret we cannot sell outside the UK for the moment, but we can sell the disk to non-members. It is within the Special Release Section of the software library, priced at £15, with £1 for post and packing. It is because of this low price that the manual has been provided in the form of text-files only. People with a suitable word-processor or a printer may print it out to their own requirements. For those with neither of these a textfile reader is provided, that will dump to either the screen or a selected slot, this of course allows it to be sent to either a printer or 80 column card.

To obtain a copy please fill in the order form that comes with **HARDCORE**.

Title: **Circuits**

Author: C. R. Harding

Price: £19.00 + VAT

Hardware required: Apple II/IIe with DOS 3.3 Disk Drive, joystick or graphics pad.

By Andrew Jackson

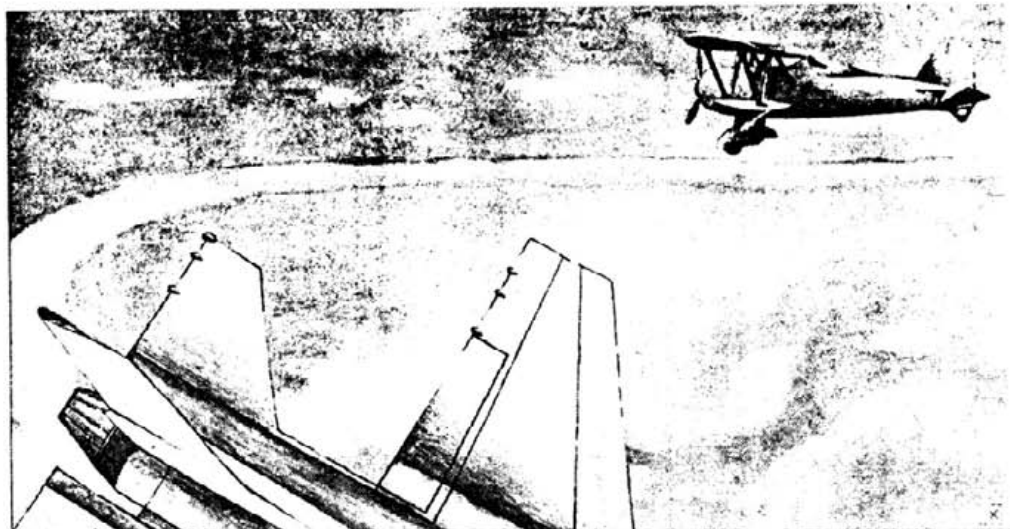
Computer Aided Design (CAD) is one of the fastest developing fields at the moment and the 'Circuits' program allows Apple II and IIe users to try it out for themselves.

WAITING

is it really necessary ?

Developed by:

Cornelis Bongers
William Schouten
CBWS Productions



Like any Apple user, you probably use your drive frequently. Undoubtedly, you will then also have wondered why simple operations, such as booting the system or loading a large program, take so much time. If you ever thought that you were waiting because your drive could not run any faster, we have good news for you ! Your drive is capable of much more than you ever dreamed of. So as far as 'waiting' is concerned..

THAT BELONGS TO THE PAST III
FOR NOW THERE IS THE

* **SPEEDLOADER.**

With the Speedloader you can copy your programs to a so called "FASTBOOT"-diskette. Upon booting the FASTBOOT-diskette a MENU will automatically appear, showing the programs on the diskette. By simply pressing a key, you can load a program in a fraction of the time it took before. The SPEEDLOADER also provides the option to load and/or execute multiple programs (including DOS) automatically.

SPECIFICATIONS

- Loads files more than 10 times faster than DOS 3.3.
- Multiple files can be loaded in a single load-step.
- File choice can be done with the built-in menu.
- Chaining of Applesoft programs is fully supported.
- Applesoft programs can be loaded anywhere in memory (thus also above the HIRES pages).
- Files can also be loaded in a RAM card.
- As reliable as DOS 3.3.
- And last, but not least: very easy to use.

This is how the professional Apple magazines value the SPEEDLOADER:

"incredibly high speed, excellent support, low priced"
(Shift, January 1985)

"High degree of user-friendliness, excellent manual, very low priced"
"I strongly recommend the SPEEDLOADER to every Apple user"
(Klokhuys, December 1984)

The price of the SPEEDLOADER is £16.00 (inc VAT & packing) and it can be ordered from:

BA5UGLYD
P.O. Box 174
Watford
WD2 6NF



The package is supplied on a DOS 3.3 format disc with no documentation in printed form. The program auto runs and, after loading, it is possible to enter a tutorial or run the main circuits program. The tutorial program is actually a manual which is listed to the screen and I found the best way to read it was to list it to the printer and then read the listing. It explains the various features and limitations of the main program, together with what extras you need to run the package (a joystick and a printer). Information is divulged as a series of pages: unfortunately there is no facility for viewing earlier pages without rerunning the whole thing.

After completing the tutorial the main program is loaded. This then loads in various shape tables and part descriptions before moving into a help screen. Sensibly, it checks that a joystick is connected before continuing; unfortunately there is no way to calibrate the joystick, which, for me, was a nuisance as my joystick gives values in the range 0 .. 192. However, with normal apple paddles there should be no problem. After moving from the help screen, which may be recalled any time, a hires screen is displayed. The screen is split into two areas: the drawing area and the components area. The components area has most of the commonly used electrical symbols (resistors, capacitors, ICs, diodes, etc) and additional symbols are available through a submenu. The component type is selected by moving the cursor to the appropriate symbol and pressing a button: the cursor then changes to the new symbol. If an IC is selected the program stops to ask what size (number of legs). Components are selected by moving to the drawing area with the joystick and then pressing the button when at the desired spot. Sensibly a zoom option is provided to reduce the sensitivity of the joystick since otherwise the large amount of jitter could cause a component to be deposited in unintended positions.

Once all the symbols for a particular circuit have been positioned the tracks joining them can be

drawn. I found this to be the trickiest operation of all and often ended up with odd tracks and dots on the screen: I found that I had to keep reminding myself what order to press buttons in but this is due to lack of practice rather than a fault in the program. The components on the screen can be numbered and given a description. This is achieved by identifying, in turn, each component allowing resistor values, etc., to be entered, together with any comment relating to the component.

Obviously mistakes are made when drawing up a circuit and the program allows components and tracks to be erased very easily. This is achieved by pressing a key and aligning the cursor over the item to be removed, then pressing the button. Track erasure was the same as drawing tracks, except with the erase toggle on.

The components and track information can be saved and reloaded to disc in two forms: one a copy of the hires screen, and the other as the components and coordinates. I found the second option the more useful because, when reloaded, the screen was redrawn removing my earlier mistakes!

Hardcopy of the graphics screen was not provided but, that is not surprising, given the wide range of printer cards around. A list of all components could be printed together with their values and comments about them.

I liked the program. I found that 'Circuits' was well presented and well thought out, with attention to detail in normally forgotten areas (like checking for the joystick!). I would like a better manual - perhaps a printed one (listings are difficult to read quickly), some form of calibration for the joystick, and possibly a different method of track drawing. The program provides a good introduction to CAD and has many options built in which I have not mentioned or only touched on briefly.



Eamon Adventure Games.

(BASUG Software Library).
Hardware required: Apple II species & DOS 3.3 disk drive.

By Danielle R. Bernstein with the help of Neil Bernstein

EAMON is an adventure game or really a set of adventure games, with a central theme. You, the main character, can choose from about 25 adventures to go on. The basic object of EAMON is to enter an area usually named something gory, collect as much treasure as you can, right wrongs, and it might help if you saved a princess or two on the way.

When you boot the Master disk, you are asked for your character's name. If you are a new character, you are given money and characteristics such as hardness, agility and charisma. These qualities will help you kill or charm the creatures you meet on the way. You are asked for your gender; women get less hardness but more charisma than men. Then you move on to the Main Hall.

In the Main Hall, you meet the local weapons dealer, Marcos Cavielli. He will sell you weapons and armour which you must have before you can go on to any adventure. For a price, the wizard, Hokas Tokas will teach you spells. As you enter Main Hall, a very tight-fisted bargainer will give you gold in exchange for your hard-won treasure when you come back from an adventure.

If you survive the end of the adventure or when you have had enough, you can come back to Main Hall and save your character. That will save your money, weapon and armour for the next time you boot up. The next time, you can go on a different adventure and still make use of these.

Finally you are asked to replace the Master disk with the adventure disk you want to play. There are over 25 disks of various degrees of challenge and interest.

EAMON is an all-text game, and very wordy to boot. It is written completely in Basic and can be changed quite easily. However, it goes back to disk very often and is quite slow and not meant for the impatient used to arcade-type games. Because of its modularity, it is easy to write new adventures. The EAMON system provides a Designer disk which I shall talk about next time.

The Lair of the Minotaur.

The Lair of the Minotaur is an easy adventure from a fighting standpoint, but sports a very complex maze. Your object is to recover your girlfriend, Larcenous Lil, who having arrived in town flat broke, attempts to vandalize the neighbouring castle. She doesn't succeed, so you go to rescue her. Next thing you know you have been captured by the enormously fat castellan and thrown down a huge hole through a trap door. Good ideas are put into use here, especially the comical 'THUD' at the bottom. Then you must find your way out of the maze, preferably rescuing your damsel-in-distress on the way. One of the trying features of this game is the rather confusing maze, which instead of stating your relative position to a certain landmark (which would help you in mapping the dungeon), on most points, except for ones of interest, it merely tells you 'YOU ARE IN A N/S CORRIDOR'. Consequently you must have a mental image or map of all the 4-way intersections and north and east bends the dungeon provides. But luckily there are 'places of interest' which one could use as a landmark to judge positions with, such as the insanity room (the fate of adventurers who took the game literally), the storage room, the temple entrance, beneath the trap door or the middle beach. All of these 'places of interest' will come in handy when making a mental map of the dungeon landscape.

This adventure is rather short on characters; consequently it is easy to fight through. Two priests, a black knight, a blacksmith, a minotaur, and a gypsy should prove easy enough compared to other adventures, which have an enemy in every corner. This game's challenge is the famous maze.



Title: Practicalc II
 Producer: Practicorp Ltd.
 Price: £69.95 inc VAT.
 Hardware required: Apple II/IIe/IIc with disk drive.

By Chester Kemp

Practicalc II is, we are told, "integrated software": "the fast, easy-to-learn integrated software that combines spreadsheet, word processing and database functions, with tremendous value". I must state at the outset that I regard these claims by Practicorp Ltd as being somewhat overblown, but this does not stop the it from being very good in several areas though.

Spreadsheet

Primarily, it is a spreadsheet package which is good, comprehensive and fast. Whilst it will run on a 48k Apple II+, if you have 128k RAM (on a IIe or IIc) then Practicalc II will make full use of it and giving you a useful 77k space! It has all arithmetic and trig functions, plus SUM, COUNT, MAX, MIN and AVG, and also includes IF, NPV and LOOKUP. It can read Visicalc, DIF or text files.

You have the choice of using either 40 or 80 columns onscreen (subject to hardware of course) and the 'Help' screens are drawn up using ctrl-A. It does specify that Videx cards are OK, but I'm not sure what effect ctrl-A would have on it as Videx makes use of this code as well. The 'Help' screens are basic, and generally not as good, timely nor comprehensive as for example 'Multiplan' or 'Supercalc'. All commands are prefixed by '/' as is generally the custom.

It is difficult to make any benchmark that can be universal because the column width of the screen makes a considerable impact on timings. Practicorp gives some interesting figures on timings and summarises them: "Calculates four times as fast as 'Multiplan', twice as fast as fast as 'Visicalc', and just as fast as '1,2,3'". They give figures to support these claims expressed in calculations per second: Practicalc -

250; Visicalc - 150; Magicalc - 250; Multiplan - 80. The claims are thus a little inflated, especially against Multiplan (for which it is 3x, not 4x faster, although it is still creditable); and by the by, I don't think that '1,2,3' is even available on the Apple. I devised a simple benchmark using an 18x18 matrix where each cell increments the previous cell's value by one. The timings I made confirmed that Practicalc is indeed fast, although slightly slower than stated.

Let me now add some ad hoc points about the spread sheet although not necessarily in any order of importance. Columns can be of variable widths. A simple graphics option was available to express a value as a sequence of '+' signs. A limited search option (/@) existed but required full match from the start of a cell, and with only single-character wildcards. I would have liked an ability to protect cells and formulae against accidental over-writing, but there was none; however I particularly liked an option for prompted entry into the spreadsheet using 'ctrl-F ?': with this option you prepared your sheet by typing in the required text prompt for each data input, and subsequently upon pressing '!' the program asked you for each item in turn; this perhaps lessens the need for protected cells to a degree. There was an option to allow repeating keys for underlines for example, but this was interestingly extended so that the defined repeating character should be able to make a box; this was useful for some descriptive headings. The usual ability to have the left-hand and top-line titles synchronised and protected was available.

Word Processor

I would not personally call this a word processor package, I would rather say that it has simplistic word processing facilities. To get into this mode you specify 'automatic wrap-round', 'long labels' and specify an input area size, each of these from the /O(options) menu. You are then able to type in text in the

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spreadsheet area and it will stick to the line length specified by you. You can re-specify the width for printing. The /@ (Search) option is less than useless in this context because it will only find text at the start of lines. When typing in text I found that I got the odd areas of erratic corruption when typing; I think that there is something probably wrong here with the program, but as I was unable to reproduce it to order I must assume the possibility that I may have typed something wrongly. Some newsletters like to present articles in dual narrow columns and Practicalc can do this.

Database

This is not what I would call a database, but it does meet what Practicorp describe as 'database functions'. What it really is is an extended spreadsheet, with each record being stored as a single line of information: eg Name, address, when paid BASUG dues, and other such information. A sort function is available to keep the records in sequence, and this can include multi-column sorting by doing a number of sorts from least significant to most significant keys. The Search function is still set to look from the beginning of a cell, and in the context of how it handles the database it is reasonably quite useful. That really is the extent of this function, and as such is not in the main overly useful.

General

The main criticisms are perhaps to do with Practicalc II's pretensions of grandeur. I do not regard this to be an integrated software package, it is a spread sheet which has some useful additional features. It is however a good piece of software and at £69.95 it represents good value for money.

THANKS

We wish to thank those companies who have lent or donated software for review. It should be noted, however, that quite a lot of reviews are written about items which members have purchased for their own use.

Title: The Print Shop

Producer: Broderbund Software, U.K. Distributors: P & P Microdistributors.

Price: £45.00.

Hardware required: Any Apple II species, or Apple III in emulation mode, disk drive, dot matrix printer (Epson or similar-various interfaces).

By Peter Baron.

This piece of user friendly software allows you to create a variety of designs which may be utilised in letterheads, greetings cards and posters. The disk supplied is copy protected, but it allows the buyer to make one back up copy.

The whole process of design, through to printing, is menu controlled and it is possible to move both forwards and backwards through a progression of menus. During these manoeuvres one is able to choose any one of the main categories of design format mentioned above and include graphics from about 60 ready made on the master disk, as well as text from eight typestyles. The text sizes in the letterhead and greetings card formats is the same, but for posters it is enlarged. When making a greetings card, front and back may have different borders, graphic symbols and lettering. With letterheads, there is provision for the inclusion of footers and lines to divide the top and bottom from the text of the letter to be written.

As a personal utility, The Print Shop offers quite a lot of scope for creativity, but obviously restricts one to designs which fall within one of the three main categories. At the same time, it is evident that a design in the greetings card or poster formats need not necessarily be used as such and the option to vary borders (to a total of 9 designs) and include or omit other features increases the number of possible applications. In addition, the authors have provided a graphics editor to enable users to create their own symbols. What I would also like to see is an option to load or create new fonts.



While this disk is not expensive, neither is it cheap and American prices do not cross the Atlantic so easily these days! But if one can justify the expense, this program is enjoyable and practical. You might even save money on letterheads, while at the same time producing attractive posters for your church or club and personalised greetings cards for your friends. A supply of coloured paper comes with the disk.

The bottom line? I bought it, and you will see examples of Printshop styles in the headings of this issue of Hardcore.

The Snapshot System.

By Richard Boyd et al.

This article deals with a remarkable Systems Utility for the APPLE II family, which includes The Copykit, The Shuttle, The Printinterrupt and The Shell software programs.

The Snapshot System suite of programs is designed around the Snapshot Card which is a well made board suitable for insertion in any of the APPLE II, II+ or 2c slots.

The Card arrives with a Manual program disk and (recently improved) link wire connected to a replacement chip, which is only required for the APPLE II+. A purchaser of the Snapshot card may get up to four sets of documentation, with four disks, depending upon which packages he or she orders. The installation of the card in the Apple is adequately explained in the Manual and should present no problems. Any spare slot may be utilised, although I found that slot 5 was the best. A long wire, with a push button at the end, called the trigger, leads from the Snapshot card. The trigger must be pressed to effect the interruption process by which the card works. It is necessary to avoid pressing the trigger accidentally (this is only a problem if the user has not previously loaded one of the associated pieces of software) and I therefore fitted mine

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Unlike many cards originating from the USA, Mastercard incorporates the unique ability to support true split baud rates (eg 1200 75) for use with European systems. In addition it can be configured to emulate existing CCS type cards for use with non-viewdata packages such as ASCII Express. Available for the Apple II+ and IIe.

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onto the upper housing of the fan unit. Wherever it is placed, you must ensure that it is handy because you need to do a lot of pressing!

Once fitment was effected, the card remained transparent to all the programs that I tried. It only comes into operation if one of the pre-boot programs first activates the Snapshot System.

The Copykit.

My Copykit came as part of the initial System purchase and is a memory resident copy system (ie in the Snapshot card RAM). It can be used for copying any totally memory resident program (one that does not access the disk after booting) and places this onto a backup disk as two binary files. This disk boots at a much faster speed than normal. For example, Screenwriter, Format 80 and Visicalc boot in approximately one third of the normal time. Multi-access programs can be copied in two parts, main boot program first, then the other files, using standard copy programs.

The ability to save the program at the point of use, ie removing the front or title screens, is, I believe, distinctly advantageous. For instance, Printshop can be saved at the point of producing a set printing routine, like a letterhead, and it will then always be ready to print this item without having to go through the setting up procedures. Copied programs do not usually need a Snapshot System to run. Lest you feel that the only use for this system is to duplicate programs, let me dispel this idea rightaway. I have personally made little use of the System for this purpose, yet have found it without doubt the most valuable utility I possess, after the computer itself.

Games players, will find the Snapshot System an answer to their prayers. They would have the ability, for example, to freeze and save games at any stage of play, and then resume again at the same point. Perhaps a benefit to those who get regularly zapped! In addition, the business community would benefit from fast saving of Visicalc and Word Processing Text Files.

Programmers are not left out of the Snapshot aegis. There are facilities within the utility to "enter the monitor" at the point of interruption by Snapshot,

thereby enabling the listing of 'unlistable' basic programs and the interruption of programs at any point, so that they can be amended.

The disk supplied contains a text file of the latest amendments and news items, connected with the operation of the Snapshot System, and a standard disk copy routine, as well as the Snapshot System software.

Other items from this suite will be reviewed in future issues. The Snapshot card, the Copykit and others are made and sold by Dark Star Systems.

BOOK REVIEWS

VisiCalc Apple: An Executive's Guide. By Brandt R. Allen, 65p, pbk. Prentice Hall (Reston)
Price £9-20
ISBN 0 8359 8410 9

By Patrick Bermingham

It has been said that the VisiCalc spreadsheet was responsible for more people buying Apple II micros than any other reason. The same pattern is being demonstrated with the IBM micro, only this time it is the integrated program, 123, that is creating the sales. There is no equivalent to 123 for the Apple II (apart from Appleworks, which is not really in the same class as 123).

Even if 123 were available for the Apple II, many owners would still prefer to use individual software programs; and for most the choice of spreadsheet would be VisiCalc or Multiplan.

VisiCalc was the original spreadsheet, developed by a former business-school student who had spent many tedious hours with paper spreadsheets and a calculator. He designed his "electronic spreadsheet" with 63 columns and 254 rows. With the 16,002 cells, so formed, he devised a program that enabled the user to place almost any set of figures and words into columns and rows, and where desired, relate specified cell contents to other cell contents. The result was a program that allowed the user to prepare financial forecasts and to perform many other computational tasks. Data elements could be changed easily, and related figures would immediately be updated.

This book by Brandt R. Allen is aimed at the business user who may not have used a computer before. It assumes that the reader is generally familiar with business terminology and that the Apple (II+ or IIe) has already been set up and is ready to use. The author gives a clear outline of the VisiCalc program and a neat explanation of the VisiCalc commands in the book's somewhat lean 65 pages.

This text has grown out of notes that were written for use by students at the University of Virginia Graduate Business School, and the lessons have obviously been well tried out. The writing is clear and concise and the book is well structured. It starts with a chapter on The VisiCalc Concept and then introduces the VisiCalc commands with, in the words of the author "Ten Easy Lessons and One Hard One". The Hard One is the Replicate command, which enables one to reproduce or duplicate a relationship, value or label (eg name) across many columns or down many rows and is the one which gives VisiCalc its real power. All this is achieved by page 41. Then follows "Seven More Easy Lessons" and some useful appendices.

When I first looked at the book my immediate reaction was "£9-20 for 65 pages? Its a rip-off!" But having carefully read the book I have changed my mind. For the busy executive who wants to get straight into the VisiCalc program and use it as a working tool, time saved reading manuals is money saved. Brandt Allen has distilled into 65 pages all the information needed to use VisiCalc.

During many years of lecturing I have often told students that if they wanted to quickly get an overview of a subject they should get hold of the thinnest book they could find on it. The author of a thin book has to cut out the waffle and the overwhelming mass of detail (however useful) that the larger books often contain. VisiCalc Apple was designed for the business user and many such users of VisiCalc will probably need to go no further in their reading. For those who want to delve deeper into its subtleties, the author advises reading the comprehensive VisiCalc manual, and other reference works.

VERDICT: Useful for everyone who wants to learn to use VisiCalc and good value for money for the busy business executive for whom it was mainly written.

Getting The Most From Your Apple II-IIe-IIc. By Graham Keeler, 254p, pbk. Addison Wesley ISBN: 0-201-14655-X Price: £9.95

By Gary Gosden

You have all heard of the "book of the film", well this is the "book of the course". To be precise, the book of two courses run by the Departments of Physics and Electronics at the University of Salford. The manuals and software developed for these courses have been revised and collated into a book. There is a disc available, containing all of the software that is used in the text, as well as a few programs that were too large to be included. This disc was not available to the reviewer which was a pity, as the book is intended to be used as a "hands on" tutorial to the Apple.

This is really a book for those who have never used an Apple before and are daunted by the manuals that come with it. If you have mastered the official Applesoft manual, then this book will provide a useful tutorial, but no more than that. The text deals almost exclusively with Applesoft, with brief excursions into the simpler uses of the Apple monitor and the disc operating system. DOS 3.3 is assumed to be the disc file handling system, ProDOS is mentioned once, but obviously arrived too late to be included.

The text is divided into two parts. Part A is intended to teach the fundamentals of computing and to be read consecutively, in order to build up experience in a logical manner. Part B is intended to be used as an extension of this experience and to be studied when more detailed information is required. This would be a good idea if carried through, but I found it disconcerting that such topics as strings and programming errors were not regarded as fundamental to the understanding of computing and were included in the second section. It was apparent that the division between Parts A and B owed more to the amount that could be fitted into a two day introductory course than to a more usual division between "fundamentals" and "advanced computing".

That said, the book is well presented and deals efficiently with setting up the system from scratch. Early chapters

cover the use of the editing features and the more common BASIC programming techniques, liberally mixed with tutorial examples. Later chapters explain the mathematical functions, disc commands, and the graphics. The Apple graphic commands are well explained and the limitations of using the high resolution screens are dealt with in some detail. This latter section is one of the better parts of the volume.

The author claims that the book is intended for owners of all the Apple II family of computers. It is apparent, though, that the emphasis is firmly on the Apple II+. The special features of the Apple IIe are noted and are used by some programs, notably the lower case presentation, but these features are never fully explored. The IIc is barely touched upon; more information is contained in part of an appendix than in the rest of the book. In practice, since most of the book is given to a discussion of Applesoft this probably does not matter that much, although I would have been happier if the title did not give equal prominence to the two newer Apple II computers.

In conclusion therefore I feel that the Keeler's text achieves a limited objective tolerably well, the practical examples are easy to follow and are the best aspect of the book. The rest of the subject matter has been dealt with in a dozen other works, often in a better fashion, although usually at a higher price. The pretensions that the volume has, to cover the Apple IIe and IIc are completely without foundation.

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S.I.G.'s & Groups

The Furness Apple User Group still exists and meetings are arranged on an ad hoc basis in Ulverston or Barrow in Furness. Please contact Alan Curtis on 05247 22222 or Tom Iddon on 05247 22222.

Bill Rees of Port Talbot has suggested starting up a DP's SIG. The United Kingdom still lags behind many other Western countries in its provision for disabled people (who mostly don't like to think of themselves as disabled), so we welcome this proposal. We shall be happy to publish news, but it will be much more constructive to have programs and articles which offer practical help. Bill's number is 0483 22222.

Terry Cymbalsty feels there may be other members around who would like to form a SIG for the Mocking Board and other music and speech synthesers. Ring him on 01223 77777.

BASUG and CLUBSPOT on PRESTEL

After a long period of dormancy, the BASUG pages on CLUBSPOT are now in the hands of a capable editor, Philip Faber. He is the author of APPLE SOURCE also on CLUBSPOT, and is editing our pages for us on a reciprocal basis. He runs a magazine for Apple users, and is a dedicated Apple man himself. The BASUG pages will hold the more static and long term information, and APPLE SOURCE will be the fast-moving magazine of day-to-day information of interest to Apple users.

We need information to give Philip in order that the pages are up-to-date. The local group pages are now very old, and need to be brought up to date as soon as possible. Can you all please send me details, I am acting as a liason to pass information on to Philip, and so need to know your plans and meeting dates as soon as possible. Any other stories or information you have, please pass on at once.

There is no plan to make the pages part of any CUG, and at the moment are accessible to anyone on Prestel.

APPLE SOURCE main menu *8104230
BASUG menu *8102131

Ewen Wannop

DIARY

April

2nd	Herts Group. 8pm.
3rd	Essex Group. 8pm.
4th	Central London Group. 6pm.
8th	Easter Monday
12th	Birmingham Group. 8pm.
15th	Croydon Group. 7pm.
17th	Essex Group. 8pm.
	Harrogate Group. 7.30pm.

May

1st	Essex Group. 8pm.
2nd	Central London Group. 6pm.
7th	Herts Group. 8pm.
10th	Birmingham Group. 8pm.
13th	Hants & Berks Group. 7.30pm.
15th	Essex Group. 8pm.
	Harrogate Group. 7.30pm.
20th	Croydon Group. 7pm.

June

4th	Herts Group. 8pm.
5th	Essex Group. 8pm.
6th	Central London Group. 6pm.
10th	Hants & Berks Group. 7.30pm.
14th	Birmingham Group. 8pm.
17th	Croydon Group. 7pm.
19th	Essex Group. 8pm.
	Harrogate Group. 7.70pm.

Apple User Show - May 9th - 11th. See Update for details.

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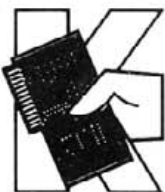
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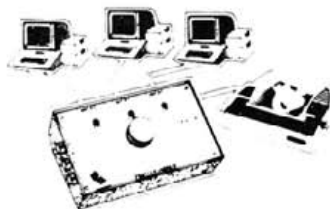
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SoftCard squeezes the most juice out of your Apple.



Microsoft Premium SoftCard IIe is the high-performance CP/M board that really juices the Apple IIe.

Hard facts on SoftCard.

It has a high speed (6MHz) Z-80 that runs CP/M up to three times faster than lesser boards. Plus 64K memory and 80-column display that fits the IIe auxiliary slot and acts like Apple's own Extended 80-column Card. So it works with CP/M, Apple DOS and ProDOS programs, too.

Microsoft BASIC is built-in, so it's compatible with more Apple CP/M software than any other board on the market: Thousands of the juiciest business programs including dBase II, WordStar and sophisticated Microsoft languages like

FORTRAN-80, COBOL and BASIC Compiler.

It also has a new low price.

Juicing up the performance of computers is nothing new for us. We invented the SoftCard and make versions for the entire Apple family. We wrote Applesoft for the Apple II.

MICROSOFT. In fact, our The High Performance Software BASIC is the language spoken by nine out of ten microcomputers worldwide.



Due to wild fluctuation in the dollar rate of exchange prices may alter. Please phone to check prices before placing your order.

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