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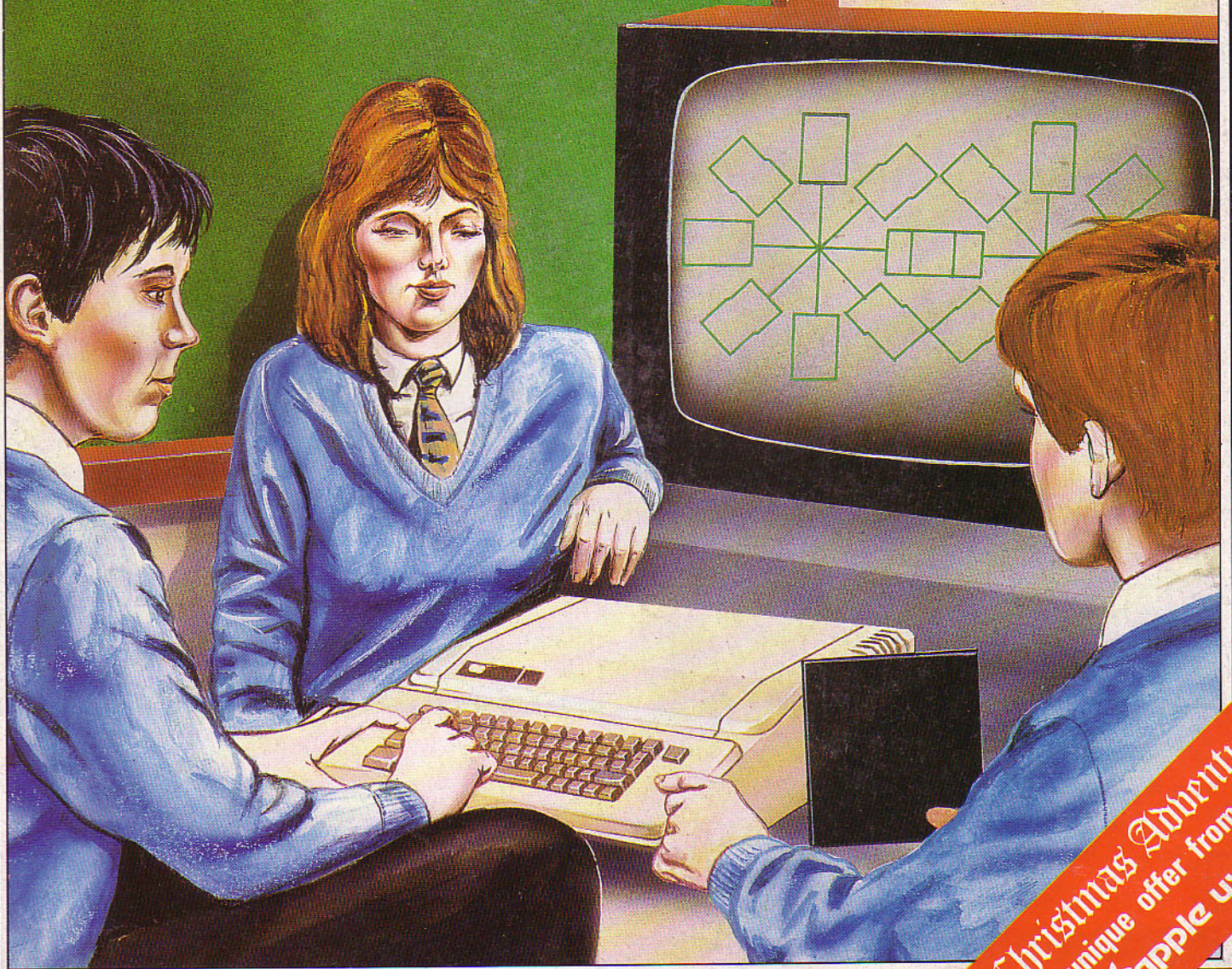
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How to choose comms software

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Speeding up the assembly cycle



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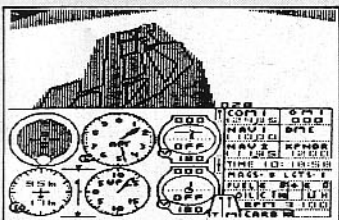
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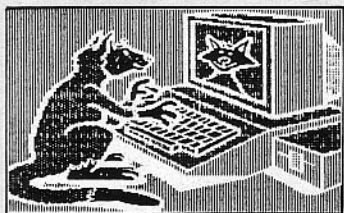
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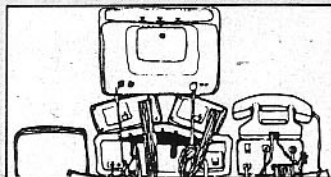
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An Apple for the teacher

APPLE is gearing up to grab a major share of the British educational market once the current government sponsored scheme comes to an end.

With the Microelectronics in Education £ for £ drive due to finish soon, the Apple team is make sure it will be ready for the free for all which is expected to follow.

"The UK education market over the past two years has been suppressed by the parochial attitude of many influential bodies", insists Bob Senior, Apple's market development manager.

"Now that free competition and market forces are returning, Apple in the UK is once again willing to play its role in this existing market".

Apple is understandably upset at having its corporate nose pushed out here as outside the UK it enjoys between 40 and 80 per cent market share.

Out of 2.5 million installed Apple systems worldwide, one million of these are to be found in educational establishments.

However under the govern-

Drive to win big slice of the education market

ment scheme, British schools could only choose between the BBC Micro, Research Machine's RML and the Sinclair Spectrum.

"Naturally, they had to go for the Acorn machine", says Bob Senior. "The Sinclair was little more than a toy and the RML was overpriced and out of date".

However the Apple executive believes implicitly that British schools have been conned into buying the BBC Micro.

"They were told they were getting a good deal but they weren't", says Bob Senior. "All

they got was a 32k cassette based system which just isn't good enough.

"And then they had the software subsidised by the MEP. All this did was give teachers a false value of software.

"For—thanks to the subsidy—they have been getting a lot of Mickey Mouse organisations producing rubbish software. It has all been a great big con".

Now Bob Senior and his team are waiting for the opportunity to pick up where Apple left off as a result of the

government schemes being introduced.

"Between mid 1980 and 1981, we achieved up to 15 per cent of the market share", he says.

"So give us a couple of years and we'll more than give Acorn a run for its money with machines like the Apple IIc and the far superior range of software we have available.

"It won't take the UK educationalists long to appreciate what they have been missing . . ."

● The first shot in Apple's bid to break the BBC Micro stranglehold on the school market is a new advertising campaign. It will offer an Apple IIc with disc drive or an Apple IIc for £599.

PHOENIX INTO EAGLE

FAR from rising from the ashes, American software house Phoenix has sunk under the weight of a trademark problem.

However, they have been reincarnated as American Eagle Software and will continue to market the Phoenix catalogue under the new name.

Apple User reviewed Banner Magic in March 1983 and Sherwood Forest in October 1983.

Despite the problems, the company has been busy producing new software including an adventure game in which you must battle against Hitler, Mussolini and Satan himself in order to escape.

Apple User will be reviewing some of the new software in the near future.

Xenix 3.0 will expand Lisa's range

LOGICA has announced Xenix for personal computers, a packaged version of Microsoft's Xenix 3.0 operating system, for the Apple Lisa 2.

Xenix 3.0 is an enhanced version of Unix System III and provides Lisa 2 with a multi-tasking, multi-user environment.

It also includes networking facilities, and can be accessed via a "visual shell", which allows new users to take full advantage of the system's power.

Logica will be distributing Xenix through selected Microsoft and Apple dealers, as well as its own dealer network.

It will also be supporting dealers with services including a technical support desk, dealer training, advertising and point of sale material.

Xenix for PCs will be available in three parts so that users need only purchase those ele-

ments of the operating system they need.

Because Xenix 3.0 is compatible with Unix System III, all software developed for System III will potentially be available for Lisa, as will the new software which is guaranteed to be written following IBM's adoption of Xenix 3.0 for multi-user versions of its PC-AT product.

Logica is working closely with independent software vendors regarding existing Xenix-compatible software, and will maintain an informal list of all new software as it is developed.

"Xenix for personal computers will be of considerable benefit to both existing and potential users of Lisa 2", says Gary Smith, dealer sales

manager of Logica's software products group.

And he listed these benefits:

- Access to a full implementation of Bell Labs' Unix System III.
- Expansion into full multi-user systems — the Lisa can support up to four users.
- Multi-tasking of programs — up to three "virtual screens" on the Lisa, each running a separate program.
- Using the communications software included in Xenix 3.0, to communicate with remote Xenix machines over telephone lines, or construct local networks.
- Compatibility between Apple and IBM's mainstream business micros.

Decision via the micro

MANAGERS of the future may only make decisions after consulting an Apple – if a new American software package catches on.

Business Strategy Software is designed to improve skills in communication, negotiation, selling and leadership. It runs on the Apple II family and the Macintosh.

The programs ask simple yes/no questions about the problem at hand or the goal to be achieved.

Answers are analysed, and the user gets a printout which advises him how to make the sale or negotiate the deal.

It is claimed that anyone can learn to use the software in under 30 minutes.

The programs are being marketed in the UK by Thorn EMI... who do not reveal what happens when two computer-assisted negotiators come face to face.

U-MICRO IN THE 32 BIT LEAGUE

BY the time you read this U-Microcomputers will have moved into the 32 bit league.

Although few details are yet available, the Warrington-based company has a new 68000-based machine under wraps.

Dr Bill Unsworth, U-Micro's chairman, was reluctant to release details before the official launch. However he did confirm that it is a 32 bit machine and that "it would be of interest to people who use Apples".

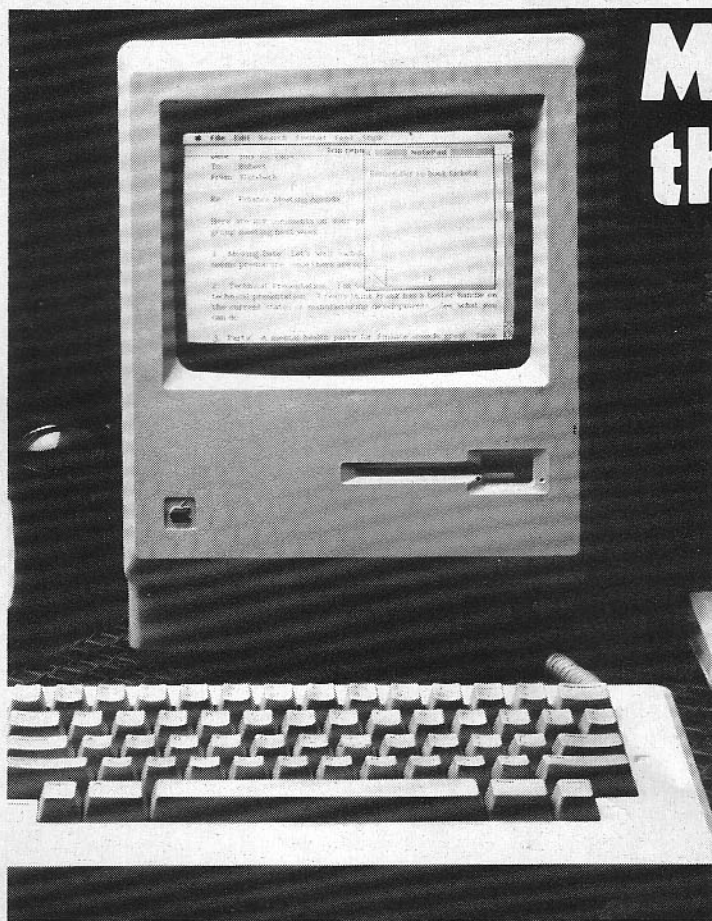
The company has not enjoyed the best of relationships with Apple over the last few years and it will be interesting to see how the new machine relates to Apple's 32 bit technology line.

Apples check power bills

APPLE computers will be helping to cut heating bills up and down the country this winter. Reason is an energy-saving software package designed by Stark Associates to monitor energy bills.

The package identifies the most

economic electricity tariff and monitors fuel and utility bills to indicate where savings can be made or have been achieved. Stark Associates is demonstrating the package at various locations throughout the country this autumn.



Mac rules the show

APPLE Computer's first appearance at the PCW Show was an unprecedented success, a company spokesman told *Apple User*.

"We exhibited this year for the first time because the show had more of a business content than on previous occasions.

"Our new range of Macintosh software received a tremendous reception from trade, press and users alike".

Macintosh dominated Apple's presence at the show, with 28 machines on display, including the 512k "which caused as much of a sensation as the software being demonstrated".

With 15,000 businessmen visiting the show over the four days, Apple says it received a large number of enquiries and a "tremendous response in general" to the Macintosh as a business tool.

Apple says it is hoping to repeat its success at the Compec business and administration computer show at Olympia this month.

The Apple can turn heads..

A FORMER headmaster who installed an Apple to handle accounting and administration at his prep school now heads a software company.

After teaching himself to program, John Marjoribanks became so keen on computing that he left teaching and went into consultancy.

Now, at 60, he is leading a management buyout of Dynatech Microsoftware of which he is managing director.

"Eighty per cent of what I'm

now doing is exactly the same as I did during my 20 years as a headmaster", says Marjoribanks.

Towards the end of his teaching career, he admits, he was doing more and more administration and less and less teaching.

His new company will be called International Computer Consultants. It will sell packages designed for vertical markets such as hotels, tour operators, insurance brokers.

Stand by to boggle

"WE see new products being launched over the next 12 months that are really mind-boggling and will lead us into new segments of the market" – *Apple UK managing director David Hancock, in a message to dealers.*

Macintosh

gets its

software

APPLE UK provided some long-awaited software for Macintosh when it finally unveiled the 512k Big Mac.

"We've got the software famine licked now", said Apple (UK) head David Hancock. "We put Phil Peters (software development manager) on a plane to America and he came back with 40 packages. They are in the warehouses now and will be soon in the shops".

Apple demonstrated much of that Mac software, singling out the Telos Filevision for special mention because "it may do for the Mac what Visicalc did for the Apple II", according to Peters.

Bob Foster, Telos vice president of marketing, went further: "It's the successor to Visicalc and Multiplan.

"We spent a million dollars and three years designing Filevision. Then we waited for the right machine to come before taking it off the shelf and marketing it. That machine is the Mac".

Filevision gave a stunning display of "multiple integrated databases", as Foster dubbed them, for several applications.

"If you can see it in the real world you can file it with Filevision", was his oft-repeated catchphrase.

This did seem to be the case when he demonstrated the package, by far the simplest and yet one of the most powerful databases around for any micro.

It's going to cost £99.

Dynamic changes he made to the integrated files were fast

and easy to pick up. Filevision sports one of the slimmest, simplest manuals around.

Bob Kissach, marketing manager for Apple (UK), reckons that Filevision is "so powerful, so easy to use, so general in its application that it will become the basis for other applications to be developed.

"These might be templates, suiting Filevision to the needs of particular job or profession".

This was confirmed by Hancock. "I have money to spend and help to give anybody who can take a Mac, find an application, and come up with a sale". Apple's managing director has lined up several "creative" markets for the Mac — such as advertising, journalism or sales and marketing — and he will be concentrating on first sales here.

There are, however, still clouds over Apple (UK). Mac is still not arriving here in quantity

— Kissach promised that 15/20 per cent of Mac production, now doubled to 40,000 a month, would come to Europe.

And there is still a supply problem for the Lisa 2, and in particular for the more popular Lisa 2/10 (10 megabyte hard disc) machine.

Kissach described a "backlog situation in orders" for the machine he calls the "Super-Mac".

And the software supply problem is far from over. Lotus Development has had hitches with Mac, and so 1-2-3 and Symphony are not expected until early 1985.

Software Publishing, of the PFS range, has fared better — its File and Report packages have been integrated with Macwrite and are becoming available for £89. Microsoft's Word and File are now ready.

In Britain Psion's Xchange suite (Abacus, Quill, Archive and

Easel) are due and, in its British office, Peachtree has prepared a cash accounting package called Maccash.

Apple's own applications catalogue will grow by January according to Kissach. "Tighter integration and new applications will be possible with the 512k Mac", he said.

The seven basic programs (Calc, Draw, Project, Terminal, Graph, List and Write) called 7/7 on Lisa will find equivalents on the Mac. An 80,000 word spelling checker is out now and Lisa users will now get the Macworks package free so that they can run Mac applications on their machine.

Hancock claimed that the 512k Mac improves the performance over the original machine and "will run 2000 projects, rather than just 200 on Mac-Project, it will allow you to write 80 pages rather than just 8 on Macwrite, and it will take Multiplan models that are 50 per cent bigger".

His personal performance was something *Apple User* asked Hancock about, in the light of a recent visit to Apple (UK) by the president John Sculley.

He admits to having "a one year and a five year target to meet and I suppose that if I don't make the first, I won't be given a chance to make the latter!"

Sobering stuff for the man who now has to pull Apple (UK) up by its bootstraps — and sell more of Mac and Lisa.

At least he's now made a start.

APPLE IS GOING DOWN BIG IN ICELAND

SYMBIOTIC Computer Systems has won a contract to supply its Symbnet networking system to colleges in Iceland. The contract comes through the Apple Distributor in Iceland — Radiobudin.

Colleges in Iceland are given government financial assistance towards setting up computer systems. Each network will principally be running

Appleworks.

Apple is recommended by the Icelandic government for educational use in much the same way as the BBC Micro is in the UK. Radiobudin acts as chief supplier to the educational market.

Currently the Symbnet contract applies only to colleges, but the possibility exists of its

being extended to cover lower educational levels.

"We have been in touch with Symbiotic since last year", said Radiobudin's computer manager, Frodi Bjornsen. "Apple recommended them to us and we are pleased to have a supplier who is prepared to deal with a large number of differing orders".



SPEED 95kts, altitude 4,500ft, course by gyro 087. Radar shows Long Island slipping by on a cloudless summer morning, for the time is 08.16, sixteen minutes into a flight from John F. Kennedy airport to Martha's Vineyard 120 miles to the east, reports John Jones.

I'm flying straight down the Hampton beacon, now 55 miles away, after which I hope to pick up the beacon at Martha's Vineyard on 108.2.

Increase rpm to 1,800 to stop the nose dropping. VOR (very high frequency omnidirectional range) shows that I'm still on course and 50 miles from the beacon. Looking back I can just

see JFK receding in the distance, to starboard nothing but sea.

Increase speed to 110kts and climb to 5,000ft (don't want any trouble with an inbound 747), 2,000rpm. VOR indicates a course correction required, nothing too drastic, must be a slight cross wind at this altitude. Course now 086, 42 miles from the beacon.

Radar shows I'm coming to the eastern end of Long Island, should be able to see Block Island on the horizon shortly. Still 16 miles from the beacon. Astern I can see right down Long Island Sound.

Time to change fuel tanks –

the port side is looking ominously low. What a relief the starboard tank is full. How on earth did I overlook that on my pre-flight checks?

Thirty miles to go, losing height to 2,000ft and a course correction to 092. Weather is still fine and clear, the aircraft is responding better than expected.

Four miles to go and on track. The runway is coming up fast, still too high, must lose more speed. Trying five degrees of flaps. Good grief I've shot up 500ft! Down elevators, that's too much, I must be going up and down like a yo-yo.

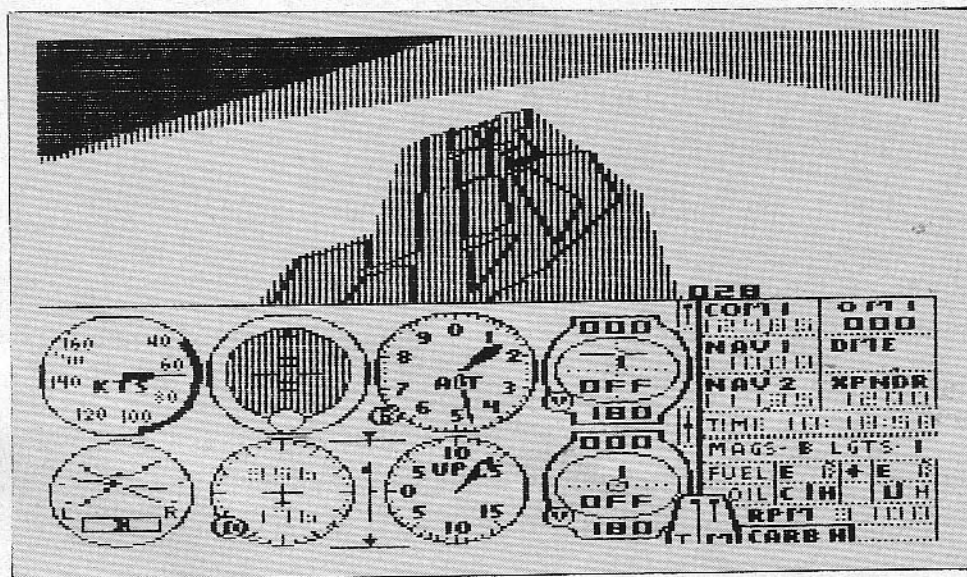
One mile to go and I've

recovered. Height 300ft, speed just over 90, the elevator is holding the nose up because of the lack of speed.

I can see the centre line of the runway and I'm still to the right, too late to alter the approach now. I'm directly over the runway now, hold breath, push forward on the stick ... bump ... bump, I'm down, cut engine and hope that I stop before the end of the runway.

Well, there it is. My first solo flight. No, not in a real Piper Cherokee Archer single engine monoplane – although it certainly felt like it – but Sub-Logic's Flight Simulator II.

Flight of fancy



THE Flight Simulator II package, version 1.0 for the Apple II+ or IIe with a minimum of 48k and one disc drive comes complete with a Pilot's Handbook, flight reference card and four area charts covering New York, Los Angeles, Chicago and Seattle.

The author Bruce Artwick – himself a pilot – has made substantial improvements over his first simulator A2-FSI. The flying environment has been increased from a few square miles to an astounding 10,000 by 10,000 square miles, with a resolution better than 2.5 inches.

A composite colour monitor is recommended although a monochrome monitor can be used. This option is chosen from the start-up menu. From the second menu you can choose an

Flight Simulator II is the next best thing to the real thing – and a darned sight safer

automatic demo or the real thing.

The display is split in two horizontally. The bottom half is for the standardised instrument cluster. Left of centre is the flight instrumentation consisting of speed, altitude, gyro compass, artificial horizon, climb and attitude indicators, plus rudder, and elevator indicators.

Top right are the navigational instruments while the bottom right is for the engine instrumentation and controls.

All of these are fully oper-

ational, being controlled from the keyboard, although a joystick may be used for directional control.

Above this cluster of instruments is the 3-D out of the window view. To give all round visibility there are a total of eight views available plus the downward pointing radar, useful for finding your way round the various airports.

The display uses colour to distinguish between land (green), sea (purple, perhaps it's my RGB monitor), city areas (black), sky and clouds (blue and

white).

By far the best way to learn the layout of the cockpit is to boot the disc and with the aid of the manual, go through all the flight controls to see what effect they have on the instrumentation. As long as you don't touch the throttle nothing drastic will happen.

To get you in the air quickly there is an easy mode. When in this the engine is started automatically and the rudder is connected to the aileron making the plane relatively easy to turn.

An editor is provided (similar to Night Mission Pinball) which allows you to alter any of the flight and weather parameters – yes weather.

There are three wind zones (vertically) that may be set with height, speed and direction plus

two cloud banks that can be varied.

It's quite uncanny when climbing through a cloud bank to break through the top into a scene of blue skies with the white of the clouds visible below.

The season of the year may be chosen. This affects the times at which night turns to dawn, dawn to day, day to dusk and dusk to night. Turbulence (64k only) can also be created.

The parameter values you see on the edit pages are the current flight parameters whose values change as you fly.

A user mode library can be created to store a complete set of current flight parameters for recall at a later time. There are 25 modes available, 10 preset modes and 15 user-definable modes.

More than 70 airports are included, each recognisable from the air with their runways, taxi ways, and parking areas by means of a vertically orientated radar fitted in the plane.

Each of the airports is equipped with its own set of frequencies for use with the communications radio (receive only) and two navigation radios. Major airports also make use of ILS (instrument landing systems).

The most frequently used instrument for navigation is the VOR (very high frequency range). These are radio stations that transmit an omni-directional synchronisation signal followed by a circular sweeping directional signal.

Three instruments on the plane are used in conjunction with the VOR. One of the nav. radios is tuned to the VOR frequency required. When in range, the DME (distance measuring equipment) gives the range from the beacon in nautical miles. To obtain the bearing of the beacon, the VOR indicator is tuned so that the pointer is centred and the bearing is then read from the instrument.

It is possible to pinpoint your exact position on one of the area charts by tuning in both nav. radios to different beacons and triangulating between the two. If all this sounds complicated, it is but it is fully covered in the Pilot's Handbook.

When you are reasonably proficient at handling the plane, you can test your skills by playing the World War I Ace game. It is very similar to the game provided with the A2-FSI, in that you still cannot see the enemy except on radar, which makes it very difficult to shoot him down.

Your plane is equipped with five bombs, with which you bomb the enemy fuel dumps and factories. Scores are one for a plane shot down, 10 for destroying a fuel depot and 20 points for bombing a factory.

Nothing I have seen so far indicates that there are any bugs in the system, but the database is so large that it would take months of navigating around all the airports and then landing and taking off in every direction. If anyone has used the simulator and found any bugs, perhaps they would let us know.

There are a few minor differences between the 48k and 64k versions, both on the same disc. These include improved needle graphics, impossible to dim the panel at night on the 48k version, additional seasonal effects with 64k, course plotting on the 64k

version and improved engine simulation on the 64k.

Sub-Logic have promised more improvements in later versions. These include a better artificial horizon, war game bullet tracers and visible enemy aircraft.

Also a second manual entitled Flight Physics and Aircraft Control with an introduction to aerobatics should be sent to registered users.

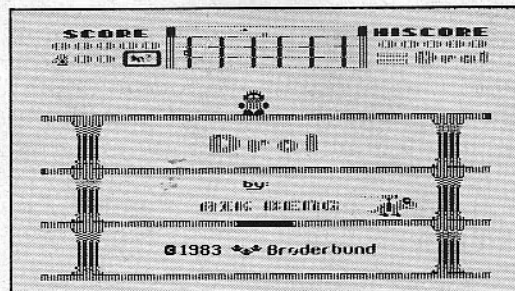
Scenery discs will also

become available, which will fill out the wide open spaces on the area charts.

At about £32, it's not cheap but if you're interested in flight simulators it's worth every penny.

John Jones

Title: Flight Simulator II
Author: Bruce Artwick
Publisher: Sub-Logic
Requirements: 48k



It's familiar fun . . . and silly with it

REGULAR readers will know that I'm not averse to commenting on spelling mistakes – the other editors call me a pedant. It's not true, of course, I'm just capable of coping with much finer detail than they are!

When **Drol** arrived from

Broderbund, I thought "tee hee fancy spelling the title wrong". I don't know if it really is a spelling mistake, but the game itself is droll – odd, amusing

CLIFF'S COLUMN

OVER the last few months I've had several letters complaining about the high cost of games. It's no good complaining to me – I can't afford them either on my wages.

The fact that most of the games are imported from America means that they retail for something in the region of £25.

However the signs are that they're pricing themselves out of the market. What signs? Well, quite a few people have contacted me recently about getting hold of various games.

It's still easy to get things like Zork, Wizardry and Flight Simulator. However, if you want something a little less popular you might have trouble finding a supplier.

Time was when there was quite a choice of games suppliers – names like SBD and Spider Software spring to mind.

Neither of these have lasted to the present day. In fact, very little remains of the old guard.

A few names have made it across the years. Pete & Pam (or P & P Micro Distributors as they now prefer to be known) still sell games, although they have recently trimmed that portion of their catalogue.

Woodland Software are still alive and well in London W10 and will get most things for you. Manchester-based National Micro Centres also has a games catalogue which is large by today's standards.

One consequence of the slimming down operation is that it's often possible to pick up cheap games. Particularly at micro shows, it's not unusual to see stands selling games at bargain prices in order to clear the shelves.

Of course, the other alternative is to type games in from list-

ings. There are several problems with this, though.

For example, there's the relationship between program length and quality. It's difficult to do anything exciting in a short Basic program and the time taken to enter and de-bug a large program is prohibitive.

From the magazine's point of view, there is so much pressure on space the games listings get allocated a very low priority.

The ultimate answer then, is to write your own games and play them yourself. This has the advantage that you get so involved you don't notice how long it's taken – unlike entering listings.

It also means that you do so much play-testing that nobody will ever be able to beat your score once it's written. On the other hand, by the time it's finished you may well be sick of the sight of it.

laughable, as my dictionary defines it.

A red-haired little girl and her propeller-beanied brother have been lured by a witch doctor's curse into the multi-levelled ruins of a lost civilisation. They wander aimlessly through the underground corridors, oblivious to the dangers.

What dangers? Oh, the usual... hopping scorpions, monsters and snakes, flying turkeys, swords, daggers, arrows, magnets, witch doctors, vacuum cleaners.

The turkeys require repeated shooting, whereupon they turn into turkey roast, and the green vacuum cleaners are indestructible, as you might imagine.

Level 1 involves trying to rescue the girl and her pet lizard. The little boy, star of level 2, has a pet crocodile. Cute kids!

On level 3 you get to rescue their mother, or at least you get to try.

In play, the game involves moving along the scrolling corridors, with movement between corridors only being possible at certain places. The usual A, Z, →, and ← keys are used for movement, with spacebar being used to fire your endless supply of reality pellets. Optionally, joystick control is possible.

To help in your task, there is a "wide-screen radar-scope" at the top of the screen. According to the instructions, this "will prove indispensable in your quest".

However, I think the only people who will make full use of it will be those whose eyes are capable of fully independent action!

Personally, I found it too small to read "at a glance" and concentrating on it meant that I missed the main action.

The Esc key pauses the game, and the sounds can be toggled on or off. Additionally, the volume can be toggled between high and low.

Drol is an obvious rival to Bouncing Kamungas for the title of *Silliest Game of the Year*. It's fun to play in a familiar sort of way - it reminded me a little of Jawbreaker - and it is difficult enough to give most people a challenge.

Ultimately, though, it's the

scenario that's unusual rather than the nature of the game.

Title: Drol
Author: Aik Beng
Publisher: Broderbund Software
Requirements: II/III+/IIfx with 48k

'Ware the Fat Broad and hungry dinosaurs

IN 1958 cartoonist Johnny Hart finally managed to get the strip cartoon B.C. accepted for syndication. I say "finally" because it was rejected by five syndicates before being accepted.

The rest, as they say in all the papers, is history. Hart's cartoons have been read by over 100 million people in over 900 newspapers worldwide.

Consequently if you've never seen the adventures of Thor, Cute Chick, Dooky Bird and the rest of the gang, the chances are you're an old Siberian hermit... so why are you reading *Apple User*?

I have to admit though, that what really interested me about **BC's Quest for Tires** (that's "tyres" over here) was that it has been produced by Sydney Development Corporation and Sierra On-Line.

If you've had your Apple for more than a couple of weeks you'll probably know that Sierra



produced the original micro version of Frogger, and On-Line were well-known for their adventures - Cranston Manor, Wizard and Princess, Time Zone, etc.

"So who's Sydney?", you ask. Regular readers (hi, Mum) may remember that Sydney was the company I raved about when they produced **Evolution**. It was a bit overpriced, but it's still an excellent multi-level arcade game.

Given the combination of Hart, Sierra On-Line and Sydney, you might reasonably expect the outcome to be fantastic. So what about BC's Quest for Tires?

Cute Chick, it seems, is being held captive by the dinosaur. Thor, in true caveman spirit, is out to rescue her. To do so he must steer his unicycle past a number of obstacles.

First he must jump over a series of rocks and holes. It's not

too difficult at slow speed, but the score is related to the speed so you need to be moving if you want to rack up the points.

Next is the river. Swimming with a stone unicycle is notoriously difficult, as many people who annoyed the Mafia found out to their cost. Fortunately for Thor there are turtles whose backs he can jump on - it's just that they sometimes decide to submerge.

Then there's a lava pit to jump over. If Thor times his jump accurately the Dooky Bird will carry him across. After that, he must jump over a cliff (no relation) and then dodge, not only obstacles on the ground, but boulders falling from the sky.

As if that isn't enough Fat Broad will restructure his head with a club if he doesn't duck at just the right moment, or the dinosaur will finish him off.

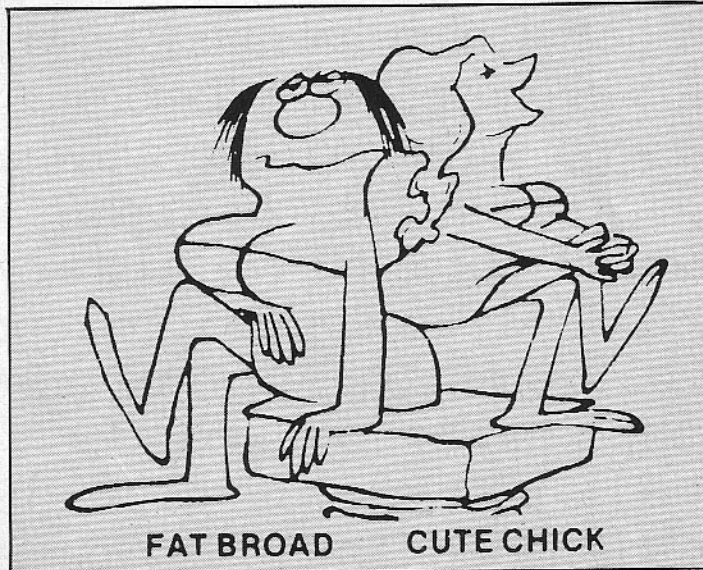
If the dinosaur is out, the stalactites in the cave may impart a rather deep parting in his hair. Cute Chick must *really* be cute to put up with all this.

Control of all these actions is via the joystick. Push it up to jump or down to duck. Press one of the buttons to speed Thor up, and press the other to slow him down. Simple, eh?

In principle, it is simple. In practise the crucial aspect is timing. Response to the joystick seems slightly delayed, so you must learn when to jump, and that's not as easy as it might sound. Also, as with many tasks, you have to balance speed against accuracy.

So does BC's Quest for Tires live up to my expectations? Ultimately I think that any problems lie with my expectations rather than the game. The graphics are nice, the animation is smooth and it's difficult enough to be fun to play.

I wonder what it would have sounded like if the Beatles and Rolling Stones had got together to play a Bob Dylan song. Could it ever have been as good as the fans would have expected?



FAT BROAD CUTE CHICK

Title: BC's Quest for Tires
Author: Justin Gray
Publisher: Sierra On-Line/Sydney Development
Requirements: DOS 3.3 and joystick

THE lead time in education is said to be 50 years. That in the computing world is nearer one year. The interfacing of these disparate worlds is therefore a rather daunting problem.

Apple User readers might be interested in how my school fared when it set off on the road to Silicon City.

It began by chance four years ago. In our county bulletin I noticed an evening lecture, "Change in the Primary School". Intrigued as to whether it was about handling the dinner money or the proper use of cloakroom facilities, I attended.

To the amazement of all, the lecturer announced that we were on the brink of a technological revolution. He painted lurid pictures of the likely prospects awaiting nations who failed to embrace these startling developments.

He suggested that schools could not afford to await the results of all this. Instead we were to begin equipping our children for the cataclysmic changes to come.

His audience sat stunned, rather like housewives who had set a mousetrap and discovered a tiger's tail caught in it. What, we ventured to ask, should we specifically do?

Buy a computer, came the stern reply. But why us in the primary schools? After all, there were the secondary schools who already had a computer, surely they could . . . ?

No, they could not, the

'A computer is the best thing in our class'

— so says a primary school child after just one year with an Apple in the school. ANDRE WAGSTAFF reports.

lecturer rejoined. Their computers were fiercely guarded by the maths department and used for number-crunching by the chosen few.

The primary schools had a tradition of innovation in the classroom, and were the best hope of instituting hands-on computer experience for the many. So go to it.

I reported back to my headmaster. Find out more, he commanded, and so I did.

The first step was to go to a newsagent and buy a magazine on the subject. Chance determined that it was *Byte* which initiated us into the world of ROM and RAM, not to mention PEEK and POKE.

There were also a bewildering array of machines to choose from. All had exotic names and all claimed to be able to solve

the problems of *Life*, the *Universe*, and everything, in nanoseconds (whatever they might be).

We need expert advice, said the headmaster, so we obtained some. At an exhibition. From a computer consultant.

Anything under £40,000 is a waste of money, he boomed. We were abashed.

But if you insist, he added, there is only really one machine to buy for less than that. It is called an Apple II.

We never did catch that consultant's name. But whoever you are, a belated "thank you" is in order. Never has our school ordered a piece of equipment which has been so reliable and so useful.

We realised that one computer could not effectively be shared by the whole school, and

so we confined its use to the top six classes.

Each was given the computer for a week at a time. This was found to be the most equitable arrangement and we have stuck to it ever since. Initially we used the simpler programs such as *The Shell Games* and *Elementary My Dear Apple*.

Then the questions started. From the children at first. How did the computer draw pictures on the screen? Could it draw pictures they designed? Could they start designing pictures now?

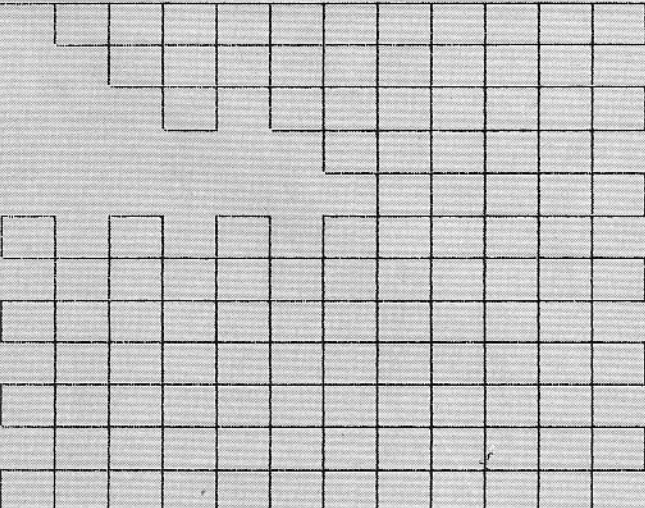
And so we moved into simple graphics programming. It was exciting, watching little children telling a powerful computer what to do.

Here is what one child wrote in the school magazine at the end of our first year with an Apple.

"A computer is the best thing in our class, you can ask and answer questions on it. Best of all, you can draw pictures with it. It is difficult at first, but once you know how, you can go on to do wonders".

The grammar may be suspect, but the enthusiasm shines through! The next year saw us buying another Apple, and with it came Logo.

Quite honestly, you could justify the use of computers in schools on the merits of Logo alone. Our children work in pairs, and the work they produce never ceases to amaze. Figure 1 gives the listing of some Logo procedures and the resul-



```

TO DOUBLEZIG
  MANYZIG
  LT 180
  MANYZIG
END

TO MANYZIG
  REPEAT 3 [ZIGS LT 180 PU
    FD 40 PD]
END

TO ZIGS
  ZIGZAG
  PU
END

TO ZIGZAG
  REPEAT 3 [SQUARE RT 90 FD
    20 SQUARE FD 20 LT 90]
END

TO SQUARE
  REPEAT 4 [FD 20 RT 90]
END

```

Figure 1

APPLICATION

tant screen display, written by Julie and her friend.

It would appear that we consistently underestimate children's abilities. What is one to make of a 10 year old announcing that he has discovered three quite different methods of drawing a circle? Or two six year olds writing procedures which draw giant letters of the alphabet on the screen?

The next challenge was thrown up by the teachers. If computers were so darned clever why couldn't they sort out the linkages of words in crossword puzzles? I was non-plussed, and then recalled a review in *Windfall* of a program called Crossword Magic.

And magic it certainly is. With its aid we effortlessly produce relevant educational crossword puzzles for use in the school.

Needless to say the children soon wanted to use the program too. Figure II is an example of one which appeared in this year's school magazine.

The headmaster struck the next blow. How about the school stock, he enquired? I looked stricken and began to mumble disjointedly about real time computing, back up security, systems analysis, and any other phrases which might get me off the hook.

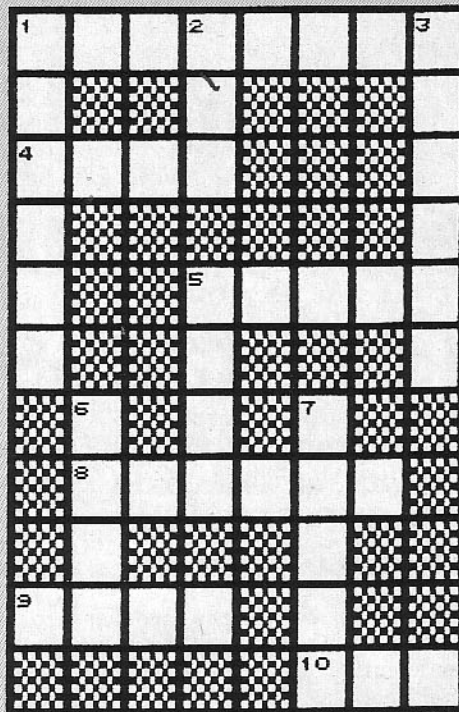
Oh, come on, he said, it's what computers are for in the outside world, isn't it? And so we entered the world of databases.

We now use an Apple to control our stocks of stationery. It takes up an afternoon twice every term and has already resulted in significant savings in the over-ordering of certain items. The neat lists it prints of items in and out of stock are a never-failing wonder to our hard-pressed secretary.

Spurred on by this, we introduced children to databases. We were engaged in a topic on litter and used a database to store and sort the data.

Never was there a better demonstration of the "garbage in, garbage out" maxim.

We certainly learned that before you set up a database you want to be reasonably sure of the questions you are going to ask, and you need to double check every item of information



Across clues

1. Put your feet in them.
4. The last cowboy rode it.
5. A _____ of judges.
8. Horses have four of them.
9. Drives a horse on.
10. Protects the head.

Down clues

1. The rider sits on it.
2. Helps stop sores.
3. Shelter for a horse.
5. Horse play it, you suck it.
6. Carry this, but don't use it.
7. Sort of a horse shout?

Figure II

entered.

Well, as you can see, everything in the orchard was coming up Apples.

Then the government took a hand. It offered every primary school a subsidised micro. But only on three specified machines.

Presumably politics had something to do with this.

Anyway, Apple was not one of the chosen manufacturers.

We had some misgivings about accepting the offer, since commonsense argued that two systems could lead to wasteful duplication of resources.

Commonsense also has something to say about the folly of looking gift horses in the mouth. So we crossed our

fingers and accepted the subsidy on the purchase of a BBC Micro.

Our experience with the Apple led us to equip it with a disc drive straight away. Judging from neighbouring schools' tales of cassette woes we saved ourselves a whole heap of trouble.

Three months later 10 year old Neil, one of our children, won us another BBC computer in a competition to re-tell the story of Walt Disney's Tron.

What the judges did not know was that the entry was typed using one of our Apples in its role of word processor!

Neil went through no less than a dozen drafts of his story before pronouncing himself satisfied. It was fascinating to see how he strove to express his memories of the film with greater and greater precision and fluency.

His example has led us to using word processing packages with children on a wide scale. As far as children's writing is concerned it is not so much word as idea processing and they get a great deal of satisfaction from it.

Today we have five computers in regular use, three of them Apples. Much of the software has been purchased but we have developed many programs with the aid of Apple SuperPilot.

After four years we see computers in the classroom as the modern equivalent of chalk – but smarter. It is our intention to equip every classroom with at least one computer. Let us hope that they will all be as rewarding to use as our Apples have been.

Appletip

Text file spaces

When you use a word processor for editing Applesoft programs by converting the listing to a text file you have to take care over the following.

When executing the text file back to Applesoft Basic the DATA and REM statements will be followed by extra spaces.

You can anticipate this by removing all the spaces immediately after these

statements in your text file.

When you use Applewriter you can do that by putting the cursor at the beginning by typing **Ctrl B**. Next type **Ctrl F** and answer the question with **/REM /REM / A or /DATA /DATA/A**.

When you use the editor from the Toolkit you have to execute the command **C/REM /REM/ or C/DATA /DATA/**. All the extra spaces are then removed automatically.

Martin Keesen

PENGUIN are so prolific at producing good graphics software that I'm seriously thinking of sending them a small explosive device (or perhaps just an IBM PC?) to slow them down – they have no regard for the poor reviewer struggling to keep up with their output.

Cat Graphics is a set of 55 new hi-res graphics and sound commands to add to Applesoft. They are accessed using the `&` facility and can be issued directly from the keyboard or from within a program.

The routines are all written in machine code – which makes them very fast – and they work on the Apple II and IIe. There is also a full set, well nearly, of equivalent routines for producing double hi-res graphics on the IIe.

The commands can be grouped into five main areas – those that draw lines and points, those that control text, those that select display features, those that use graphics or sound tables and those that create/edit these tables.

There isn't space to look at all the commands in detail so I shall select a representative few from each area to give a feel for how the routines are used.

The program is automatically installed on booting the disc. The best way to learn is to select option 0 from the menu which exits to normal Basic leaving Cat Graphics active. At this point all the text display is being controlled by Cat Graphics and everything is occurring on hi-res page 2.

Those with Apple DOS Toolkit will be familiar with using the hi-res pages to mimic the text screen, but if you haven't met this before it looks a little strange.

At first glance the screen text looks as normal but the cursor is a flashing underline character, not the normal square. However you can't edit things by copying them from the screen, and any graphics scrolls up as new text is produced.

The advantage is that text and graphics can be mixed on the same screen.

For program development it is better to revert to the normal text screen via the `&UNHOOK` command. The rest of Cat Graphics is still active but the hi-res text generator is switched off. It

Find out the best of Cat Graphics for yourself...

can be reactivated at any time with the `&REHOOK` command.

The main drawing commands are `&DOT`, `&LINE`, `&BOX`, `&CIRCLE`, `&SHAPE`, `&FILL`, `&MAG`, `&CHKDOT` and `&PENGUIN` (draws a penguin!). They are easy to use and it's fairly obvious what several of them do. A typical example would be:

```
&BOX,0,10,200,150  
&CIRCLE,X,Y,RAD
```

The routines accept numbers or any Applesoft variable/expression. A nice feature is that they perform "screen clipping" at the edges of the hi-res page. If a line, circle or box goes off the screen you only see the visible section – no more error messages just for going past the screen boundary.

By trial and error I found that there are limits to this and things can appear again entering from the other side of the screen.

The `&CURVE` routine draws a curve between two points with a curvature decided by two parameters A and B. Un-

fortunately there is no discussion as to exactly what they control, so it's back to trial and error to find out.

This is a general comment for the whole manual – it's well written but rather short and many of Cat Graphics' nicest features have to be discovered for oneself.

All of the drawing routines use the current mode and colour to determine what the lines look like. `&MODE` selects three drawing modes – draw on screen, erase from screen, flip screen contents. The first two are obvious and I shall return to the third in a moment.

The `&COL` offers a staggering 108 colours in single res, or 256 in double res. The manual says that they are shown on the back of the box – which wasn't true of my box. However the disc contains a program `CTEST` which draws all 108 on the screen.

In fact most of the colours are only good for filling large areas of the screen. Line drawing is best performed using the

standard six Apple hi-res colours.

Two further commands are useful when drawing in colour `&THICK` and `&THIN`. The first doubles the thickness of the lines and effectively reduces the resolution to 140 by 192 in single res mode.

The advantage of this mode is that white lines have little colour fringing and coloured lines are drawn correctly.

`&THICK` is necessary in double-res mode if anything except black or white is required. A problem with it is that it also affects the text in the same way – except the cursor which is reduced to a couple of small dots.

Boxes and circles can be drawn in outline or solid colour using `&OUTLINE` and `&FILL`. An enclosed area can also be filled with any one of the 108 colours, providing the background is white or black, by using `&FILL`.

I found that the "enclosing" line was best done in `THICK` to stop the colour leaking out an



filling the entire screen.

The FLIP mode is used to aid simple animation since, in this mode, drawing a shape twice at the same location causes the shape to disappear, restoring the background intact.

Unfortunately the colours go beserk in this mode and things drawn in one colour on top of a different one show up in some third colour. I found this rather limited the usefulness of the mode.

There is also an &FLIP command which causes almost all colours on the screen to flip to some other values. Using &FLIP twice with the same value restores the original colour scheme.

I tried using this to make explosion effects, but the flip can be seen in operation and it produces a momentary series of bands on the screen as it is performed. However by storing the flipped version on the other hi-res page and changing the page displayed I got a much better effect.

Text commands allow the user to select different character fonts, character sizes, writing modes, vertical and horizontal spacings and scrolling options, text colours and screen positioning.

Although this might seem to cover everything there is one major omission – the ability to draw text sideways on the screen. This is often required on business or scientific graphs and I found it surprising that such a comprehensive package lacked it.

The only other minor complaint is that the text is often affected by other commands, for instance &REFLECT is used to create symmetrical patterns by reflecting lines in four ways – it does this to the text too, so you end up with mirror images of the text appearing at all four corners of the screen as you type.

Cat Graphics also supports four types of tables, fonts, shape tables, bshape tables and sound tables. None bear any resemblance to standard Apple shape tables or character fonts from the DOS Toolkit, or indeed to other Penguin products. The disc does contain a (very slow) font converter program which allows one to convert other Penguin and DOS Toolkit fonts into Cat Graphics compatible

ones. Apart from fonts, the package offers two types of general graphical shape tables which differ in flexibility and speed of drawing. Shapes can be any size up to 40 x 32 pixels – they will appear in the currently set colour and they can be drawn in normal, double width, double height, and double height and width. They can also be set to inverse.

Bshapes can only be 28 x 21 pixels and they can only have 40 positions along the X axis. However they can be multicoloured and they are very fast to draw.

The disc contains editors for creating each type of table. The three graphics options all work on a common format and are very easy to use indeed.

They operate by producing a blown up image of the shape superimposed on a grid. Simple key strokes are used to move around the grid setting points on/off or filling areas. Bshape tables permit multicoloured shapes to be constructed easily,

which is excellent for games programs.

I encountered no difficulties in using any of the editors. The shapes produced are "bit mapped", not ordinary Applesoft shape tables, so they can't be rotated.

The sound table editor allows the creation of tables containing useful sounds and noises. It is a bit more difficult to use – it uses 30 keys – and a little sluggish in response, but great fun to mess about with. The sounds created can be accessed by simple commands later on.

Cat Graphics handles the memory management of the tables and fonts impressively. The &LOAD command will load all table types, "packed pictures" and ordinary binary files.

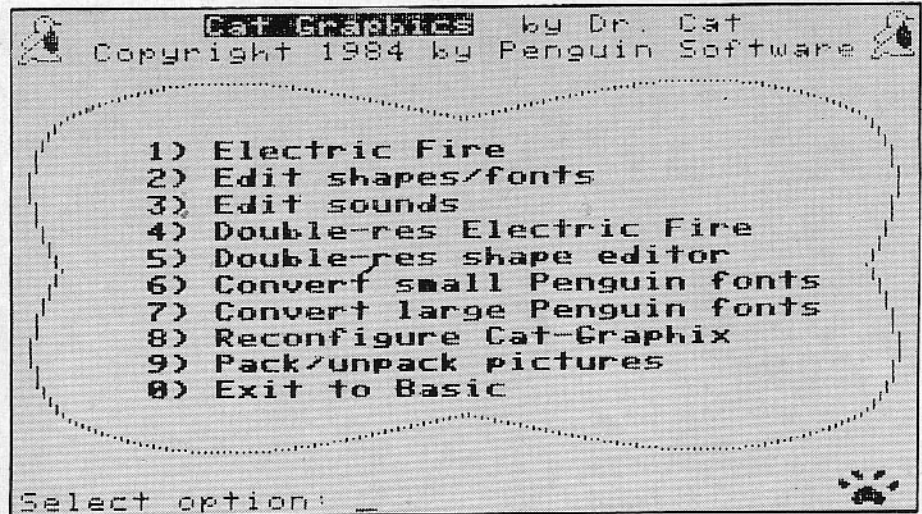
It decides where to put them in memory automatically – including multiple tables. You never need to know the locations (although they are available to you after each load using

&ADDR). This feature means that even the most inexperienced user need have none of the worries that accompany tables in ordinary programs.

It's also possible to reconfigure Cat Graphics to include only the commands you require, saving considerably on memory space since some of the routines are quite large.

I have only been able to cover half of what the program has to offer and I don't think anyone would be disappointed with its range of facilities and ease of use. Maybe Penguin will take a well deserved holiday now.

I leave you with a comment about "Electric Fire", a sort of super animated kaleidoscope program on the disc. The manual says "I recommend that Electric Fire be viewed in a dark room, with music playing and someone giving you a back rub" ... I only hope the editor understands the large expenses bill when I submit it.



Creating the Apple User Graphics Library

Part IX

Page flipping – to add that professional touch

I'M often asked by people setting out to try their hand at simple animation just how one performs "page flipping" – the process by which one hi-res page is viewed while drawing on the other one.

The advantage is that the

viewer doesn't see all the intermediate drawing processes, and the animation looks much more professional. Unfortunately the Applesoft manual only reveals how to change the displayed page – not how to simultaneously alter the draw-

ing page too.

In fact location 230 determines which page to draw on regardless of the one being displayed. A value of 32 selects page 1 and 64 selects page 2.

The following table of locations are all you need for

GRAPHICS

successful page flipping animations:

Function	Poke
Graphics	-16304,0
Text	-16303,0
Full Screen	-16302,0
Graphics/text	-16301,0
Page 1	-16300,0
Page 2	-16299,0
Lo-res	-16298,0
Hi-res	-16297,0
Draw P1	230,32
Draw P2	230,64

In fact any value can be POKEd in the -16000 locations. I just use 0 as an example. These locations can be used to select the graphics you want to see and draw on. For example:

```
POKE -16304,0
POKE -16301,0
POKE -16300,0
POKE -16297,0
POKE 230,64
```

will display hi-res graphics page one with mixed graphics/text - but all drawing will occur on page 2. The strategy for performing the animation is very simple:

- 1: Plot object on both screens (position 1 and 2).
- 2: Display page 2. Erase object from page 1 (position 1). Draw in new position on

page 1 (position 3). Renumber position 3 as position 1. 3: Display page 1. Erase object from page 2 (position 2). Draw in new position on page 2 (position 4). Renumber position 4 as position 2. We repeat steps 2 and 3 keeping track of the old and new positions for each page separately.

As an example of using this technique I have written a small program to generate a multi-coloured firework display. It is entirely in Basic for maximum clarity and I have made no great attempt to speed it up, so it's a little slow.

It uses a tiny one-shape

shape table to draw a simple cross, this is scaled and rotated to create a circular band of colour. These are used to create multicoloured starbursts which are then removed layer by layer.

Line 1020 controls the number of radial arms ($IS = 1-15$), while 1030 determines the minimum, maximum and step sizes of the layers.

The only lines that are unusual are 330,360 and 380. They use a little known feature about Applesoft to step through the colours.

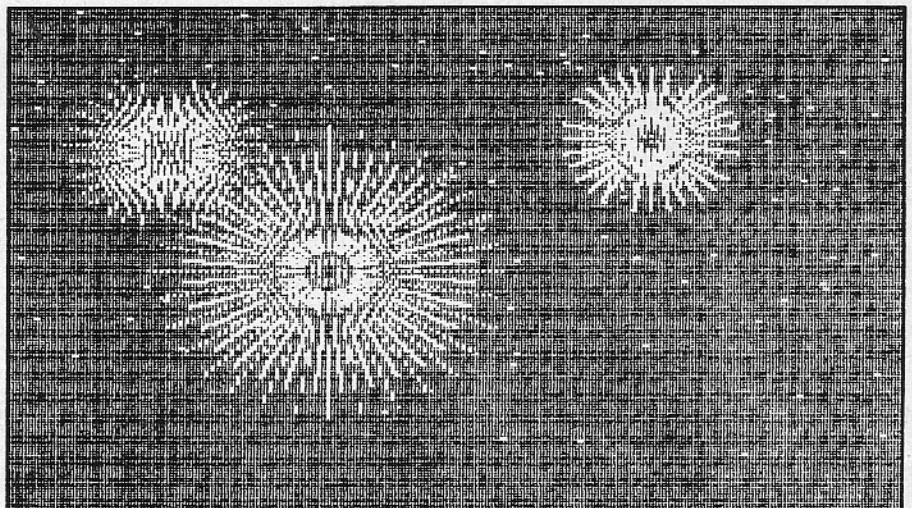
We only want colours 1,2,3,5,6,7 - furthermore we want to recycle past 7 and, in order to erase all layers, we

don't want to increment (black). All this can be achieved in a single expression.

We can do this because if we have a variable A say, Applesoft will assign a value of 0 to (A) if it is false and 1 if it is true. We can thus use such expressions in an ordinary arithmetical statement. I am indebted to M. Parrott who first brought this technique to my attention many moons ago.

Lines 360 and 370 represent a complete firework, so you can add more very easily. If you have a compiler it is well worth speeding everything up for more lively display.

Happy November 5th!



```
100 GOSUB 1000: REM SET UP ROUTINE
    INE
110 GOTO 500: REM MAIN PROG
115 REM SINGLE LAYER ROUTINE
120 POKE P2,P0: POKE PD,D1
130 FOR I = I1 TO I2 STEP IS: ROT=
    I
140 DRAW S1 AT X,Y
150 NEXT
160 POKE P1,P0: POKE PD,D2
170 FOR I = I1 TO I2 STEP IS: ROT=
    I
180 DRAW S1 AT X,Y
190 NEXT
200 RETURN
295 REM MULTIPLE LAYERS
300 RS = 0: HCOLOR= HC
310 FOR J = J1 TO J2 STEP JS: SCALE=
    J
320 RS = RS + 1
330 HC = (HC + 1 + (HC = 3) - 7 *
    (HC = 7)) * (HC > 0)
```

```
340 HCOLOR= HC
350 I1 = RS:I2 = 15 + RS: GOSUB 1
    20
360 HC = (HC + 1 + (HC = 3) - 7 *
    (HC = 7)) * (HC > 0): HCOLOR=
    HC
370 SCALE= J / 2:X = 200:Y = 50:
    GOSUB 120
380 RC = (RC + 1 + (RC = 3) - 7 *
    (RC = 7)) * (RC > 0): HCOLOR=
    RC
390 SCALE= J * .7:X = 50:Y = 55:
    GOSUB 120
400 X = 100:Y = 100
410 NEXT
420 RETURN
490 REM THE MAIN PROGRAM
500 HC = 4: GOSUB 300: REM
510 HC = 0: GOSUB 300: REM ERASE
    IT
600 END
1000 REM SET UP VALUES
```

```
1010 P1 = - 16300:P2 = - 16299:
    P0 = 0:PD = 230:D1 = 32:D2 = 64
1020 I1 = 1:I2 = 15:IS = 2
1030 J1 = 3:J2 = 35:JS = 5
1040 S1 = 1:X = 100:Y = 100
1050 HGR : HGR2 : POKE - 16302,
    0: REM FULL SCREEN
1060 FOR J = 0 TO 10: READ N: POKE
    768 + J,N: NEXT : REM SHAPE
    TABLE
1070 DATA 1,0,4,0,160,26,79,233
    ,19,6,0
1080 POKE 233,3: POKE 232,0
1090 HCOLOR= 3: FOR I = 1 TO 100
    : REM STARS
1100 A = RND (1) * 276:B = RND
    (1) * 170
1110 POKE PD,D1: HPLLOT A,B TO A +
    1,B: POKE PD,D2: HPLLOT A,B TO
    A + 1,B
1120 NEXT
1130 RETURN
```


Getting the Pascal operating system up and running

THERE seems to be a need for an introductory article or two about the Pascal operating system, and how to get it up and running. This system is quite a lot more complex than DOS, and can be quite daunting at first glance.

I'll try to give you an idea of how to get started with the Editor and Filer, and later will discuss them in more detail.

Let's assume that you are using just one disc drive. A language card is, of course, necessary to run this alternative

language (hence the name), unless you're using an Apple IIe.

Booting the Pascal system with the Apple II Plus is straightforward. Start with the disc labelled APPLE3; power up (or PR# 6) and wait for a prompt. When asked, insert APPLE0; and press RESET.

After a while you will be presented with the main Pascal command or prompt line. The disc now in the drive (APPLE0:) is called the boot disc.

With the Apple IIe things are a little more difficult, because

the RESET key operates in a different way. To get around this requires a modified procedure with a modified set of discs.

However you need a Pascal system up and running to make these, so get a friend or dealer to sort it out for you. If you have two drives, put APPLE1: in Drive 1 and APPLE2: in Drive 2 and power up or type PR# 6.

Pascal is a compiled language. This means that the instructions you write are translated into a low level - machine like - language *before* the program is run, rather than as it is run like Basic. Running a program becomes a two stage process.

First your program written in Pascal - the *source* program - is translated into p-code. This stage is called compilation. The translation is done by a very clever program called the compiler which is on the boot disc.

The results of the translation

are stored on disc. As it translates the compiler checks for some sorts of errors.

In the second stage the compiled code - the *object* program - is worked through, or executed.

Each stage can give rise to errors.

Compilation cannot happen if you have made a mistake in the Pascal. Remember the need to translate, and something which doesn't match the rules of the language can't be translated.

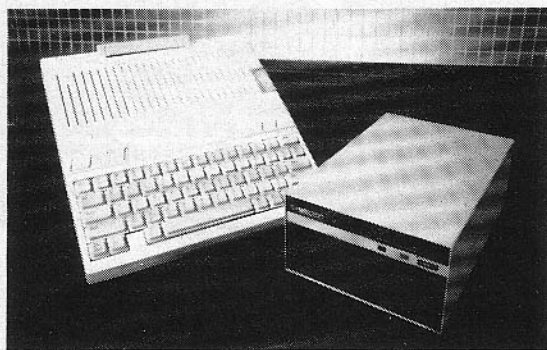
Try translating "They is gone to stage sorts some check which extra" into French. These are called *syntax* errors.

During execution things can go wrong too, causing what are known as *execution* errors. Such things as asking for the calculation of 5/0 are impossible.

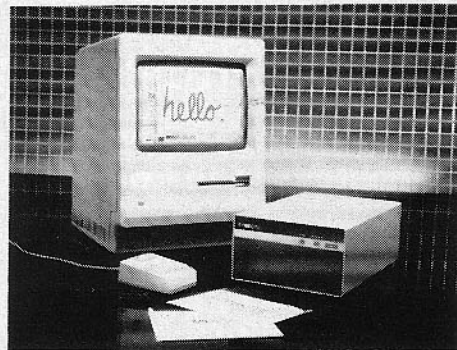
A list of the error messages is included in the Pascal manuals. The keyboard and screen

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have one or two interesting features in Pascal which are worth remembering:

□ The p-system always writes in lines 80 characters wide. If your computer has an 80 column card you've got nothing to worry about. But if your Apple can only display 40 columns across the screen you must use CTRL-A to see the other half. CTRL-A acts as a switch, moving between halves of the screen.

□ Often the Pascal system uses a key called ETX. On the Apple ETX is obtained by typing CTRL-C.

□ Don't push RESET, it won't help. As far as Pascal is concerned, pressing the RESET key is just a prelude to turning the power off.

□ Disc files are of vital importance to Pascal. Every time you write, modify, move or run a program you will be concerned with a disc name and the names of the files stored on that disc.

Each disc has a name and each program or data file has a three part name, like this:

APPLE0:MYPROG.TEXT

The first part, APPLE0, is the disc volume name. The second part, MYPROG, is the file name. And the part after the period is called the suffix.

There are some rules about names:

The disc name must be no more than seven characters long. When the disc is formatted it is given the name BLANK: which may be changed as required later.

The program or file name can be up to 10 characters.

The suffix will be Text or Code. Text is used for anything which a human being might want to read, such as a source program. Code is used for compiled programs, which will only ever be read by a machine.

A volume is any one of the connected input or output devices. These include any discs in the drives, a printer if there is one, and even the keyboard and screen.

It is important to remember that once a system with one disc drive is booted you must leave the boot disc in the drive at all times. The system will look for stuff on it at odd times, and it

must be there.

The only exception to this rule is when you are using the filer to transfer a file from one disc to another.

Most of the work you will do will be with two special files, called SYSTEM.WRK.TEXT and SYSTEM.WRK.CODE on the boot disc. The system will usually choose these files automatically when a program is to be R(UN, E(DITED, X(ECUTED or whatever.

These file names are a bit different to the pattern above, indicating that the system is in charge of them. Their use saves repeatedly typing the same file name.

The main parts of the system that you will be concerned with are:

The Filer, which is used to move programs around and perform other housekeeping chores in the system. Use the filer to do things like:

- Shifting a program from one disc to another.
- Listing a program on the printer.
- Finding out what is on a disc.
- Removing a program (throwing it away).
- Clearing the workfile.

The Editor, which is used to type Pascal programs into the machine – and to alter them when they won't work.

The Compiler, which is used for the translation mentioned earlier.

The other parts of the system, such as the library, the linker and so on, are called up automatically when needed – we don't have to concern ourselves with them.

Have you noticed how the command lines produced by the system are written – lines like F(ILE, R(UN, C(OMPILER, ...? This means that only the first letter is required. C to compile a program, R to run it and so on.

Now I'll take you through a session in which you enter a short program and run it. I recommend that you work carefully through it at the keyboard, but read the next section first so that you can anticipate what is going to happen.

If you should happen to get the Apple confused, don't be

worried – just open the disc drive door and turn off.

This is the text of the program:

```
PROGRAM ONE;
VAR A,B: REAL;
BEGIN
  A := 0.5;
  WHILE A<10.0 DO
  BEGIN
    A := A+0.5;
    B := A*A;
    WRITELN(A, SQUARED
            IS ',B)
  END
END
```

First boot the system. Then, starting from the main command line, type F to enter the filer. After some disc activity you will be presented with the filer prompt line:

```
filer: S(ET, S(LAVE, N(EW,
L(IST, R(EM, C(HANG, T(RANS,
D(ATE, Q(UIT
```

or

```
filer: G, S, N, L, R, C,
T, D, Q
```

Type N (for New) to clear the workfiles. If the filer asks you:

```
THROW AWAY CURRENT WORKFILE?
```

reply Y.

Back at the filer level type Q(uit (just the first letter, as you know). This returns you to the main command level.

Type E to enter the E(ditor. More disc activity, then the system asks which file you are working on:

```
NO WORKFILE IS PRESENT.
FILE? (<RET> FOR NO FILE,
<ESC-RET> TO EXIT)
```

Use CTRL-A if you can't see it all.

The editor is telling you that there is no workfile on your disc. You knew that anyway. Just press the Return key. The editor prompt line pops up:

```
A(DJUST, C(OPY, D(DELETE, F(IND,
I(NSRT, J(IMP, R(PLACE, Q(UIT
```

You want to put some text into the editor, so type I for insert. Another message appears at the top of the screen – here is our friend ETX.

Now carefully type the text of

the program. Be careful about punctuation, and check as you go.

At the end of each line, press Return.

In the fourth line, press the spacebar to move across before typing 'A := ...'. When you press Return the cursor will be spaced across on the next line automatically.

When you get to line 10 the cursor will start too far to the right. Use the back arrow key to move it back.

When you have finished typing the program in, press ETX (CTRL-C). As the line at the top says, this accepts the Pascal text into the machine.

Now that you've got the program typed in, you will need to save it on disc and leave the editor. To do so type Q(uit.

A menu appears, with five options (U, E, R, W and S). Choose U this time, to "Update the workfile and leave". After disc activity finishes you will be back at the main command line.

Now type R, to R(un the program, which is safely in the workfile. First the compiler is called to translate the code. You will see progress reports on the screen.

If an error occurs during compilation the computer will stop and give you several options (use CTRL-A if necessary). The best thing to do is to type E. Eventually you will find yourself back in the editor, where you can fix the error.

If all goes well compilation will be completed and you will see the message "Executing". The program will then produce a table of squares from one to 10.

This first program illustrates the fundamentals of using the Pascal system, in particular, the edit-run-edit cycle. A program is put together with the editor, then run, then (if it didn't work correctly) loaded back into the editor.

The program will be on the disc in two forms:

SYSTEM.WRK.TEXT
(the source program)

and

SYSTEM.WRK.CODE
(the object program).

If you want to keep it you must use the filer to S(ave it. And that we'll go into next month.



WHEN I bought my first Apple computer in the Middle Ages of microcomputing (1979) I expected to have to learn to program it. That was what owning a micro was all about.

Today the micro has become much easier to use, and most owners have no need for a programming language — application software has become increasingly more powerful and versatile.

Even so, when someone puts a powerful tool like Macintosh on the market it is very tempting to try to program it, if only for fun.

In this article I will skate over the surface of four programming environments for the Macintosh to try to give you a taste of what is currently available — and also what is to come.

Unlike the Apple II range, the Macintosh does not come with Basic built in but instead has a ROM containing pretty much all of the user interface.

What this means is that the way the pull down menus, mouse, clipboard, alert boxes and so on work, is part of the Macintosh itself, meaning that the user should be working in a familiar environment regardless of application or language.

This approach has dramatically reduced the time it takes to learn how to use the machine and come up to speed learning new applications. It also means that valuable memory space is not taken up with a language that may not be of the user's choice.

To date there are five ways to program the Macintosh, although not all are yet available on the open market.

The recipe for the first of these, for the professional developers, is first take one Lisa, add one Macintosh, mix in two three-inch Macintosh manuals plus two more for the Lisa and about 2 megabytes of software and you have a very powerful development system.

Great stuff, but it would be difficult to convince the wife that it is essential to further

one's interest in computer programming.

I want to look at four other solutions for the rest of us, starting with Pascal.

Think Technologies has produced something that I believe will have a tremendous impact on the sales of the Macintosh computer. It is an implementation of Pascal that is not so much designed as a serious programming language but rather as a teaching tool.

Those of you like me who have found learning Pascal tedious because of all the to and fro-ing between Editor, Filer and Compiler, just because of one silly little typing error (bug!) or a missing semicolon will love it.

The Macintosh screen is divided initially into three win-

dows, one for the program itself, another for the text output and a third for graphics. Three more can be added, one called "observe", the clipboard, and a window called "instant", of which more later.

As programs are typed in they are automatically formatted and keywords are highlighted. Some of the more obvious mistakes are pointed out by the system as you type by changing the text to outline.

Others, including the ubiquitous semicolon, are picked up at run time, or by selecting a pull-down menu item called "check". When an error is detected a box appears on the screen with a helpful message and a finger points near to the offence (see Figure I).

I found some of the error messages a bit obscure but in fairness the version I had for testing was very much pre-release, and to date I have not seen any documentation for the product. Clicking in the OK button enables you to correct the program immediately and try again.

The instant window is a super feature. It allows you to type in individual Pascal statements and try them out before adding them to the main code. When you have them right they can be copied onto the clipboard and pasted into the main program using the mouse.

As if that was not enough, Instant Pascal also provides some very powerful debugging aids. The observe window lets you nominate variables and watch them change as the program executes. This can be done in conjunction with a very useful step & trace facility.

Pressing the command key with S executes one statement at a time with a finger pointing to the current statement (Figure II).

This is ideal for watching to see if the program is executing correctly and for teaching students of Pascal program flow.

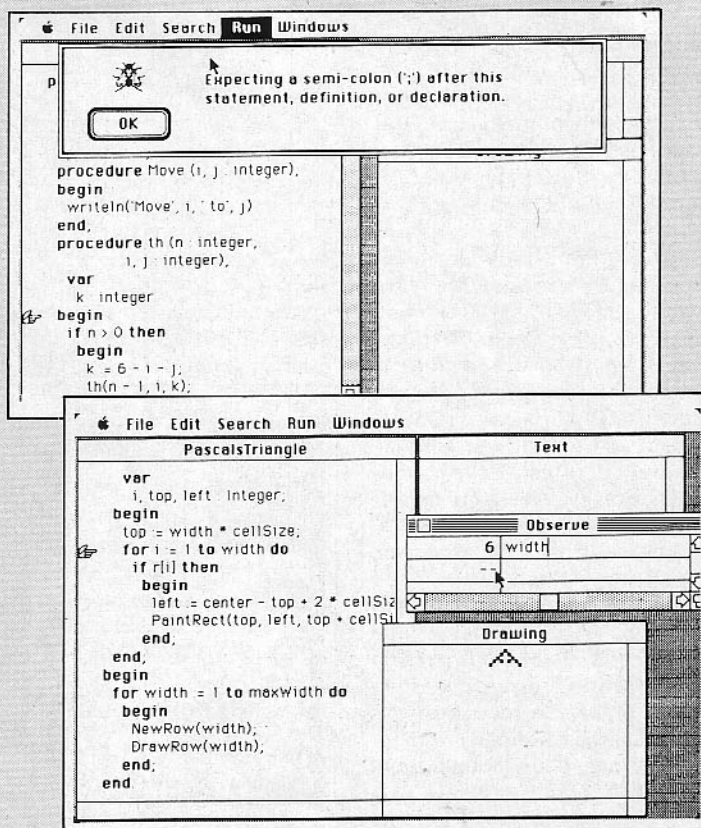
I am sure that many computer studies departments will be using Macs connected to large screens for just this purpose.

I also see many users taking their Macs home and learning Pascal with the help of this very powerful "private tutor". I can't wait to buy a final version of the product for myself.

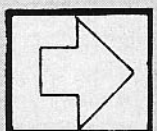
Two versions of Basic are

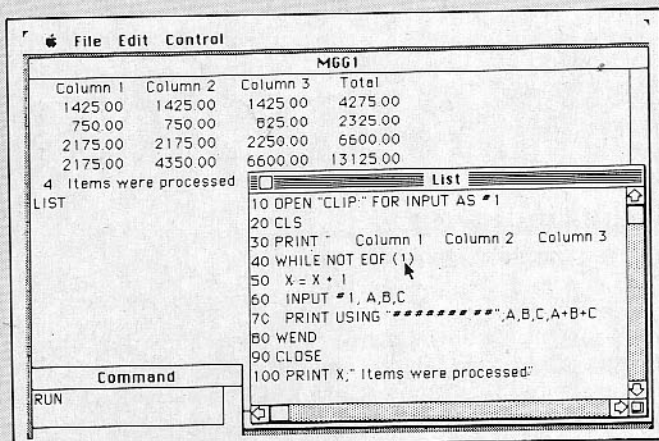
Programming Mac

MIKE GLOVER looks at the languages available to the would-be programmer



Top: Figure I. Below: Figure II





Microsoft Basic example screen

being produced for the Macintosh. One is the Microsoft version which is available now and the other is by Donn Denman of Apple.

The Microsoft version of Basic didn't do a lot for me. The implementation seemed clumsy and I felt that more could have been done to take advantage of the Mac environment.

For example, it seemed sad that although one could list the program in a window it was not possible to edit within this window by cutting and pasting.

All that is possible is to point to a line and have it appear in a separate command window. Editing can then take place there by pointing the mouse to an insertion point and typing.

Even here I think that a little more thought or empathy with the way that the Mac user interface works would have yielded improvements.

The mouse pointer stays as an arrow head instead of changing to an "I beam" when near text, a small point, but nevertheless irritating to see a well thought out user interface blatantly ignored.

Microsoft Basic, like Instant Pascal, does not give the user access to the pull-down menus under program control. These are reserved for the language itself and in addition to the system menus - Apple, File and Edit - has a control menu containing Stop, Continue, Suspend, List, Run, Trace on and Trace off.

Unfriendliness seems to have been a design goal. If you select Open from the file menu you are presented with an empty box in

which to type a file name. If you can't remember, and I invariably can't, there is nothing for it but to quit and go back to see what files are on disc.

This approach is in sharp contrast to the way Microsoft's Multiplan - and indeed most Mac application software - works, where the open command creates a window showing all the files available. Nothing to remember - just a simple click of the mouse button and away we go.

I suppose the virtue of Microsoft Basic is that it will enable applications to be ported to the Mac from other computers.

Support is given to some of the Macintosh toolbox (ROM) routines including: BackPat, InitCursor, SetCursor, HideCursor, ShowCursor, ObscureCursor, HidePen, ShowPen, GetPen, PenSize, PenMode, PenPat, PenNormal MoveTo, Move, LineTo, Line, TextFont, TextFace, TextMode, TextSize, FrameRect, PaintRect, EraseRect, InvertRect, FillRect, FrameOval, PaintOval, EraseOval, InvertOval, FillOval, FrameRoundRect, PaintRoundRect, EraseRoundRect, InvertRoundRect, FillRoundRect, FrameArc, PaintARc, EraseArc, InvertArc, FillArc.

Mouse support is good and returns the coordinates of the mouse as well as providing information regarding how many times the mouse button was pressed (once, twice or three times) and whether or not it is still down.

It is also possible to detect starting and ending coordinates

of the mouse.

Microsoft Basic supports double precision numeric variables with 14 digits of precision as a matter of course, although integer and single precision can be specified.

Variable names can be up to 40 characters long, which is an improvement over Applesoft, and goes a long way to improving legibility of programs. It is also possible to include leading spaces in lines, which also improves readability.

One feature I did like was the ease with which the clipboard file could be accessed. This makes it possible to transfer information back and forth between other applications such as Microsoft's own Multiplan and Basic (see example screen above).

The manual seemed good and was divided into a 43 page tutorial and 140 page reference sections. Also included were sections on Ascii codes, error messages and the mouse tool-

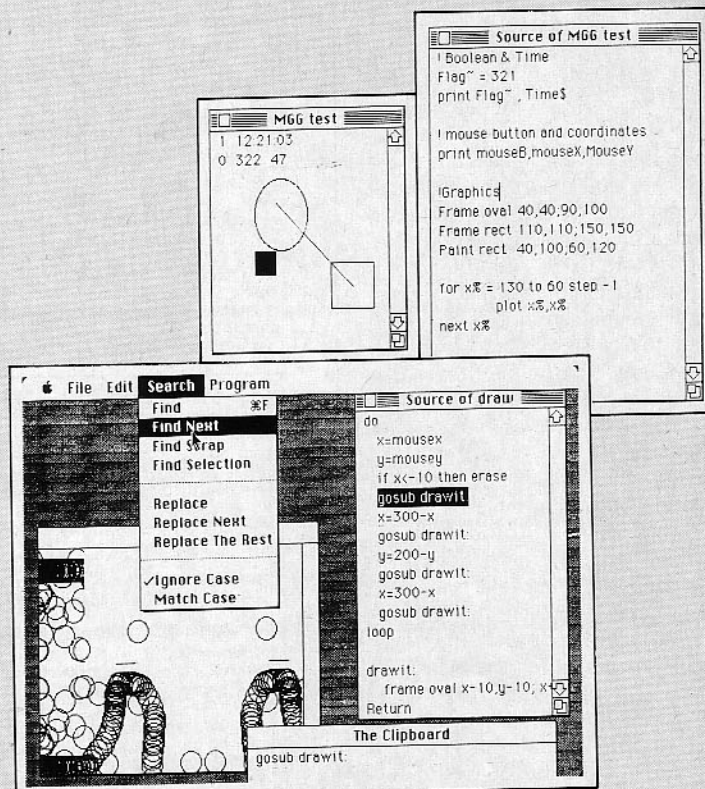
box routines.

The tutorial made use of one of several demonstration programs on disc and a listing of these plus commentary is also included as an appendix in the manual.

Sound support is very good and there are already some very interesting examples of polyphonic music in circulation.

Apple's own MacBasic by Donn Denman is the stuff all Basics should be made of. Procedures can be called by name, and line numbers are optional, encouraging well structured easy to read code that should be a lot easier to maintain than most Basics. More than one program may be run at the same time.

MacBasic runs in windows which may be resized and moved around on the desk top. Figure III shows a MacBasic screen with the listing window, the clipboard and a window in which the program shown in the listing is executing. Editing is a



Above: Figure III. Top: Figure IV

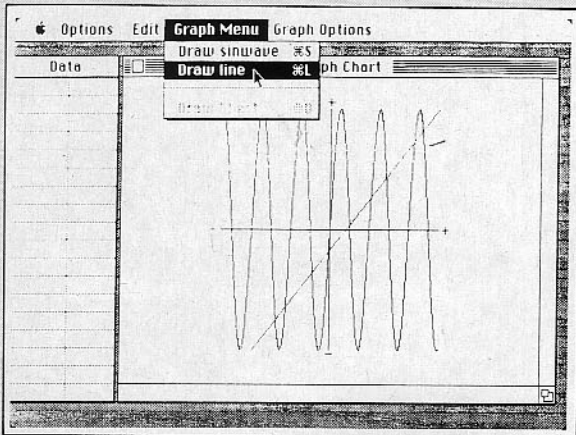


Figure V

delight, as all the cut and paste options are available within the listing window.

The editor works in just the same way as MacWrite, so users of MacBasic will have practically nothing new to learn.

It is even possible to cut and paste source code from one listing to another and have both documents on the desk top at the same time. It is also possible to move information using the clipboard (Mac's text and graphics buffer) to and from other environments such as MacWrite.

MacBasic is semicompiled, and lines are checked to see if the syntax is correct as you enter them. If you enter a line that MacBasic doesn't understand a warning box appears with a helpful message.

I was not able to get my hands on a manual, which makes it a little difficult to properly describe the language, but Figure IV shows some of the things peculiar to Mac that I was able to ferret out. Notice the support for boolean variables.

There are some powerful control structures including CASE statements and DO-LOOP as well as the more usual FOR-NEXT loops. There is also a debugger for those who need it. Rumour has it that it will be similar to the one for Pascal, with pointing fingers and variable windows.

All-in-all, MacBasic seems to be a very well thought out package and should be well worth waiting for.

MacForth, by Creative Solutions, is the most powerful of

the languages now available for the Mac. It is the only one of the four that gives the user control over the pull down menus and window management.

It also provides good access into the toolbox and supports Mac's serial interface and sound capabilities.

Altogether there are more than 640 words included in the dictionary in Level One version.

Figure V shows a desk top with two windows and a pull down menu that works. One of the windows has a Close box and a Size box which can be used to reshape the window. Both windows can be repositioned on the desk top.

The code for this occupies only five screens and took just two days to complete, which included learning the system. All of which speaks volumes for the power of this package.

Figure VI shows the code necessary to produce pull down menus and shows how control is implemented. When the system sees that a menu item has been selected control is passed to the Menu.Action case statement which can then pass control to the appropriate Forth word.

Editing follows the normal Mac conventions with cut and paste, and I very much enjoyed not having to learn yet another

system. One nice touch was the use of the grey area in the scroll bar.

Normally in a Mac application clicking here would scroll a page at a time. In MacForth the arrows perform this function and the grey area scrolls by one triad. Forth programmers tend to think in blocks of three screens called a triad – they just fit on one piece of paper!

If you want to write Mac-like software with pull down menus and windows, then this is the package you should choose.

The prices of the Pascal and Macbasic have not yet been announced but it is likely that they will follow the normal policy for modest pricing of the Mac software.

As the Apple products are not yet on the market it is not possible to put the product support group to the test. However, if it keeps in line with present support it will be good.

Creative Solutions has a hot line service – and it works! I rang with a problem and left my number. Shortly afterwards I had a call from the United States with an answer to my

query. Full marks to Creative Solutions for caring.

Microsoft's technical support in this country has to be experienced to be believed. It is awful! I have never had a reply to any query I have made. Their support in the United States however, is helpful and good. But we shouldn't have to ring them.

Conclusion

All four systems have their different merits.

MacPascal will be an ideal teaching tool, but probably won't be much use for developing software other than testing procedures. Nonetheless it will be a valuable tool for any Pascal programmer.

Microsoft's Basic will be appreciated by those who are already familiar with it on other machines, if not by me.

MacBasic looks as if it will be a clear winner for the recreational programmer.

MacForth is far and away the most powerful of the quartet, being the only one to allow access to windows and pull down menus.

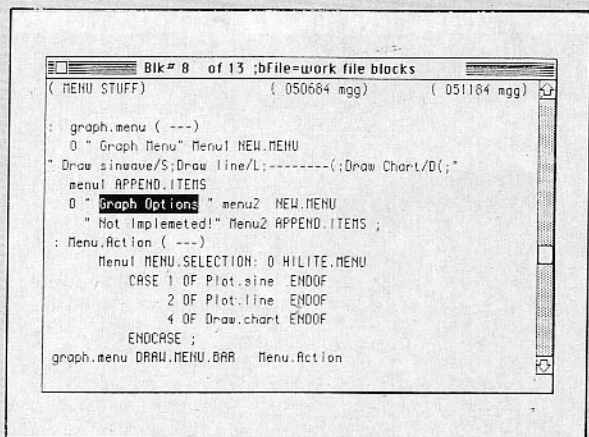
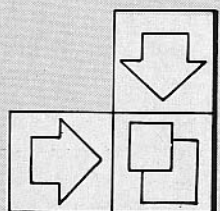


Figure VI

Language	Supplier	Date	Price
MacForth	Creative Solutions	Now	£109.95
MacBasic	Apple	Dec 84	TBA
Microsoft Basic	Microsoft	Now	£99
Instant Pascal	Apple	Nov 84	TBA



Not the cost-effective way to know your Mac



IT is often said that software is more important than hardware, particularly when a new machine is launched. This might be the reason why only about 10 per cent of this book deals with the actual Macintosh.

The rest is devoted to four particular pieces of Mac software. Yes, you guessed it, MacPaint and MacWrite are two of them. The others are MacPlan and MacChart, both of which come from Microsoft.

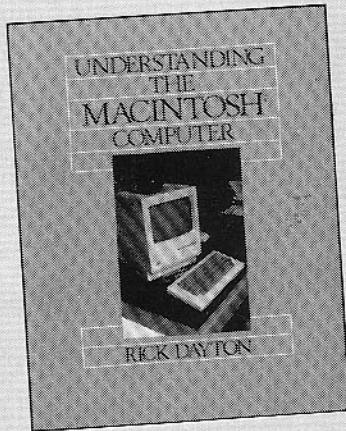
If I had £1 for every paragraph devoted to MacWrite and MacPaint in the last few months I'd be able to afford an IBM 360 by now.

Suffice it to say that this book covers the same familiar

ground, although the style is a little more turgid than the usual hip-talk which people seem compelled to use when writing about Mac.

Seventy pages are devoted to MacPlan, the spreadsheet for mice. If that seems like a lot to be saying about a spreadsheet, bear in mind that it is written in a manner suitable for someone who wouldn't know Multiplan from mulberries and a third of the chapter is taken up with single-page tables showing particular "MacSheets".

MacChart, predictably enough, is a graphics program for displaying numeric data. Although the section on entering data doesn't cover the topic, there is a useful bit of a later chapter which tells you how to transfer data from MacPlan to



MacChart.

From MacChart you can move bits to MacWrite. In fact you can move from MacPlan, MacChart or MacPaint into MacWrite so you should expect some pretty snappy reports

once your managers get Macs.

Since it is "written for the beginner", my feeling is that this book is grossly over-priced. I honestly can't imagine a beginner spending over £18 for it, and at this price I couldn't recommend it either.

If you're thinking of buying a Mac a couple of strategic magazine purchases and a visit to a dealer would be more cost-effective. If you've already got one, you're unlikely to have your understanding increased by this book.

Graham Price

Title: Understanding the Macintosh Computer
Author: Rick Dayton
Publisher: Prentice/Hall, 1984
Price: £18.40



IF you've already got a Macintosh you can safely skip this review. Presenting the Macintosh is aimed at non-owners who want to know more about "the new technology that has changed the computer industry".

Chapter 1 introduces Mac hardware and describes the rest of the book. It also describes "what Mac cannot do" by mentioning the lack of colour and the memory size.

Although it mentions that the 512k version will be with us "by the summer of 1984", I can't tell you when the book was published because I can't find a date on it.

Chapter 2 is devoted to the desktop accessories like Scrapbook and Alarm Clock and Chapter 3 is a tutorial on windows.

Chapter 4 is not specifically Mac-related, being a general discussion of word processing. However, as you might imagine,

One for the coffee table



it leads nicely on to Chapter 5 and MacWrite.

Of course, as the song says, "You can't have one without the other", so Chapter 6 demonstrates the fun to be had with MacPaint.

What does that leave? Why, MacFuture of course. Given the lack of a date on the book, I suppose I shouldn't be surprised

that much of this chapter discusses software acknowledged as already existing. "I have seen the future...?"

The book is written in a typical American chatty style and so is fairly easy to read. It is crammed with pictures, most of which are Mac screens illustrating the points being made in the text.

However rather than use hires screen dumps the publishers have chosen to use photographs of the screen. This would be fine if they'd been well photographed, but too many of them seemed a little blurred. Given that the authors acknowledge the loan of a pre-production Mac, maybe they didn't have an Imagewriter.

Although I've had a couple of digs at the book, it is a reasonably pleasant introduction to the Macintosh. If you're

contemplating spending £1,700 on the machine, it would be worth spending £4.95 to see what you'll be able to do as soon as you've unpacked it.

There again, a good dealer demo would show you much of it and a very good dealer demo would let you do most of it.

So who would find the book useful? Someone considering buying a Mac by mail order? Hardly, given that Apple don't approve of mail order sales.

All in all, I think this is one for the coffee table rather than the reference library.

Dave Russell

Title: Presenting the Macintosh
Authors: Merl K. Miller and Mary A. Myers.
Publisher: dilithium Press
Price: £4.95

MY last two articles dealt with the basics of communications on the Apple and how to get started.

Having now assembled all the components and forced the lid of your Apple shut, what happens next?

The first thing you are going to need is some decent software to use your modem efficiently. Most serial cards come supplied with rudimentary firmware embedded within a ROM or eeprom on the serial card.

This will allow you to talk to another computer quite well and for the time being it may keep the bailiffs from your doorstep.

However as you use the phone more and more, you will want to be able to prepare your messages off-line and allow the Apple to deliver them faster than you can type.

You may also want to exchange programs with friends or download programs from some of the systems which offer the service.

In common with most software written for the Apple much of the communications software comes from the United States. This is fine for accessing systems like bulletin boards which use 300/300 baud or even 1200/1200 full duplex and normal Ascii text.

The problem for UK users starts with Prestel which uses a split baud rate of 1200/75 and is further exacerbated with a special character set rather than straight Ascii.

For Apple users not interested in accessing Prestel, I have found that the best program available is Ascii Express-Professional. Priced at around £100 this program will support most of the common serial cards for the Apple – an almost unique feature – as well

Keep comms costs down with right software

Part 3 of QUENTIN REIDFORD's series on microcommunications

as most printer and 80-column cards.

It will allow Apple users to exchange programs without the need to convert them to text files, although one snag is that both parties need to have Ascii Express-Professional to do that.

File transfer is carried out using protocols, which really means one of two things. Using X-ON or X-OFF allows either micro to tell the other to stop sending while it accesses the disc or is otherwise engaged, thus preventing information being lost or overwritten.

X-ON X-OFF is a pretty basic form of protocol and by no means ensures that you will have a perfect version of the file you downloaded.

The best method would be one which checked each piece of information, comparing it to the original and re-sending it if not perfect.

This protocol, used by Ascii Express and a number of other software packages, is known as the Christensen Protocol after Ward Christensen who developed the idea for his famous X-Modem program which runs under CP/M.

This method splits a file into 128 byte blocks with the last byte containing a checksum. Therefore for every 256 byte Apple disc sector you will send

or receive two blocks of data.

If the checksum at the end of each block does not match with the value of the host's checksum for the same block then that block is re-sent.

The transfer may take longer but I have used it to transfer files of 200 sectors or 400 blocks between the UK and California with perfect results.

There are other communications programs for the Apple which are pretty good and cheaper, but remember to make sure they are compatible with your serial card and you will almost inevitably have to convert your Applesoft or binary programs to text files before you transfer them.

Visiterm, Ascii Express (standard) and Data Capture all perform the basic duty of communicating with a remote computer.

Which of these is the best is really a matter of personal taste, although my preference is towards either Data Capture or Ascii Express (Standard).

With these two programs it is simple to direct all the information which passes between your Apple and the remote computer into a buffer which you can view at leisure, and off-line, or save to a disc file for later use.

Program transfer is easy and when invoked, the remote com-

puter will open the buffer in your Apple by sending a Ctrl-R, then it will transmit the program in Ascii text format and finally close your buffer by sending a Ctrl-T.

All you need do after that is to EXEC the file from disc and run the program. All the communications software available should include a set of utility programs to convert both Applesoft and binary programs to text files so that you can send them off up the line.

Ascii Express does not require this if it is known that the receiving computer is also running it.

This software is all well and good for standard Ascii text transmission, but many people want to use the Prestel system which runs mainly at 1200/75 baud.

There is a text only version running at 300/300 baud using Ascii but that is only available by calling a London number.

The 1200/75 baud Prestel system is available countrywide from a network of nodes which are almost all within a local telephone call. However this system does not use standard Ascii text software.

The Apple has to decode the information received from the Prestel computer and convert it to a sequence of special characters for display on your hi-res screen.

This character set also has to display the graphics of Prestel and tricks like double height, flashing and hidden letters. Most of us have seen Prestel being displayed on other computers with the full complement of colours and a very attractive display it is.

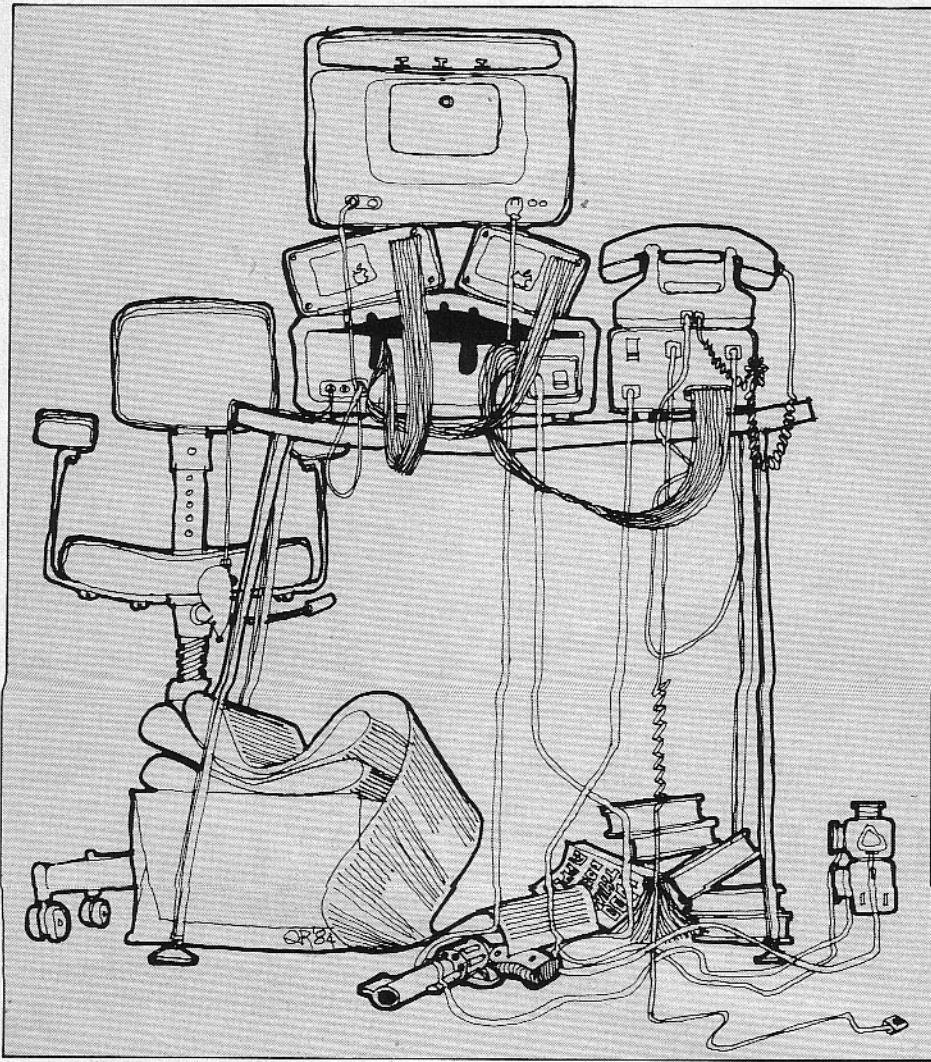
However many of you will know that the standard Apple has the odd irregularity when it comes to colour, not the least being a lack of the true range of Prestel colours.

Up until now the necessary software and videotext colour card to overcome this has been an expensive option.

However, Mastercard, the new Pace serial card included in the *Apple User* offer, has been designed to include an optional videotext generator which will allow the Apple to emulate the BBC Mode 7 and give you correct Prestel colours on an RGB monitor.

There will be an additional RF

BECAUSE of the tremendous response we are repeating the special *Apple User* offer of an Apple-compatible modem, interface card and software disc for an exceptionally low price – just £199 (including VAT). See the order form on Page 49.



modulator/PAL colour card to direct this mode to your colour TV set.

In keeping with the general range of choice available for the Apple there are two alternatives, one with colour representation using standard Apple PAL colours and one which is monochrome only.

When Micronet announced the availability of hardware/software packages for the Apple the well-remembered wait for those to materialise caused at least one person to set about writing his own version, the result being that there are two contenders in the market with similar products.

Having witnessed the birth pains of one of these programs, I feel I should only describe the two and decline to make any judgement on either.

By now the colour version of Vicom, produced by AM Technology, should be in its 1.6 revision. It allows the user to select either a colour or a

monochrome display.

The colour makes for an attractive display, although the decision to use standard Apple colours does not give coloured text (white only) and there are two greens rather than a yellow.

It looks pleasant as a display and has the advantage of not requiring more hardware other than a standard Apple PAL colour card or nothing at all if you use a modified American colour monitor.

I admit to having reservations as to the legibility of the text on the version 1.5 using some TV sets, but with a good colour monitor it works well.

Built into the existing 1.5 package is a rudimentary 300/300 communications program giving the purchaser the ability to use one program to serve most of his needs.

The 1.6 revision should have a much more sophisticated 300/300 program with protocol transfer and off-line editing available. However as yet, I

have not had the opportunity to test the latest version.

The Vicom software will allow the user to select macros for selecting frequently used Prestel or Micronet pages with one key-stroke.

Auto-log on with the user's ID and password is supported, as is a save-page frame to disc facility and off-line editing of messages.

It is possible to use the Vicom software in auto-answer mode to receive messages while unattended, and if you want to dump a graphic page from Prestel on to your printer then that's catered for too.

Data Highway, the monochrome version, was written by Ewen Wannop. It is this package you'll get with the *Apple User* offer.

The decision to display purely black and white has been offset by supporting all Prestel's little tricks like flashing text and a hide/reveal option.

This software will of course

give true Prestel colour using the optional videotext generator mentioned before.

Again macro page selection is supported as is the ability to record your route through Prestel, which allows the user to recall any one of the last 30 or so pages selected with one key stroke.

Auto-log on is again supported from a simple start-up menu which sets up the type of serial card being used and any printer control characters required.

There is a simple two page menu which can be selected from terminal mode by pressing Escape and toggled with the space bar.

These menus allow the user to catalog discs, enter messages off-line, send those messages when connected, save and restore pages from disc, dump a page to the printer and select pre-defined pages.

There is also a sophisticated Ascii communications program included with the Prestel software which supports full Christensen protocols, off-line editing of messages, and the ability to transfer files at 1200/75 baud, assuming both computers have the same software and serial cards capable of this split baud rate.

This latter feature will allow very fast error free file transfers – a much needed utility for those without expensive 1200 full duplex modems.

There is also an auto-answer mode which allows you to leave your Apple unattended to answer the telephone and receive or send files to someone calling in.

Both programs have their merits and the choice is largely a matter of personal preference.

● *To be continued*



JUST over a year ago Peter Gorry reviewed the VGP card from Digisolve in very positive terms. He was therefore the obvious choice to review their latest software – Pixel Paint.

Fortunately for me Peter was too busy with other commitments, so I had all the fun instead.

Until recently my experience with graphics packages was limited to what you might call home software. I'd used most of the Penguin packages and found The Graphics Magician suited practically all my needs.

I'd also used MacPaint and found it very easy to master. However its lack of colour was a drawback, if you'll pardon the pun.

Pixel Paint was not quite as easy to use – although that's only because MacPaint is so easy – and it also requires a bit more hardware. However, it is intended for use in professional studios and is therefore competing with systems costing in the region of £40,000.

The hardware configuration I used was as follows. At the heart of it all was a trusty Apple II+ with a language card in slot 0, in slot one was a Watanabe DT1000 digitiser tablet, a Digisolve security dongle was in slot two, the VGP64 host adaptor sat in slot 4, connected via the 64-colour version of the VGP graphics processor to a colour RGB monitor, the usual disc interface was in slot 6 while slot 7 contained the interface to an ICE hard disc.

The two floppy drives were

Painting by micro – the bear facts

Graphics package review
by RALPH CLARKE

connected but unused since the review copy of the software was mounted on the hard drive. There was also a monochrome monitor connected.

When the software is booted it firstly checks for the presence of the dongle. If it's there the Pascal system is loaded and you can execute the actual graphics package.

The menu of available commands appears on the monochrome monitor while the actual drawing is done on the colour monitor. However the graphics tablet is used for both.

Moving the pen over the main body of the tablet produces movement on the drawing screen, while moving the pen to the top of the tablet produces a cursor on the menu screen.

Once you get this far you are ready to produce your masterpiece. Pixel Paint contains just about every facility you could hope for, including a vast array of both monochrome and colour brushes – and the facility to redefine them – as well as lines, circles, rectangles, a zoom with choice of magnification and so forth.

Of course free-hand drawing is also possible. This is apparently a lot easier with an accelerator card installed because the software can then keep up with fairly rapid movements across the graphics tablet.

Even without an accelerator it didn't take long to adapt to the slight delay between movement on the tablet and the corresponding movement on the drawing screen.

The colour palette contains 64 colours but you don't necessarily have to access the palette to change colour.

If the colour you want is already on-screen you can pick it off without going via the palette. This saves you having to remember which particular colour you used when you want a bit more of it.

Once you've drawn something you can save it as an "object" or as a "photograph". There is a difference in storage requirements but, more importantly from the user's point of view, there is a difference in how the two things are redrawn.

An object is redrawn exactly as you drew it, including any corrections. If you erased something it is drawn and then erased in exactly the same sequence.

I found this a little strange and would have preferred the ability to undo the last addition to the drawing. However, since the emphasis is presumably on the finished drawing, the means by which it was arrived at is irrelevant.

A photograph is simply wiped onto the screen quite quickly from top to bottom. It is possible to overlay photographs and it is also possible to do something called "chromo key". This involves overlaying one photograph on another, but only where a particular colour occurs.

Suppose, for example, that

you have a picture of the cockpit of a plane. You can key to the colour of the sky outside the plane and then overlay a series of views. Thus the view from the cockpit will appear to change.

Since all menu selection is done via the graphics tablet the keyboard is only required to enter text onto a picture or name a file. Menus other than the main one appear on the drawing screen as windows and these can be repositioned if they get in the way.

Most of the functions are self-explanatory, but a 25-page manual accompanies the package and explains how to set up the system and describes each function individually. I must admit I hardly bothered with the manual once I'd got under way.

Since the configuration I was using involves about £6,000 worth of hardware and software the system is obviously aimed a lot more up-market than MacPaint.

It is intended for use by professional studios, and comparable dedicated systems cost several times as much.

The colour display is suitable for photographing direct to slides or overheads and can even be incorporated in videos if the VGP is fitted with an external video synch. It's also possible to output to a colour printer if you have one.

I found Pixel Paint relatively easy to use and the quality of the finished product more than compensated for the learning involved.

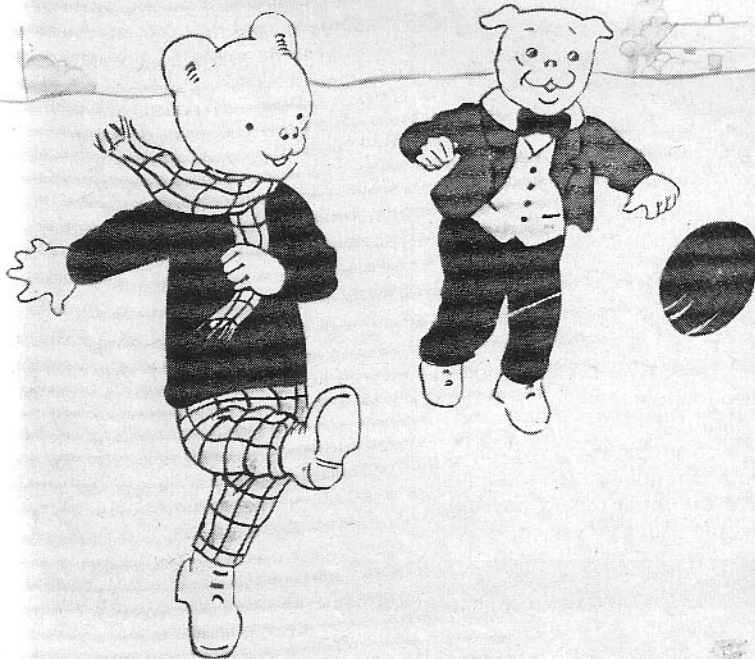
The Rupert picture took a couple of hours, but it would probably have taken considerably longer to produce a colour drawing to the same standard.

In fact I was sorry to have to return the package – and the hardware I borrowed. I could have designed some lovely colour Christmas cards and they won't look nearly as good in black and white.

Title: Pixel Paint

Price: £900

Distributor: Digisolve, Aire & Calder Works, Cinder Lane, Castleford, West Yorks WF10 1LU. Tel: 0977 513141.



BRITAIN has one of the most complicated income tax systems in the world. It is computed in one of four different ways, each using a different table.

When it is deducted at source (Pay As You Earn - PAYE) the rounding is extremely complex, making it quite impossible to calculate tax accurately with a calculator. If pay exceeds a certain limit, extra calculations must be made.

On top of this comes National Insurance, calculated in a completely different way. There are five principal ways of calculating National Insurance, with appropriate tables.

On top of this, in some cases, comes the fairly new and incomprehensible Statutory Sick Pay.

One of the problems facing the smaller business is the need to do complicated tax calculations every week. Typically, three table entries must be looked up for each person.

Many computer payroll systems suitable for large companies are available, but they are expensive and can be difficult for the non-expert to use.

Hilderbay's Payroll is designed for the smaller user, and priced to suit. They also have a Statutory Sick Pay module.

If you are in any way like me then you are reasonably busy, quite excited about getting your first computer and/or computerising your payroll, and totally confused about the myriad packages - some of which are integrated and most of which are compatible.

Moreover, the best ones have beautifully produced brochures which promise to relieve you of all your problems within an hour of turning the program on!

By now you have been seduced by a beautiful girl fondling a blue pulsating box, or maybe an orchard full of peaches. Which one should you buy?

Well - I have different criteria by which to judge a program:

Does it do exactly what I want? Is it easy to use? Does it avoid all sorts of wonderful claims? Are there hundreds of satisfied users who would happily confirm the foregoing? Is it reasonably priced?

And if, like me, you don't have the time to evaluate all the packages and read all the brochures, then you may take it from me that the Hilderbay products are truly professional, simple to use and very cheap.

If you don't want to take my word then read on.

THE main purpose of Hilderbay's Payroll is to allow the smaller business to carry out payroll calculations automatically, and to print payslips and summaries.

The program is also suitable for the smaller accountant, for confidential processing of senior staff pay within large organisations, and for checking payslips.

All rates of pay up to £1 million a year are covered, as are tax codes of the usual number-followed-by-letter type, such as 456H, BR, D, F, and NT.

Emergency (week or month one) codes are allowed. National Insurance contributions are calculated for standard rate, reduced rate, over pension age, no pension contribution and contracted out (standard or reduced rate).

Tax-exempt pension contributions are catered for. Pay may be on an hourly, weekly, or monthly basis.

A payroll system must above all be accurate. I have checked the Hilderbay Payroll tax figures against manual calculations and they have always been absolutely correct, to the penny.

The DHSS allows National Insurance to be calculated either from tables or as an exact percentage: Hilderbay use the percentage method, correct to

the penny as before.

The system will run on any Apple II, II+, IIe, IIc or III in emulation mode, with at least one DOS 3.3 disc drive and 48k of memory.

A printer is virtually essential, although the program will display to the screen if required.

When first in use, you must load the file PAY.DAT from the program disc. You will be asked for a security code to prevent unauthorised use. Then enter PAY. You may change this code later.

Set the week or month number - from the table in the back of the Inland Revenue's Employers Guide to PAYE, P7 - and enter the necessary information for each employee:

name, tax code, National Insurance contribution group, total pay, tax, employee and employer N.I. contributions to date, and pension contributions to date.

Regular (monthly, weekly or hourly) pay, taxable changes (bonus, etc.), non-taxable changes (subscriptions, etc), pension contribution.

Changes may be positive (additions) or negative (deductions). Note that it is not necessary to enter tax tables, etc. The SAVE DATA option is used to store the information on a data disc.

In normal use little or no input is required. You must first load the most recent pay data file, then set the week or month

number. The program will automatically increment the previous number by one unless you say otherwise, so that the number need not be looked up.

Then go through the employee records, entering data only if there have been changes since last payday. Press P to calculate pay, P again to print a payslip (on plain paper), R to return to the next employee, and R again to confirm this.

Any desired text can be printed at any time, such as at the bottom of a payslip.

After going through the payroll, print a summary of payments (net pay, NI, and tax for each employee, and totals). Then you must save the data on a disc file. All totals will have

Put paid to those problems of working out the wages

A payroll program reviewed by MICHAEL FALTER

been updated, ready for next payday.

Full information on each employee can be printed out at any time. This is mainly of use for year-end records.

The program processes employees in batches of 50. Weekly and hourly pay may be mixed, but monthly employees should be on a separate file.

There is no limit to the number of employees that may be handled, but the package is not really suitable for companies with very large payrolls.

All taxable changes are lumped together, as are all non-taxable changes. For example, bonus £25, plus overtime £18.50, is listed as a change of £43.50. It is, of course, possible to print an explanation as text at the bottom of the payslip.

The F codes – like F65 – are normally applied on a non-cumulative basis.

Exceptionally, the Inland Revenue may specifically direct an employer to use the F codes on a cumulative basis, once only. The payroll program will not handle this, admittedly extremely rare, case.

Fortnightly, four-weekly, etc, pay periods are not catered for explicitly. In the odd case it is easy to do two or four-weekly runs and add the result.

All payroll programs compute net pay and deductions from gross pay. This also allows gross pay and deductions to be computed from net pay.

Examples of the uses are: "I have paid someone £50, what gross pay is that for my books?" "I need £400 per month as take home pay, what gross figure do I need?"

The payroll has calculator-mode input. Any calculation involving numbers, the four signs +, -, *, /, as well as (and), can be entered.

For example, pay can be entered as 555*1.1, or 555.00*(1+10/100), for an increase of 10 per cent on pay of £555.

Coin analysis can be carried out separately as part of the payroll package. You enter the amount of cash to be paid to each person. The program produces a list telling you how many notes or coins of each denomination go in the pay packet, and how many to with-

TAX CODE 178L N.I.: ST. WEEK 4

SMITH, W

CUMUL. PAY	£	400.00	BASIC PAY	£	100.00
TOTAL TAX	£	78.60	TAXABLE CHANGES	£	0.00
TOTAL N.I.	£	36.00	NON-TAXABLE CHANGES	£	0.00
			TOTAL PAY	£	100.00

TAX	£	19.80
N.I.	£	9.00
DEDUCTIONS	£	28.80
NET PAY	£	71.20

A typical payslip. Additional information may be printed here.

TOTAL EMPLOYER N.I. TO DATE £ 45.80

WEEK 4:

GROSS PAY + EMPLOYER N.I.	£	111.45 (BASIC + TAXABLE CH. + EMPLOYER N.I.)
EMPLOYER N.I.	£	11.45
TOTAL N.I.	£	20.45
TOTAL N.I. + TAX	£	40.25

PAYMENTS: EMPLOYEE INL.REV. 71.20 PENS.FUND 40.25 0.00

Additional information which may be printed after the payslip.

PAYMENTS FOR WEEK 4

NAME	NET PAY	N.I.	TAX	GROSS+ R NI
SMITH, W.	71.20			
HARRISON, HARRY	72.00	20.45	19.80	111.45
WILLIAMSON, JACK	22.50	0.00	33.00	105.00
KING, ARTHUR	100.00	5.72	27.50	55.72
BLAIR, HARRY	59.90	0.00	0.00	100.00
JAMIESON, JAMES	71.50	18.40	27.00	105.30
JACKSON, A B.	148.46	20.45	19.50	111.45
TOTALS THIS RUN:	545.56	34.07	50.40	232.93
		99.09	177.20	821.85

draw from the bank.

For example, somebody paid £48.95 would receive two £20 notes, one £5, three £1, 50p, two 20p and one 5p.

Tax and National Insurance rates change from time to time. Sometimes the way pay is calculated also changes slightly. In the former case, Hilderbay supply updates.

Updating is simple, although it involves some disc-juggling. Load the payroll program, replace the disc with the updates disc, and load an appropriately named file (such as UPDATE.11MAY84).

Replace the disc with your data disc and type in the name of a file to update. Then proceed as usual.

The update is permanent and need not be repeated. The date of the tables in use is displayed at the top of the screen.

Employees' tax codes are not

updated automatically. It is a simple job to update them manually.

A small niggle. On changing the week or month number, you are warned that summaries will be cleared. This may be disconcerting at first. I had visions of all cumulative totals being set to zero, as at the beginning of a tax year.

Actually, only the list of last week's payments is cleared. This list will normally have been printed and used before you get to this stage, and no useful information will be lost.

Hilderbay Payroll comprises a manual, a payroll program disc, and a coin analysis and updates disc. A backup copy of the payroll program is supplied on the reverse of the coin analysis disc.

The program disc is copy

protected, but damaged discs can be replaced quickly.

When evaluating software, the bare facts such as program specification, are not enough. How does it feel to use the program? Does it really save time? Is it frustrating to use, in spite of an attractive specification?

I found Hilderbay's Payroll friendly, easy and pleasant to use. It also saves a great deal of time. For a small business of up to 100 employees it is ideal.

It's practical, efficient and very easy to use. And it doesn't offer you a multitude of confusing 'integrated' 'compatible' features that you'll never use anyway.

It has turned my accountant into a computer freak!



A language card can speed up the assembly cycle

By P.H.P. HARRIS

THE DOS Toolkit assembler relies heavily on disc I/O operations during the assembly cycle, with the result that a substantial portion of the time necessary to develop an assembly language program is spent watching the red light as the disc revolves.

It is particularly irritating to have to wait while the Editor or ASSM code segments, which overlap each other in RAM, are brought in from the disc before one can view a text for editing or the assembled object code.

A language card, if present, represents RAM which can be used to store the Editor or ASSM modules in a much more rapidly accessible form than a disc, which suggests the possibility of modifying the assembler to work in this way.

The first step in investigating this possibility was to find out if these two modules would fit into the language card.

This may be established by BLOADing each module in turn. After each operation, the length of a BLOADed code segment is held in \$AA60.\$AA61 (this is also true of a LOADED Basic program), and its start address in \$AA72.\$AA73, in both cases with the low byte first.

The results are as follows:

	Start	address	Length
Editor	\$11FF	\$E01	
ASSM	\$1200	\$22FB	
EDASM.OBJ	\$C00	\$66C	

The next step was to study the code of EDASM.OBJ, which remains in place during the

whole of the assembler usage (see appendix A in the Assembler/Editor manual), to determine where and how the editor and assembler modules were called.

The segment of code between \$DA5 and \$DF4 is used to update the ASMIDSTAMP file and call ASSM, and Editor is recalled at \$E19-\$E1E.

The first of these areas provides sufficient space to fit a modified code calling the modules in from the language card, at the cost of losing the ASMIDSTAMP facility.

I never cared for ASMIDSTAMP anyway, as the information does not reside with the assembled file to provide a permanent dating facility, unlike the Pascal filing system.

At this point I wrote an assembly program which swapped one module residing in its proper place with the other module waiting in the language card.

This had the advantages that only one subroutine was necessary for both exchanges and it avoided bank switching of the language card. It also worked perfectly, but only once!

It transpired that the assembler ends its processing by overwriting itself, so that a somewhat garbled version was being swapped back into the language card.

The final effort is shown in

Listing I. As the combined length of ASSM and Editor is more than 12k bank switching is necessary to store both in the language card.

The first part of the listing, ASM (LC MOD).OBJ0, serves to print a screen title, load both Editor and ASSM into the language card, and put a small patch into the EDASM.OBJ code.

This initialisation code is overwritten during the assembler cycle, after it has served its purpose.

The second part, ASM-(LC

MOD).OBJ1, is the all important resident patch in the EDASM.OBJ module.

Having entered the code and saved it, the sequence of events is:

```
BLOAD EDASM.OBJ
BLOAD ASM (LC MOD)
.OBJ0
BLOAD ASM (LC MOD)
.OBJ1
BSAVE
NEWEDASM,A$B00,L$76C
```

After NEWEDASM has been run it is a simple matter for single disc-drive users to edit and assemble programs without continually shuffling between storage discs and the Toolkit disc.

It's quicker, too!

```
SOURCE FILE: ASM (LC MOD)
1 *****
0000: 2 *
0000: 3 * ASM (LC MOD)
0000: 4 *
5 *****

0000: 7 TEMP EQU 0
0002: 8 TEMP2 EQU 2
0024: 9 CH EQU $24
0F7E: 10 BLOAD EQU $F7E ;EDASM ROUTINE
11FF: 11 START EQU $11FF
D000: 12 RAMCARD EQU $D000

C080: 14 RDRAM2 EQU $C080 ;LANGUAGE CARD, SWITCHES
C081: 15 WRAM2 EQU $C081
C082: 16 RDRAM2 EQU $C082
C089: 17 WRAM1 EQU $C089
C08B: 18 RDRAM1 EQU $C08B
C08A: 19 RDRAM1 EQU $C08A

FD0E: 21 CROUT EQU $FD0E
FD0D: 22 COUT EQU $FD0D

----- NEXT OBJECT FILE NAME IS ASM (LC MOD).OBJ0
0000: 24 ORD $E00

0000:A9 60 26 INIT LDA $*60
0002:BD 27 0C 27 STA $C27
0005:20 12 0C 28 JSR $C12 ;S/R PRINTS ORIGINAL SCREEN TITLE
000A:9 20 29 LDA $*20
000A:BD 27 0C 30 STA $C27
000D:20 0E FD 31 JSR CROUT
0010:20 0E FD 32 JSR CROUT
0013:A0 07 33 LDY $7
0017:09 C5 0B 34 IN1 LDA TABLE2,Y ;MODIFIED TITLE ON SCREEN
001B:AA 35 TAX
0017:0B 36 DEY
001A:09 C5 0B 37 LDA TABLE2,Y
```


From Page 57

```

0B1D:85 24 38 STA CH
0B1F:20 5A 0B 39 JSR TXTPRT
0B22:8B 40 DEX
0B23:10 F0 41 BPL IN1
0B25:AD 81 C0 42 LDA WRAM2
0B28:AD 81 C0 43 LDA WRAM2
0B2E:20 7E 0F 44 JSR BLOAD
0B31:20 5A 0B 45 LDX #1
0B33:A9 40 47 JSR TXTPRT ;ASSM ---
0B35:8D F6 E1 48 STA $E1F6 ; LANGUAGE CARD
0B38:AD 82 C0 49 LDA RDR0M2 ;DISABLE "PRESS ANY
0B3B:AD 89 C0 50 LDA WRAM1 ;.KEY TO CONTINUE" ROUTINE
0B3E:AD 89 C0 51 LDA WRAM1
0B41:20 7E 0F 52 JSR BLOAD
0B44:A2 13 53 LDX #CODE2-CODE1 ;EDITOR ---
0B46:20 5A 0B 54 JSR TXTPRT ; LANGUAGE CARD
0B49:AD 8A C0 55 LDA RDR0M1
0B4C:A2 05 56 LDX #5
0B4E:8D 03 0D 57 IN2 LDA PATCH,X ;TO ALLOW EDITOR TO BE
0B51:9D 19 0E 58 STA $E19,X ; CALLED FROM
0B54:CA 59 DEX ; LANGUAGE CARD
0B55:10 F7 60 BPL IN2
0B57:4C 27 0C 61 JMP #C27

0B5A:8D 66 0B 63 TXTPRT LDA CODE1,X
0B5D:F0 06 64 BEQ F1
0B5F:20 ED FD 65 JSR COUT
0B62:EB 66 INX
0B63:1D 0F 67 SNE TXTPRT
0B65:60 68 F1 RTS

0B66:C1 03 D3 70 CODE1 ASC 'ASSM,S6,D1,A#0001'
0B69:CD AC D3
0B6C:E6 AC C4
0B6F:E1 AC C1
0B72:A4 C4 8D
0B75:E0 B1
0B77:8D 00 71 DFB $8D,00
0B79:C5 C4 C9 72 CODE2 ASC 'EDITOR,S6,D1,A#0000'
0B7C:D4 CF D2
0B7F:AC D3 E6
0B82:AC C4 B1
0B85:AC C1 A4
0B88:C4 E0 8D
0B8B:E0
0B8C:8D 00 73 DFB $8D,00
0B8E:CC C1 CE 74 CODE3 ASC 'LANGUAGE CARD MODIFICATION'
0B91:C7 05 C1
0B94:4C C5 A0
0B97:C3 C1 D2
0B9A:C4 A0 CD
0B9D:CF C4 C9
0BA0:C6 C9 C3
    
```

```

0BA3:C1 D4 C9
0BA6:CF CE
0BA8:8D 8D 00 75 DFB $8D,$8D,0
0BAE:C2 09 76 CODE4 ASC 'BY'
0BAD:8D 8D 00 77 DFB $8D,$8D,0
0BB0:D8 AE CB 78 CODE5 ASC 'F.H.F. HARRIS' ;TYPE IN ONLY 1 SPACE
0BB3:AE D8 AE
0BB6:A0 CB C1
0BB9:D2 DZ C9
0BBE:D3
0BBF:8D 8D 00 79 DFB $8D,$8D,0
0BC0:E1 E9 88 80 CODE6 ASC '1984'
0BC3:84
0BC4:00 81 DFB 0
0BC5:10 5A 82 TABLE2 DFB $10,CODE6-CODE1
0BC7:0D 4A 83 DFB $0D,CODE5-CODE1
0BC9:11 45 84 DFB $11,CODE4-CODE1
0BCE:07 28 85 DFB $07,CODE3-CODE1

----- NEXT OBJECT FILE NAME IS ASM (LC MOD).OBJ1
0DAS: 87 DRG #DAS

0DAS:AD 80 C0 89 LDASH LDA RDRAM2
0DAB:20 E1 0D 90 JSR HOVERAM
0DAB:AD 82 C0 91 LDA RDR0M2
0DAE:4C F5 8D 92 JMP #DF5

0DB1:A0 03 94 HOVERAM LDY #3
0DB3:E9 CF 0D 95 RL1 LDA TABLE,Y
0DB6:99 00 80 96 STA TEMP,Y
0DB9:8B 97 DEY
0DBA:10 F7 98 BPL RL1
0DBC:CB 99 INY
0DBD:81 00 100 RL2 LDA (TEMP),Y
0DBF:91 02 101 STA (TEMP2),Y
0DC1:8B 102 DEY
0DC2:D0 F9 103 RNE RL2
0DC4:E6 01 104 INC TEMP+1
0DC6:E6 03 105 INC TEMP+1
0DC8:A5 01 106 LDA TEMP+1
0DCA:C9 35 107 CMP #535
0DCC:D8 EF 108 RNE RL2
0DCE:A0 109 RTS

0DDF:00 D0 FF 111 TABLE DFB >RAMCARD,<RAMCARD,>START,<START
0DD2:11
0DD3:20 D9 0D 112 PATCH JSR LOADED
0DD6:EA 113 NOP
0DD7:EA 114 NOP
0DD8:EA 115 NOP

0DD9:AD 88 C0 117 LOADED LDA RDRAM1
0DDC:20 E1 0D 118 JSR HOVERAM
0DDF:AD 8A C0 119 LDA RDR0M1
0DE2:60 120 RTS

*** SUCCESSFUL ASSEMBLY: NO ERRORS
    
```

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Text Features

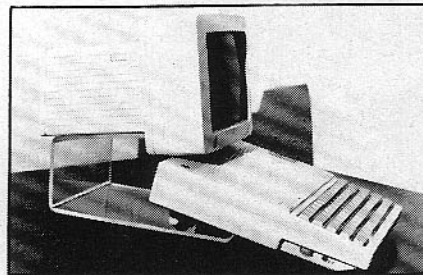
- * Easily Set Left/Right margin, line length, form length.
- * Automatic word wrap.
- * Exclusive option automatically substitutes 'E's for 'S's.
- * Text screen dump works from any language.
- * Fully supports Pascal, CP/M and all 80 column cards.
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For Programmers

- * Hex dump mode shows exactly what is being sent to the printer.
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I HAVE a niggling problem with the use of Applewriter II.1 with my Epson RX 80 and Apple II.

To control the printer I use Ctrl V in the usual way, and all is splendid with two exceptions.

Every control code I have tried behaves exactly as required, including the 1/8, 7/72 and 1/6 line spacings, but not the n/216 or n/72.

They do work perfectly well when dispatched to the printer directly before loading Applewriter, but when used inside Ctrl V they produce unpredictable results, like one inch spacings, or 10 times the expected gap. The codes concerned are of course Esc 3, Esc A, and Esc J.

This is particularly annoying as when using Elite typeface for copy preparation work, 1/7 or better, 11/72 gives the most pleasing appearance.

Have you or any reader a suggestion, or even an explanation?

Please ignore this next bit if it's old hat to your erudite readership. For anyone who hasn't bothered with the Glossary function of Applewriter, it offers a most elegant access to printer con-

My printer won't behave . . .

trol codes.

Simply define Glossary functions as the desired code enclosed in Ctrl Vs, and you have a two keystroke code for even complex compound functions.

I use easily remembered letters, not necessarily related to the printer's code - thus I set underlining by Ctrl U (Ctrl V ESC-1 Ctrl V) and cancel by Ctrl u (Ctrl V ESC-0 Ctrl V), and so on - upper case to set, lower to cancel.

I keep a copy of the Glossary file as a text file, with comments explaining the functions, and on printing out this file it automatically gives examples of each print style, spacing or whatever.

Incidentally, incorporate your standard codes for your usual print style in the "top line" of your Print/program files, but remember it will reset it at the top of each page. - D.G.N. English, Bushey, Herts.

- Your printer and interface card work correctly because you

can control them from Basic. My Epson MkII (upgraded) which uses the same codes is controlled correctly from Applewriter which suggests that maybe you are not correctly translating them into characters.

For example the 11/72 spacing obtained from Basic by ?CHR\$(27)CHR\$(65)CHR\$(11) is obtained from within Applewriter's Ctrl-V function by ESC,ESC,A,Ctrl-K. Make sure that you are in upper case mode before pressing Ctrl-V.

Max Parrott

EPZ, Lisa and Big Mac

CONCERNING the different assemblers available, can you tell me what EPZ represents in Lisa so that I can find the equivalent in Big Mac. - Peter Trinder, Sunningdale, Berkshire.

- EPZ is merely an 'equates' signifying a zero page location.

Earlier Lisa versions will equally well use EQU but later versions are promised to demand EPZ. Presumably most assemblers will be happy with EQU.

Max Parrott

Not the IIe - it's me!

CONCERNING the article on hi-res text on Page 54 of your November 1983 issue, I typed in the hex dump of the program on my Apple IIe.

The memory location 9288 was typed in as 00 as in the article, and whenever the saved program is BLOADED and then the memory checked, it correctly appears as 00 at 9288.

Whenever the two sample programs are run (and graphics text BRUN), the contents at 9288 are changed to FF and program halts with syntax error at the first &PRINT.

I've been over the hex dump

of both parts of program and character set and I can find no errors apart from the one indicated after BRUN. I am wondering whether the fact I'm operating an Apple IIe makes any difference?

Do you have any suggestions as to what is going on, and why I can't get the & command to work?

I would be grateful for any explanation you may have to offer to suggest how I can get this program up and running. - Graham B. Hill, Hamilton, New Zealand.

- No! It's not the IIe, it's me who cannot print hexadecimal dumps correctly.

The first four lines of the hexadecimal dump are wrong. The numbers given in the assembly listing are correct. The dump should begin with:

```
9235- A9 4C 8D
9238- F5 03 A9 49 8D F6 03 85
9240- 73 A9 92 8D F7 03 85 74
9248- 60 .....
```

I apologise for causing confusion.

Max Parrott

How to keep high scores

I KEYED the speedway program out of the April 1984 edition of Apple User, and I have enjoyed many happy hours trying to beat it.

Problem! Every time I switch the computer off I lose my high score table.

Answer - to have my Dad's disc system store it for me, and when I use the game again, load it back into the high score table.

The changes I have made are. Line 117 sends you to the read file input routine which is at lines 3000 to 3090.

This reads back in the names and scores, then returns back to the start of the program, which on first running does not exist, so 117 must be deleted for the first run and then reinserted

Certain problems with hi-res text

WITH reference to the article on a hi-res text generator in the January 1984 issue of Apple User, I have certain problems. The smaller program doesn't run, breaking with "SYNTAX ERROR IN 20" message.

The bigger program No II also fails to run with a "FILE NOT FOUND" message.

Probably it doesn't recognise lines 8 and 10 about "BRICHARSET".

I also do not understand BLOADING "BRICHARSET" with no reference to CHARGEN at all. I tried to change line 8 to CHARGEN without success.

Could Mr Bowyer possibly explain things for me? - Dr S.S. Datye, Akureyri, Iceland.

- Assuming that you don't have a typing error in line 20 of the small program, I suspect

that you have loaded the Basic @ the normal address of \$800 where it is being overwritten by CHARGEN when it is loaded. The answer is to reset the program pointers (103, 104) before loading the Basic.

Use the lines **POKE 103,1: POKE 104,64:POKE 16384,** then load it as normal.

The same procedure is necessary for Program II and any program which wants to use the character generator, hence lines 600-640 of Program II which set the pointer to follow hi-res page 2 for any subsequent Basic program.

You are perfectly right about BRICHARSET - it should be CHARGEN - I'm sure this isn't working because of the program being overlaid.

Max Parrott

Respectful rebuke, Max!

after the high scores file has been made.

Line 1135 asks if you want to play again. If the answer is no, it jumps to the save high scores routine at line 2000, then ends the game.

If the answer is yes it jumps to its normal return at 1150.

If neither, it sends you back to ask if you want to play again.

Lines 2000 to 2120 open the files, delete the existing records, reopen the clean file and write the names and scores. Up to 10 entries are made. — Dale Keane, aged 15, South Wigston, Leicester.

REFERRING to Graham Balmain's query in *Apple User*, June 1984, I feel that, with all due respect to Mr Parrott, his reply is unnecessarily complicated.

The simplest way to validate input seems to be something like the following:

```
10 INPUT "NUMBER ";A$
20 A=VAL(A$)
30 IF A<1 OR A>99 THEN
PRINT CHR$(7):GOTO 10
```

Line 30 is set to trap whatever invalid input you are looking for.

An even tidier way, which I always use, is to change line 10 to read as follows:

```
10 VTAB(X):CALL-868:
INPUT"NUMBER";A$
```

Here X is the appropriate line on the screen. The CALL -868 clears the input line from the cursor to the end of the line so that the operator can re-enter the correct data.

If you leave out this CALL the old (invalid) data remains on the screen. This may be an advantage if the operator wants to know what was entered the first time. — Frank Lewis, Sevenoaks, Kent.

● Yes, I agree. The trouble is so much depends on the range of allowable data. For example, if

any positive integer is valid including zero then any non-numerical key will be interpreted as zero (and comma and colon will also generate the 'extra ignored' message).

Now this 'data' is valid and a wrong value has gone in. Therefore in this case it would be nice to only allow the characters 0-9 to be input. This of course, is the earliest situation to programme against.

Generally the situation is much more difficult and a set of routines such as Penguin's 'Short Cuts' does make life much easier.

Max Parrott

```
117 GOSUB 3000
1135 HTAB 4: VTAB 24: INPUT
"DO YOU WANT TO PLAY AGAIN
(Y/N) ";ANS$
1140 IF ANS$ = "N" THEN 2000
1142 IF ANS$ = "Y" THEN 1150
1145 GOTO 1135
1150 RETURN
2000 REM MAKE HIGH SCORE
2010 HOME
2020 D$ = CHR$(4)
2030 PRINT D$;"OPEN HIGH
SCORE"
2040 PRINT D$;"DELETE HIGH
SCORE"
2050 PRINT D$;"OPEN HIGH
SCORE"
2060 PRINT D$;"WRITE HIGH
SCORE"
2070 FOR I = 0 TO 9
2080 PRINT A$(I)
2090 PRINT A(I)
2100 NEXT I
2110 PRINT D$;"CLOSE HIGH
SCORE"
2120 HOME : END
3000 REM READ HIGH SCORE
3010 D$ = CHR$(4)
3020 PRINT D$;"OPEN HIGH
SCORE"
3030 PRINT D$;"READ HIGH
SCORE"
3040 FOR I = 0 TO 9
3050 INPUT A$(I)
3060 INPUT A(I)
3070 NEXT I
3080 PRINT D$;"CLOSE HIGH
SCORE"
3090 RETURN
```

CAN we please get some technical/operating hints together for the Mac?

● I have considerable trouble with the DOS and badly need a DOS listing for error report ID26, "No memory space for ejecting disc" when disc appears faulty.

Also the OS does not offer to initialise the disc, just ejects and refuses to accept it if one has copied some program to it but forgot to initialise first. I have sent one such to Pete & Pam, that is a disc which the machine rejects so I can't even erase it.

● Errors or parts of Mac manual which don't operate as described therein: Page 40 - (4) not true. One can call for Alarm Clock and the OS will call for another disc which appears entirely unrelated. And you can't escape or break from alarm option, that is "forget I asked for it" — you have to switch off.

Page 41 (4) I can't CUT Date from the control panel into the Note Pad. On attempting to drag the highlighted area, the system won't have it, so you can't cut and paste as stated. Then you can't get rid of the black area around, say Day, without closing the whole control panel window.

The other worrying thing is discs renaming themselves before/after switchoff. Also, on switching on tonight I find the clock has lost five minutes. I did not inadvertently touch the keyboard, as I poke it around the side of the Mac to leave the desk front clear.

I'd be grateful to hear your comments on the above, while impatiently waiting for a second disc drive, as copying with one drive is pretty poor.

Why on earth two drives couldn't have been built in the one machine beats me. Yes, I know it's pricing policy and all that, but to me operating easily and simply is the main criterion — why else did I ditch the BBC Micro? — P. Knight, Sevenoaks, Kent.

PS: In view of the absence of Break/Esc, would you recommend the interrupt key be installed? I simply do not like switching off with the surges it can produce, and the literature does not make it clear whether the disc should be in first or after switching on. Hope you can give some brief answers.

● You are having problems, aren't you! You can get around the problem of the disc being ejected fairly easily. With the

drive empty, if you look inside it you'll see a small black pin on the right-hand side. Press this gently and the option to eject or initialise the disc will appear. Insert your disc and click the initialise option. It's not very elegant poking about in the drive, but it's effective.

We agree that you can't cut the date from the control panel, but you should be able to deselect day by moving the cursor to, say, the volume control and clicking.

Also, you can copy the date from the alarm clock to the clipboard, so why worry if you can't get it from the control panel?

We would certainly recommend fitting the interrupt key if you plan to do any serious programming. Concerning startup, the manual seems reasonably clear.

On page 10 it says to switch the Mac on and then insert the disc. Having had a faulty drive replaced, we prefer this sequence of operations anyway because it gives one a chance to listen to the state of the drive before risking a disc.

We haven't experienced any of your other problems and don't know anyone else who has. Maybe some other unlucky reader can help.

Getting it together with Mac

Long in the tooth?

I HAVE been an Apple user for about five years and now use a IIe system with quite a few add-ons – an Apple extended 80 column card, a Microsoft Z-80 softboard, two disc drives and a printer. I also do most of my programming in Applesoft Basic.

I wonder why so many of the Apple IIe facilities are not catered for by an updated version of Applesoft which would have the following features:

- Access to the 64k on the extended 80 column card.
- Access to the much publicised super hi-res graphics.
- Some features of BBC (sorry) Basic, for example local variables and procedures.
- A new editor taking account of the extra keys on the Apple IIe keyboard (del, tab, and the two Apple symbols).
- Support for the IIe mouse.
- A sound command – for example BEEP 67,98.

In my opinion the Apple IIe is a good machine and obviously more flexible and powerful than most computers in its price range, but the programming language supplied with it is beginning to look a bit long in the tooth, and to have 64k of (almost) unusable RAM seems a bit extravagant. – **Michael Osborne, Hornchurch, Essex.**

● We agree. The answer is however obvious – compatibility across the range. Hopefully someone may produce another Basic for Apple IIc and IIe 80 column owners.

Appletips still here

WHEN I heard your magazine's name had changed I was delighted. At last! A name that corresponded in some way with a computer.

I wasn't so delighted though when I saw the Appletips page had gone, I am sure many readers would agree that taking

the Appletips page out removed a big chunk of the cake! – **Brian Hennessy, Sandycove, Co. Dublin.**

● Appletips haven't disappeared completely. There were six in the October issue – and more are on the way. Readers who would like to share their discoveries with other Apple users should write to: Appletips, Europa House, 68 Chester Road, Hazel Grove, Stockport SK7 5NY.

Capitol contact

IN the July 1984 issue of *Apple User* you reviewed *Capitol*, a wire frame CAD system for the Apple. Can you tell me where I might contact them? – **Mike Johnson, Wilmslow.**

● *Capitol* is made by RMJM Ltd, 42-46 Weymouth Street, London W1A 2BG. Tel: 01-486 4222.

ROMs, proms and eproms

I WOULD like to exchange the monitor ROM in my Apple II for a prom containing my own program.

The Apple reference manual states that these ROMs are similar to 2316 and 2716 proms, but the chip selects on

most of the proms are of a different polarity, so they cannot be directly substituted for the ROM chips.

Could you please tell me which eprom or prom chips are directly compatible with the Apple ROMs, or, if none are suitable, how I can modify the motherboard to suit 2716 eproms.

The board number is 820-0044-D. – **P.E. Claes, Hayes, Middlesex.**

● You will have to put an inverter in the appropriate track of the motherboard. More conveniently, you could use one of the old integer cards – which can be bought quite cheaply – to take your eprom and use this in the Apple's backplane or use a card system such as XROM from Xcalibur Computers.

Max Parrott

More on EDASM

IF your correspondent Mr Michael Osborne, (*Apple User*, June 1984) buys a current copy of Prof Luebbert's "What's Where in the Apple" he will find that it includes an appendix A which covers the Apple IIe, written by Phil Daley.

In return for the above information, perhaps you can help me. Having ground my way through *Apple Machine Language*, by the Inmans, I am now seeking a book which

expands on the use of the toolkit Utility 'EDASM'. Do you know of one? – **Ernest Phillips, Derby.**

● There are now a fair number of books on programming the Apple II family in assembly language. One at least, "Apple II Assembly Language" by Marvin L. De Jong (Blacksburg-Howard Sams & Co Inc, Indiana, USA) concentrates on using the toolkit assembler.

Another, "Apple II Programmer's Handbook", by Richard Vile (Granada) has an assembly language section which also concentrates on it.

However there is no real need to use books concentrating solely on one assembler – more important is to find information on programming the Apple.

Among many titles are "Assembly Language Programming for the Apple II" by Robert Mittola (McGraw-Hill) and "Using 6502 Assembly Language" by Randy Hyde (Datamost). Both of these use the Lisa Assembler (written by Randy Hyde).

It's also a good idea to look at general 6502 books such as "Practical Microcomputer Programming – The 6502" by W.J. Weller (Northern Technology Books), "6502 Assembly Language Programming" by Levanthal (Osborne), "6502 Software Design" by Scanlon (Sams) and "Programming the 6502" by Zaks (Sybex).

Max Parrott

Epson and Mouse Paint

I READ an article about an interfacing problem in *Apple User* (August 1984) but I can't understand about Esc.

I am using an Apple IIc and an Epson FX-80 with intelligent serial interface because the IIc has only serial interfaces.

As far as running word processing software, like Appleworks and others, my Epson prints out very well, but it is impossible to use it with the Mouse Paint software written by Apple.

I believe this printout program is written only for the Apple Imagewriter because in

the manual there is no explanation of installation for the Epson FX-80.

I asked Apple UK, but they have no answer.

As you know, Mouse Paint is quite popular software. If it doesn't print out with an Epson everyone will have to buy an Apple Imagewriter.

I am using the Epson with these conditions for Appleworks software:

8 bit
Disable parity
Odd
9600 Baud
166/1124

I am an absolute beginner, so I would be glad if you could recommend some good books.

– **T. Murakami, Swansea.**

● Assuming that the pictures have been generated on the hi-res pages you should be able to print them by leaving the Mouse Paint and running an Epson picture dump routine.

No doubt sooner or later more information will become available but in the UK it's early days as yet. We think you will find a lot of help by joining Basug (P.O. Box 174, Watford, Herts) and a local user group.

CAD for Apple II

INTERACTIVE Microware has announced Quick-Draft, a computer-aided design program for Apple II micros.

Quick-Draft can be used for various tasks including architectural designs, bar graphs, circuit and electrical diagrams, engineering drawings, flow charts, floor plans, forms, office planning layouts, organisation charts, project schedules, remodelling plans, schematics, wiring diagrams and so on.

The Apple keyboard, a joystick or a Koala Pad graphics tablet is used to draw on the high resolution screen. With a few keystrokes, you draw ellipses, circles, arcs, arrows, polygons, or predefined shapes in any size, rotation or colour.

Any closed region can be filled with one of 22 colours. Complicated designs may use two screens (48k version), four screens (64k version), or up to 30 additional screens with extended RAM memory.

Quick-Draft prints upper and lower case text in 19 different fonts.

A macro facility permits definition of as many as 20 objects, each consisting of many lines, figures and text. These objects can be redrawn anywhere on the screen and saved on disc for later use.

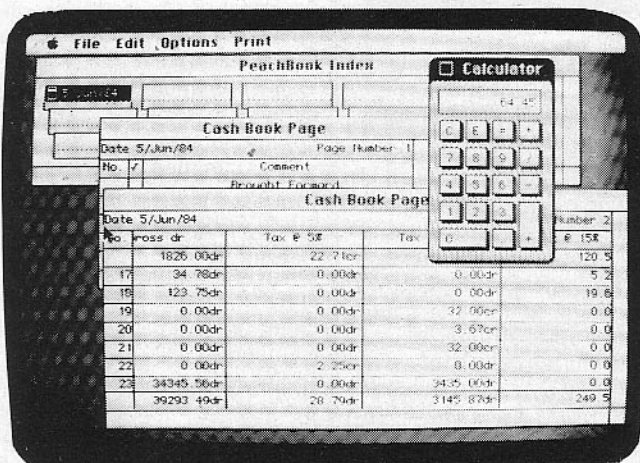
Hard copies of any screen or of four contiguous screens can be printed on many dot matrix printers.

An optional companion program, Quick-Shape, allows creation of custom shape tables. Shapes can be edited by enlarging any region of the hi-res screen to two or four times normal size.

Large shape tables containing up to 127 shapes can be generated for use with Quick-Draft.

The Quick-Shape disc also includes 13 proportionally-spaced text fonts and shape tables for mathematics, music, electronics, and more.

● *Interactive Microware, P.O. Box 139, State College, PA 16804-0139 USA.*



Accounting on Mac

DESIGNED to be learned in 30 minutes, MacAccounting is one of the first business tools for Macintosh users in Europe.

It is aimed at users with no computer experience who are currently using manual or VRC systems.

It is based on two comprehensive and independent modules. First is a cash book system costing £175, the second a combined sales and purchasing ledger costing £275. If purchased together, the pair cost £375.

MacAccounting runs on a standard Macintosh with a single 400k floppy disc drive. Features that can be set by the

user include cash amounts, tax and analysis columns, and headings.

Cash books can be generated to the size specified by the user and the period lengths set to weekly, four weekly or monthly.

Once a cash book is set up, any period can be selected for examination by moving the mouse to the appropriate point in the index. A cash book will then be displayed. The page can be scrolled across the screen.

Reports can be printed showing the index, cash book pages or selected items only.

● *Peachtree Software International Limited, 99 King Street, Maidenhead, Berkshire SL6 1YF. Tel: 0628-32711.*

Stored visions...

SIGHT Systems has announced a new image analysis and vision system for research and industrial use that enables Apple II users to store grey and binary images for further processing and analysis.

Selling for under £3,000 the Video Interface Peripheral is aimed at universities and research establishments contemplating Apple micros in an image analysis or image processing application.

By selecting upper and lower threshold (grey) levels, the grey store is segmented (detected)

and the accepted regions are converted to peak white and written into a binary store.

By providing a separate video rate binary (or detected) image store, the user can isolate features of interest for analysis such as counting and area type measurements.

The frame store images can be displayed on the monitor at full resolution (2 to 8 bits).

Only one monitor is required as the VIP can switch between computer text and video from the output DAC, which displays contents of the binary and grey level stores.

Since there are no front panel controls, the VIP lends itself to OEM use in many vision applications.

● *Sight Systems, P.O. Box 37, Newbury, Berkshire RG13 3HD. Tel: 0635-66305.*

Logo for Macintosh

EXPERLOGO is a version of Logo designed for the Macintosh by ExperTelligence Inc, based in Southern California.

ExperLogo is claimed to be the first compiled version of Logo, making it up to 100 times as fast, says the company. And it claims Macintosh features like pull down menus, windows, help screens and the mouse make ExperLogo the easiest version to use.

Programs can create and read their own files, and because the Macintosh standard text and graphic interface is used ExperLogo files can be accessed by other applications.

The language also uses arrays to process items and lists, useful for numbers-orientated systems.

As well as high speed Turtle graphics, ExperLogo features Bunny graphics. The bunnys can move in 3D space and respond to 3D navigation commands like roll, pitch and yaw.

● *ExperTelligence Inc, 559 San Ysidro Road, Santa Barbara, CA 93108. Tel: 0101 805 969 7874.*

Analysing circuits

KEY Electronics' Circuit Analysis 2.0 contains two programs which enable a linear analysis of both AC and DC characteristics of an electronic circuit, including "worst case" limit calculations.

In the AC program, single frequency calculation of gain/phase performance, or frequency sweeps of up to 30 steps on a linear or logarithmic basis are provided.

The impedance versus frequency of input, output, or intermediate points can be established, and circuits may be optimised for specific characteristics.

The DC program calculates the voltage of all circuit nodes

and all branch currents and powers in one step, but any node may be examined for "worst case" limits, or optimised to a specific level.

The package costs £59.95.

● *P & P Micro Distributors Ltd., New Hall Hey Road, Rossendale, Lancs. BB4 6JG. Tel: 0706-217744.*

Mac filer

MAIN Street Filer from Software Mainstreet is a filing system and report generator designed as an information management tool for Macintosh users.

It takes full advantage of Macintosh technology with pull down menus, dialogue boxes and mouse commands. Retail price is £189.

● *P & P Micro Distributors, Todd Hall Road, Carrs Industrial Estate, Haslingden, Rossendale, Lancashire BB4 5HU. Tel: 0706 217744.*

Lisa Xenix

XENIX – the commercial version of Unix – for the Apple Lisa II is now being marketed by Sphinx.

Sphinx says the flexibility and portability of Unix are invaluable for large organisations. Unix allows them to run the same software across their whole range of machines.

● *Sphinx Limited, 43-53 Moorbridge Road, Maidenhead, Berkshire SL6 5PL. Tel: 0628 75343.*

Chance to produce

SHOWCASE from Rainbow Software turns the Apple IIe owner into a TV producer: compiling business or training

presentations.

The package lets you type up screens in a variety of high-res typefaces in any one of 100 different background and foreground colours.

You can then assemble them in any order to make up a presentation. An argument can be built up point by point using the pause feature, and diagrams and bar charts can be created using a typeface of graphic elements.

Showcase not only avoids all the colour anomalies that beset anyone trying to use an Apple for serious colour work, but can store more than 150 text pages on a disc.

In practice an audience is usually aware only of a TV monitor like a 27in Sony Profeel – Showcase uses linear RGB colour. The Apple itself may be hidden away and the speaker uses a remote control handset that comes with the system.

● *Rainbow Software, 12 Napier Road,*

Isleworth, Middlesex. Tel: 01-892 9132..

... and to compose

PROFESSIONAL Composer, a music editing package for the Macintosh, allows musicians to create score paper, enter and delete all types of musical symbols, group notes and phrases with beams, measure lines, slurs, ties, and so on.

Starting with the essentials needed for score composition, an input mode lets the user enter music rapidly and, using the editing menus, move and copy passages, transpose parts, change rhythm, merge voices and inset lyrics.

Advanced features validate instrument ranges, designate measure numbers and rehearsal



WOR

markings, and create piano reductions.

A special title page formatter gives finished manuscripts a polished look.

Professional Composer saves and files all pieces, whether sketches or symphonies. It costs £429.

● *P & P Micro Distributors Limited, Todd Hall Road, Carrs Industrial Estate, Haslingden, Rossendale, Lancashire, BB4 5HU. Tel: 0706-217744.*

Working out the odds

FOR managers who want to predict the future comes a software package which is claimed to help you to at least see ahead – and it runs on the Apple II.

The package comes in two parts, available separately. The first program is General Appli-

cation Simulation System, or Gass.

It simulates 10 variables and combines them into one user defined algorithm.

Variables can be random, Boolean, functional or compound. Random variables can be any of 13 different probability distributions, including empirical tables.

It is said to be ideal for things like projecting group health insurance costs.

The second program, Monte Carlo Simulations, as well as simulation, provides statistical analysis. Seven different probability distributions are offered.

The program also works as a front-end to Gass by analysing past experience. It can also, say the makers, enhance the Gass results with extra graphics and reports.

● *Actuarial Micro Software, 3915A Valley Court, Winston-Salem, NC 27106, USA. Tel: 0101 919 765 5588.*

Ile crib sheet

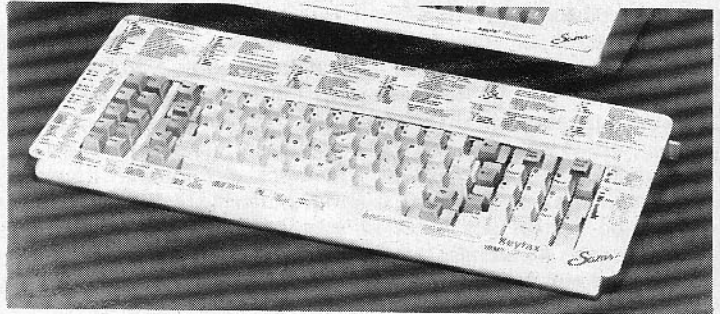
ITT subsidiary Howard W. Sams has produced Keyfax for users of Apple IIe and IBM PC micros.

It provides quick reference data about the control commands and other vocabulary needed for operations with word processors, spreadsheets, DOS and Basic.

It is a two-sided template that fits round the keyboard. Side one displays operating commands for many software packages, while side two provides the main commands for Apple DOS 3.3.

Templates for the Apple include Applesoft Basic (both sides), Applewriter IIe/DOS 3.3, Multiplan/DOS 3.3, ProDOS (both sides) and VisiCalc/DOS 3.3.

● *P&P Micro Distributors, New Hall Hey Road, Rossendale, Lancs. Tel: 0706 217744.*



Keyfax on the Apple IIe

Small Systems Engineering are innovators in the field of microcomputer technology and enhancement products. We now offer the first multi-user hard disk system for the Macintosh.

KING TOGETHER

Apple Mac users can now share resources and share costs.

The Sunol Winchester disk drive from Small Systems adds 8, 16, 25, 40, 65 or 92 Mbytes of usable storage capacity to the Mac. The system operates with existing programs, appearing to the Mac as a high speed, high capacity floppy drive.

To achieve compatibility with the Mac, we have developed an interface implementing Apple's APPLEBUS* networking protocol. This allows up to 31 Macs spread out over a building to share a drive at distances of up to 1000', with each user having separate secure work areas.

Interfaces are available to allow not only Macs but also most other popular micros to share the same drive. Micros currently supported include Apple II and III, IBM PC and compatibles, Epson QX, TI, Victor/Sirius, Future, Zenith and Apricot.

For further information on the Sunol range of Winchester disk drives, contact your local Apple dealer or phone Jane Leather or Simon McCarthy on 328 7145, or just fill in the coupon.

small systems engineering



PUTTING WISDOM TO WORK

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Small Systems Engineering Limited,

2-4 Canfield Place, London NW6 3BT Telephone: 01-328 7145. Telex: 264538. (AU1)

Bubbling over with memories

XBUB is a bubble memory module for the Apple.

The unit, which plugs into any of the Apple slots, is compatible with the Apple II+ and IIe and will run Applesoft, Pascal and CP/M. It is distributed by Xcalibur.

Xbub is used as a conventional disc unit within the Apple where it provides 1mbyte of non-volatile, fast access storage, either in conjunction with conventional floppy discs or as a stand-alone unit.

It has advantages for areas with dust, grime, grease or vibration.

Being non-volatile means that the unit may auto-boot at switch-on and then go on to run using programs and data which have been pre-recorded.

● Xcalibur Computers, Spencer House, 3 Spencer Parade, Northampton NN1 5AB. Tel: 0604-21051.

Joystick calculating

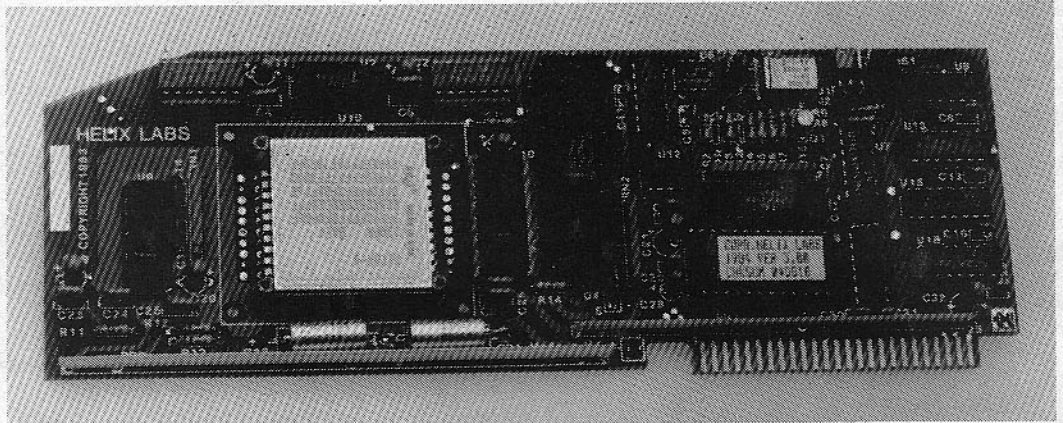
VARICALC — a program for the Apple II, designed to solve engineering, scientific and business equations is announced by Heyden Datasystems.

A novel feature is the use of variators to change variables interactively. The variators may be game paddles, a joystick or the keyboard's arrow keys.

The variator may also be an automated loop with selectable range and step size.

Further, the variator may be the voltage output from a process or instrument. This is interfaced using Heyden's Adalab data acquisition interface card.

Any variable can be used to output a real-time voltage using



Xcalibur's Xbub

the Adalab interface.

Varicalc will simulate complex physical, chemical or mathematical processes, accept real-time voltage input directly into a pre-defined model and solve equations of up to 19 variables.

The system will also plot results as on-screen graphics or on a dot matrix printer. Up to 255 equations may be sorted on disc for quick recall.

● Heyden Datasystems, Spectrum House, Hillview Gardens, London NW4 2JQ. Tel: 01-203 5171.

ProDOS clock

A clock-calendar card to work with Apple's new disc operating system, ProDOS, is now avail-

able from Apple dealers.

Proclock, manufactured by Practical Peripherals, also works with DOS 3.3, Apple Pascal and CP/M.

While some users may wish to write their own programs for Proclock, there are many applications which will automatically use a clock as soon as it is installed in the micro.

One enhancement to ProDOS is the ability to time and date-stamp files. Whenever a ProDOS disc is catalogued, the time of creation and last modification of each file is displayed.

For DOS 3.3 users, Proclock includes an enhancement called Super-DOS which provides a similar time and date stamping of files.

By running a simple installation program, Super-DOS can be added to existing discs without changing any files.

In addition, the Proclock utilities disc provides various routines for using Proclock in Pascal, as well as automatic updating of the filer.

Proclock emulates three other clock/calendars so it can be used with programs written for these products.

They include Apple Clock from Mountain Computer, Superclock II from West Side Electronics, and Thunderclock Plus from Thunderware.

For those wishing to write their own programs, Proclock is easy to use in Applesoft, Pascal, CP/M, and machine language.

Aside from its usual date/time function, Proclock can also generate precise interrupts for foreground/background programming. Several examples of this feature are supplied on the Proclock utilities disc.

The disc also contains many demonstration programs.

MAC IN MIND

DEVERILL Business Systems have produced a personnel and payroll application for Macintosh — dbsPay.

It incorporates all the usual payroll system features for £125.

● Deverill Business Systems, 3 Luscombe Road, Poole, Dorset BH14 8ST. Tel: 0202-741391.

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MACTOOLS puts the power of the Macintosh system into a disc utility package.

The system integrates many of the standard disc functions into one program, as well as

adding several new features such as copy protect/unprotect, lock/unlock files, verify a disc and make files visible/invisible.

It will also perform the more common disc manipulations with ease, such as copy files or discs, rename files or discs, delete files or format a disc.

Pattern matching has been added to make working with several files simple.

Everything that begins with "Mac" can be copied, as can those files that contain the letters "Font".

● Central Point Software, 9700 SW

Capitol Hwy, Suite 100, Portland OR 97219. Tel: (503) 244-5782.

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AN appointment calendar and address book for the Macintosh has been produced by Rodent Software.

The Personal Appointment Diary allows all 12 months to be open at once and utilises the flexible Macintosh cut/copy/paste technique for duplicating, moving, changing and removing entries.

● Rodent Software Limited, The Shanty, Cores End Road, Bourne End, Bucks, SL8 5AL. Tel: 06285-26784.