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Reviews: Intec 505 hard disc  Vision 128/256 RAM card  Merl modem  MacTerminal



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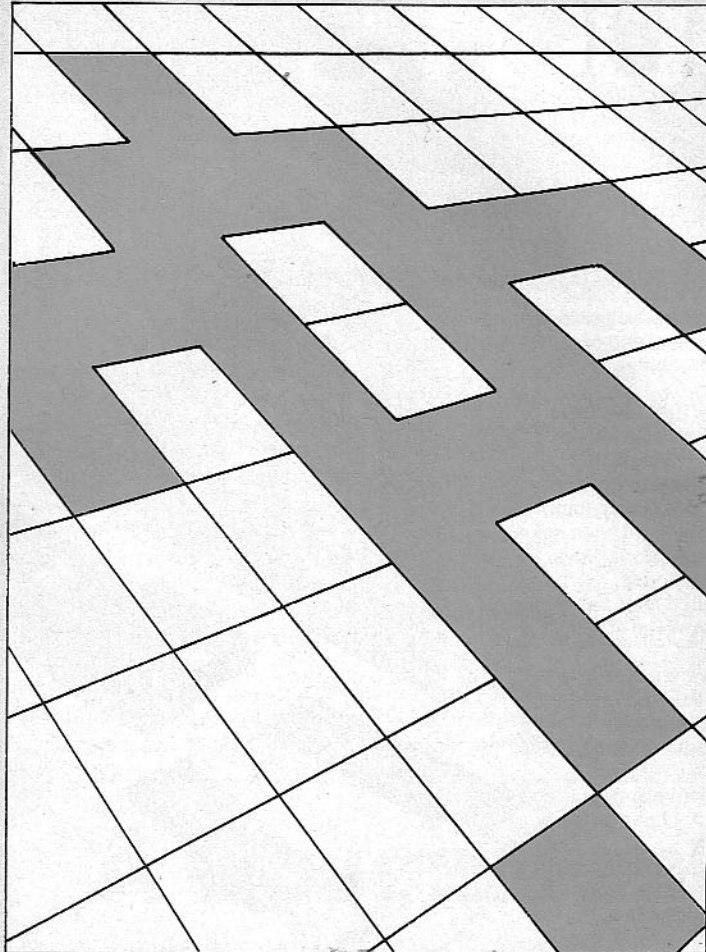
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BRIGHT NEW LOOK ON THE WAY

ALL Apple products of the future will have a new look, it was announced at the company's recent annual general meeting in New York.

White is to replace beige as the company livery and the first Apple product to appear in the UK with this finish will be the new laser printer – also announced at the AGM – which goes on sale here in June.

A spokesman said all new Apple UK products will be produced with the white finish. No date has been set for the Macintosh to change colour however.

The AGM revealed that 500,000 Apple units were shipped worldwide during the last three months of 1984, 80 per cent of them in the Apple II range.

Turnover in the period was more than \$698 million compared with \$316 million the previous year and profits jumped spectacularly from \$5.8 million to \$46 million.

Company president John Sculley said new products like the laser printer and AppleTalk should provide extra momentum for Apple's attack on the business market.

Apple's French foray fails

THE French government has given a firm "Non" to allowing Apple to gain a foothold in the country's booming educational marketplace.

So Apple-France appears to have lost all hope of winning a contract to supply more than 250,000 machines.

The rejection of Apple is part of a strategy which will reserve the home market exclusively for French manufacturers.

Until the French government stepped in Apple had been considered a leading contender

to supply the Macintosh to educational workshops due to be set up throughout the country. However Apple-France has not yet abandoned all hope of penetrating the lucrative market.

"We have made a number of proposals for partnerships with French manufacturers, including technological transfer, joint ventures and building a plant", said company president Jean-Louis Gasse. But these seem likely to fall on deaf ears – at least for the time being.

Bull, the state owned com-

puter company, is known to be reluctant to cooperate with Apple, preferring to seek domination of the educational scene with its Micral.

Other French manufacturers are also eagerly eyeing the opportunities in a market free of foreign competition.

French observers believe it is unlikely that local manufacturers will form any links with Apple until the next generation of products comes along.

And by this time they will be firmly established in their own national market.

A Government boost for Apple II

THE Department of Trade and Industry has signalled its recognition of the potential of Dark Star Systems' Snapshot Card for the Apple by giving the firm £54,000 to develop a further six packages for this peripheral.

Funding for the project has been awarded under the provisions of the Department's software products scheme and will be administered by the National Computing Centre over the next two years.

The new packages include a

hard disc-based multi-tasking system and a set of desk top utilities with calculator, notepad and calendar/diary modules which can be accessed while another program is running.

The desk top utilities will open up a level of sophistication for the Apple II previously available only with the Macin-

tosh. There will also be a de-bugging utility for software developers, a data gathering/machine control module for industrial and laboratory applications and a communications software controller.

The new programs will be additional to the Shuttle multi-tasking software, Printinterrupt utility and the new Shell package which utilises Snapshot's interrupt-and-resume capabilities for use with users' own programs or with proprietary software such as the Inspector.

Dark Star Systems managing director Bob Sather told *Apple User*: "We think, and the Government appears to agree, that the power of these Snapshot software packages will help keep the Apple II at the cutting edge of computer technology".

Alliance with Wang?

THIS year may see Apple forming an alliance with another leading computer company to strengthen its marketing muscle and add impetus to new product development.

Rumours in the trade say Wang Laboratories, the US office automation giant, is favourite to become Apple's new partner.

Industry experts predict both firms would benefit from a joint relationship.

However Apple says it is not rushing into such an alliance. "We have talked to several different manufacturers about the possibility of joint ventures but so far have no firm plans for cooperation with another company", a spokesman told *Apple User*.

AppleTalk critic is told off

APPLE II owners tired of hearing about all the fantastic new products for the Macintosh may be getting some good news in the near future.

The latest Mac advance – the AppleTalk Personal Network due for release here in July – may be made available for the Apple II.

All Apple will say officially is that "all the information on AppleTalk is with the Apple II group" – which is as close as the company will come to admitting that its backroom boys and girls are working on an interface.

The AppleTalk Personal Network, for which the Macintosh already has built-in circuits, is designed to let computers share high performance peripherals and to connect as many as 32 machines within a work area of about 1,000 sq ft.

It can also serve as a tributary

system, using bridges and gateways to link to other networks.

Its price in the US is \$50 and the UK price is expected to be in the region of £50.

Criticism of the network was voiced in a computer trade publication by David Ferris, described as a leading industry observer.

He was quoted as saying Apple was being grossly misleading with its \$50 price tag because "when you add up all the extras, the overall attachment cost per personal computer can easily be 50 times greater than the cost of the basic hardware and software."

"Computer professionals

invariably have to be brought in to get the network functioning properly. A four node network which apparently costs £170 is really some £5,000 to £15,000".

An Apple spokesman retorted: "We've never heard of David Ferris and whoever he is he hasn't a clue how AppleTalk Personal Network operates."

"It doesn't need a card to run the system, it doesn't need a board, it doesn't need computer professionals to set it up."

"All it involves is a simple one plug operation – like a hi-fi. The only way the cost per installation would rise above \$50 is if you added £6,000 laser printers and extra Macintoshes".

Roy backs Mac

ROY Stringer fulfilled a long-standing ambition when he joined the sales force at Apple UK.

Now 13 months later, he has quit the job he loved so much and waited so long to get for uncharted waters as head of a new company.

The multi-talented Stringer – he drew *Apple User's* September 1984 cover – has become managing director of Probe International, which he says is the world's first Macintosh-only software distributor.

Said Stringer: "I didn't want to leave Apple and wouldn't have if I didn't still feel part of the Apple family in my new career."

"More than that, I feel I'm doing more to promote Apple products than when I was in Apple sales. In fact I see myself as Apple's right arm on the software side."

"I've seen more of the people at Hemel Hempstead since I left than I did when I was a sales manager."

"Macintosh has made it possible for the personal business computer industry to develop toward the consumer marketplace."

"Macintosh software is expanding rapidly and is proving to be low priced, well packaged and immediately useable."

"But because established distributors commit most of their resources to other systems, Macintosh dealers are given only minimal support with regard to product marketing, technical support and choice of software."

"Around 400 packages have been produced for Macintosh, yet only about 40 are currently available to the UK consumer."

"Probe International is taking up the challenge of providing Macintosh dealers with specialised service, and also bringing some of the world's most exciting new software to the UK market".

Guide for authors

UNIX software house Office Workstations says it is close to marketing a dynamic documentation package for the Macintosh which is a new way of presenting electronic documents.

The on-line documentation system, called Guide, is aimed at helping software authors and readers use computer based documents without learning jargon.

A prototype, based on research carried out by Professor Peter Brown at Kent University, has been developed and Office Workstations says it hopes to have a Macintosh version available this summer at a price of around £100.

Product development manager Robbie MacLaren suggests the software could be used to create training or self-study material and reference manuals with particular value to education and industry.

CONVENTION – STOPPER

IT was a bit like taking coals to Newcastle, but that didn't deter Heyden Datasystems from shipping its newest Apple system to the United States recently.

The occasion was a convention in Philadelphia attended by 8,000 scientists, and Heyden unveiled its Spectrafile IR data station designed for use by spectroscopists in industry and research.

Heyden divisional manager Martin Perry said: "Practically all the eminent spectroscopists in America attended, and most of them stopped by to look at and discuss our system."

"Interest was so great that despite intense competition for delegates' time, substantial numbers attended a seminar we organised and we took several orders there and then".

Apricot takes on big fight

A DAVID and Goliath struggle is shaping up in the United States with tiny Apricot flexing its muscles to take on mighty Apple.

Only this time David is going to need more than a slingshot.

Apricot – ACT's US subsidiary – has launched a \$7 million advertising campaign at potential Apple purchasers.

It is based on the theme of a

growing Apricot and a shrinking Apple complete with a huge bite taken out of it.

At the same time Apricot has announced US price reductions of up to 25 per cent.

"People over here don't really see this as a serious challenge", one US observer told *Apple User*. "It's more of a case of a flea trying to wrestle the dog to the ground".



To Everest via Apple

MOUNTAINEER Chris Bonington is using an Apple to hopefully help him crown his climbing career by reaching the summit of Everest for the first time next month.

The ascent will be planned from start to finish with the aid of a specially designed software package, Everest Logistics, written by Ian Holt, and the new Apple IIc with flat panel display and portable power pack.

Bonington, with eight Norwegian climbers and 28 Sherpas, expects to establish base camp at the foot of Everest by the middle of this month.

Using the Everest Logis-

tics program, he has calculated it will take at least 28 days, depending on weather conditions, to climb the mountain.

Bonington, who has been using two Apple computers for the past eight months to help plan the expedition, expects the Apple he takes with him will save the team a great deal of time in logistical planning, stock control and accounting.

The computer will be the key to solving the complicated logistical problem of moving supplies such as food and oxygen up the mountain in the most efficient manner.

Lisa 2/10 renamed

AS expected, Apple has renamed the Lisa 2/10 computer the Macintosh XL "to reflect the machine's key role in the Macintosh Office" — the firm's new line of business products.

Apple marketing manager Bob Kissach explained the move was to satisfy customers who had been demanding a Macintosh with a built-in hard disc, enlarged screen and the internal capacity to process very complex business applications.

"We already have such a Macintosh. It is called the Lisa 2/10, and we want people to know what it can do", he said.

Apple is committed to its installed base of Lisa users. People who own the Lisa 7/7 business software will be offered a migration path into the new Macintosh Office products.

But the Lisa 2 and Lisa 2/5 will be phased out.

Something to sing about

A YORKSHIRE company has topped a new UK sales chart — with more than a little help from Apple users. Pace Software of Bradford has learned that its Nightingale modem is at number one in the first Top Ten chart to monitor the modem scene.

It beat off the competition during December to top the list compiled by Micronet 800, the information provider on Prestel.

"This is in no small part due to Apple users, who now account for a high percentage of our sales", said David Hood of Pace.

"Modems are playing an ever increasing role in the sector of the business market dominated by Apple".

Ireland's choice

FOLLOWING its decision to put Apple IIe computers in all its 820 secondary schools, the Irish Department of Education has chosen its programming language.

The department has purchased a special licence from Logic Programming Associates to use LPA's micro-Prolog.

This is a powerful implementation of Prolog specially developed for interactive use on a micro.

Japan is designing computers for the next decade based on this style of programming.

Link with lichens

AN Apple IIe played a key role in the 1984 British Schools Exploring Society expedition to Lyngen, Norway.

It was used to conduct a series of tasks ranging from the measurement of lichens through to word processing.

"The Apple performed very well under field conditions", said Dr Brian Whalley, of Queen's University, Belfast, the team leader.

P & P Micro Distributors supplied the machine for the expedition.

IT'S A BIG SELLER

APPLE II sales in the UK have passed the 100,000 mark the company says, and altogether more than two million have been sold worldwide.

There are presently more than 10,000 software programs available for the Apple IIe and IIc and more than 800 software developers are writing new applications for the Apple II family.



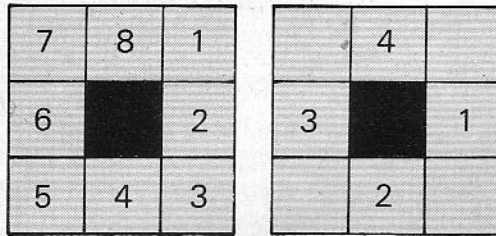


Figure II: Eight move directions are possible if diagonal is allowed but only four if not.

to illustrate this principle.

The major advantage of this program is that in the main it involves only repeated additions. Although line 90 does contain two divisions, the divisions can be implied only by adding to the accumulator when the input quantities V exceed the "divisor" K .

Thus lines 90 and 100 are replaced in Program III by lines which only add one to the accumulator when V exceeds K , and reduce V then by K to leave any residual error.

Readers who try out this program will be struck immediately by two snags. Firstly it tends to draw spirals rather than circles, and secondly the program has no means of telling when one complete circle has been drawn.

The first snag seems to be due to the addition of finite (rather than infinitesimal) quantities to the accumulators each time.

If a full circle is required, these snags can be overcome by computing only one eighth of a

circle and plotting the rest by symmetry.

This is done in Program IV, where the plotting command in line 80 has been replaced by a subroutine making an eight way swap of X and Y and their signs.

Also, line 110 IF ABS(A2) > ABS(A1) THEN END is inserted so that the "end state" is no longer a problem. However this technique is not appropriate if an arc is required rather than a complete circle.

It was because of the snags above that I invented, or more probably re-invented for the umpteenth time, the method below.

At any point on a graphics screen, if a continuous line is required, one has only the choice of eight directions to move.

In fact, if a truly continuous line is required, then diagonal moves may be ruled out and one has only a choice of four directions to move (see Figure II).

At any point in drawing a circle a decision has to be taken

as to which way to move next.

One direction can be ruled out immediately and that is the one which leads back to the previous step, since we do not wish to oscillate at a point.

Another direction which can be ruled out is that which leads away from the centre. Thus if we wish to draw a circle there is really only a choice of two moves and these are illustrated for a clockwise circle in Figure III.

Studying this figure, four rules are clear. If X is negative then Y must be increasing, if X is positive Y must decrease, if Y is positive X must increase and if Y is negative then X must decrease.

If we let the sign of X be $SX=1$ if X is positive and $SX=-1$ if X is negative, and let SY be the sign of Y such that SY is $+1$ when Y is positive and -1 when Y is negative, then the rules above amount to saying that if we change X , it must be by adding to it SY , and if we change Y it must be by subtracting from it SX . So let $DX=SY$ and let $DY=-SX$.

Those readers familiar with coordinate geometry may recall that if a line has a slope k , a line perpendicular will have a slope $-1/k$; and of course the radius of a circle is perpendicular to its circumference at any point on that circumference.

The next question to be answered is: "Which, X or Y , is it best to move at any particular place on the circle?"

To avoid any error we should move partly in the X direction and partly in the Y direction. In fact we have to move one of them by a single dot and the

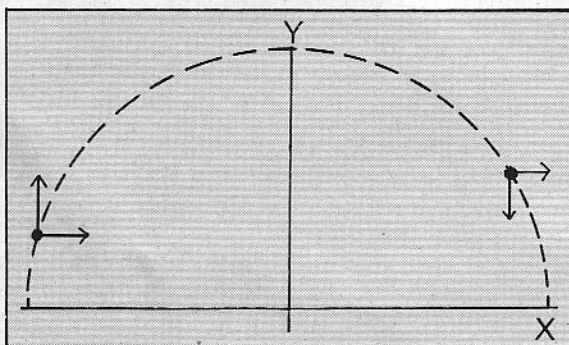


Figure III: Moving clockwise around a circle, the choice of moves at any point is limited to two.

```

10 REM DDA CIRCLE
20 HGR : HCOLOR= 7: VTAB 23
30 INPUT "ENTER RADIUS ";R
40 INPUT "ENTER CENTRE
   COORDINATES ";XC,YC
50 K1 = 100:K2 = 100: REM
   CHANGE ONE OF THESE FOR
   ELLIPSE
55 V1 = K1 / 2:V2 = K2 / 2
60 A1 = R:A2 = 0: REM START
   VALUES
70 X = A1:Y = A2
80 HPLOT X + XC,Y + YC
90 V1 = V1 + A2: IF ABS (V1)
   > K1 THEN A1 = A1 - SGN
   (V1):V1 = V1 - K1 * SGN
   (V1)
100 V2 = V2 + A1: IF ABS (V2)
   > K2 THEN A2 = A2 + SGN
   (V2):V2 = V2 - K2 * SGN
   (V2)
150 GOTO 70
    
```

Program III: Circle using DDA without division.

```

10 REM DDA CIRCLE
20 HGR : HCOLOR= 7: VTAB 23
30 INPUT "ENTER RADIUS ";R
40 INPUT "ENTER CENTRE
   COORDINATES ";XC,YC
50 K1 = 100:K2 = 100: REM
   CHANGE ONE OF THESE FOR
   ELLIPSE
55 V1 = K1 / 2:V2 = K2 / 2
60 A1 = R:A2 = 0: REM START
   VALUES
70 X = A1:Y = A2
80 GOSUB 200
90 V1 = V1 + A2: IF ABS (V1)
   > K1 THEN A1 = A1 - SGN
   (V1):V1 = V1 - (K1 + 1) *
   SGN (V1)
100 V2 = V2 + A1: IF ABS (V2)
   > K2 THEN A2 = A2 + SGN
   (V2):V2 = V2 - (K2 + 1) *
   SGN (V2)
110 IF ABS (A2) > ABS (A1)
   THEN 260
150 GOTO 70
200 FOR S1 = 0 TO 1: FOR S2 =
   0 TO 1: FOR S3 = 0 TO 1
210 HPLOT XC + X,YC + Y
220 X = - X: NEXT
230 Y = - Y: NEXT
240 A = X: X = Y: Y = A: NEXT
250 RETURN
260 END
    
```

Program IV: Circle using DDA and eight way symmetry.

other one not at all. So whichever step we take will result in there being an error.

The principle here is to compute the error resulting in moving one dot in the X direction, and the error resulting from moving one dot in the Y direction, then to take whichever step results in least error.

This is apparently more complex than the DDA approach but avoids the spiral problem and tailors itself to the resolution of the display so that there are no blank dots.

The calculation of the errors is based as follows: Consider the point P in Figure 1 as representing a zero error position. Now we have to find the error firstly if we move in the X direction by an amount DX and secondly if we move in the Y direction by an amount DY.

The true radius squared is $X^2 + Y^2$ - by courtesy of Pythagorus. If X is changed, the new

square will be $(X+DX)^2 + Y^2$ which is $X^2 + 2.DX.X + DX^2 + Y^2$.

The resulting error in the square is $DX^2 + 2.DX.X$. Now DX and DY can only have the values +1 or -1, so that DX and DY are always +1 so that the error is $1 \pm 2.X$.

Similarly a change in Y would produce an error $1 \pm 2.Y$.

The multiplication by two is trivial in assembly language as it amounts to a left shift by one bit. The rest is just addition, taking care about signs.

The errors calculated here are only the additional errors introduced by the proposed step. These must be added to any residual errors from previous steps and the options above which gives the smaller total error is then taken, the smaller error being noted and the appropriate move made.

Program V gives a Basic program which illustrates this principle.

Obviously there are vari-

```

10 REM DECISION CIRCLE
20 HGR : HCOLOR= 7: VTAB 23
30 INPUT "ENTER RADIUS ";R
40 INPUT "ENTER CENTRE
   COORDINATES ";XC,YC
50 X = R:Y = 0:ERR = 0
60 SX = SGN (X): IF SX = 0
   THEN SX = 1
70 SY = SGN (Y): IF SY = 0
   THEN SY = 1
80 DX = - SY:DY = SX
90 XERR = ERR + 1 + 2 * X *
   DX:YERR = ERR + 1 + 2 * Y *
   DY
100 IF ABS (XERR) > ABS
   (YERR) THEN Y = Y + DY:ERR
   = YERR:GOTO 120
110 X = X + DX:ERR = XERR
120 H PLOT XC + X,YC + Y
130 IF X = R AND Y = 0 THEN
   END
140 GOTO 60
    
```

Program V: Plot a circle by taking a decision at each point.

ations possible. If one wishes to allow diagonal moves then it is easy to note that in drawing a circle the axis having the smaller coordinate value should be changed at every step with the axis having the larger coordinate value being changed as well only when doing so would result in a smaller error.

The resulting circle is slightly smoother in appearance but is not so solid in outline (see Figure IV).

A further advantage of this approach is that if one sets a flag to override the normal decision process and insist on always changing the smaller coordinate only then a square results.

If one sets a flag to override the decision and always vary both, then a diamond results.

Thus one routine can be a circle/diamond/square drawing routine (see Figure V).

Basic Program VI illustrates this principle. Its magic only appears in its machine code version.

```

10 REM CIRCLE/SQUARE/DIAMOND
20 HGR : HCOLOR= 7: VTAB 23
30 INPUT "ENTER RADIUS ";R
40 INPUT "ENTER CENTRE
   COORDINATES ";XC,YC
50 PY = - 1:PX = 1
60 ERR = 0
70 X = R:Y = 0
80 SX = SGN (X): IF SX = 0
   THEN SX = - PX
90 SY = SGN (Y): IF SY = 0
   THEN SY = - PY
100 PX = SX:PY = SY
110 DX = - SY:DY = SX
120 IF ABS (X) = ABS (Y)
   THEN XB = - XB
130 IF ABS (X) > ABS (Y)
   THEN XB = 1
140 IF ABS (X) < ABS (Y)
   THEN XB = - 1
150 IF XB = - 1 THEN ERR =
   ERR + 1 + 2 * X * DX:X = X
   + DX
160 IF XB = 1 THEN ERR = ERR
   + 1 + 2 * Y * DY:Y = Y + DY
170 IF FG = 1 THEN 220
180 IF FG = 2 THEN 240
190 IF XB = - 1 THEN SERR =
   ERR + 1 + 2 * Y * DY
200 IF XB = 1 THEN SERR = ERR
   + 1 + 2 * X * DX
210 IF ABS (SERR) > = ABS
   (ERR) THEN 240
220 IF XB = - 1 THEN Y = Y +
   DY:ERR = SERR
230 IF XB = 1 THEN X = X +
   DX:ERR = SERR
240 H PLOT XC + X,YC + Y
250 IF X = R AND Y = 0 THEN
   270
260 GOTO 80
270 FG = FG + 1
280 IF FG = 3 THEN FG = 0:
   GOTO 30
290 GOTO 50
    
```

Program VI: This program draws circles, squares and diamonds under the control of the flag FG. For a circle FG = 0; for a diamond it is set to one and for a square, two.

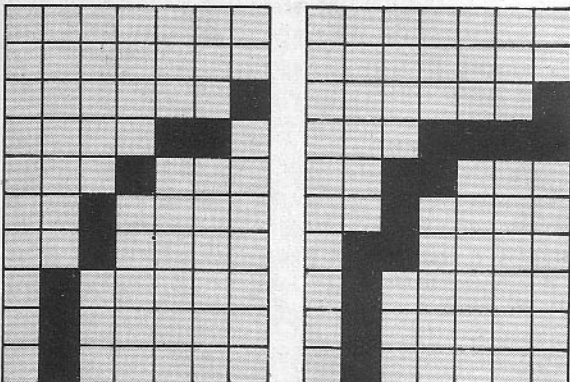


Figure IV: Part of circle drawn (a) allowing diagonal moves (b) not allowing diagonal moves.

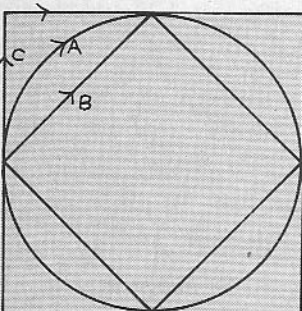


Figure V: Output of program VI. Setting flag = 0 causes path a. Setting flag = 1 causes path b. Setting flag = 2 causes path c.

THE authoring system Pilot, as implemented on the Apple, has received considerable attention in the pages of this magazine.

For those who have missed the articles they were Pilot (*Windfall* January, 1983), Pilot animation (June and July, 1983), the enhanced SuperPilot (August, 1983) and a Pilot interpreter (*Apple User*, September 1984).

The two forms of Pilot (Pilot and SuperPilot) both allow the teacher, instructor or trainer to keep records of students' responses or his route through a lesson by filing such information away on disc.

In Pilot, this is accomplished through the use of the instructions FOX, FIX, FO, and FI: which variously create, open, write to and read from files in a way analogous to file handling in Basic.

The teacher has to write a file handling program (which is just another Pilot lesson) in order to read the files or, since they are actually encoded as Pascal files, read them with the Apple Pascal editor system.

In SuperPilot this somewhat longwinded approach has been overcome by the use of the Keep instruction (K:).

So in order to store a student's answer we would use

Keeping tabs on students is as easy as falling off a SuperPilot log

the construction:

t:Where is the Giant's Causeway?

Pose the question

a:\$a\$

Accept the answer into the string variable a\$

k:\$a\$

Keep the contents of a\$ on disc.

The answers are kept in the memory buffer and either dumped on to the disc when the buffer is full or when certain

of the SuperPilot editor you can step through the System.Log file looking at the responses made by the student or checking his route through the lesson.

Answers from separate runs of the lesson by different students or the same student are appended to the end of the System.Log file.

SuperPilot automatically places the name of the lesson on to the System.Log file as well

to be recorded.

As each section is entered by the student the instruction K:S, section name records this fact and K:F records a student finishing a section. This then permits routing information to be easily recorded so that the overall operation of the lesson may be checked.

Items record individual responses to individual questions. The format of the Keep instruction varies depending on the type of question set.

Four question types are recognised by the System.Log — yes/no responses, multiple choice responses, open ended responses of either a numeric or textual nature and unanticipated responses.

For a yes/no response, the time taken to respond, the number of attempts taken, the answer given and, if the student's overall score is being monitored then the weight given to the correct answer may all be recorded.

Similar data are recorded for multiple choice questions.

Open ended responses allow only the time to be recorded while unanticipated responses only record the student's answer.

Part of a System.Log file recording responses and routing information from two students using lesson KEPTABS is shown in Figure 1.

Analysis of data collected by these correctly formatted Keep instructions during the running of a lesson by students can take three forms — analysis of individual items, analysis of individual students or analysis of the results for the whole class.

Potentially the most valuable part of the package is the ability to analyse individual item responses since this is a good way of detecting errors or am-

By **BRIAN RUSHTON**

other conditions are met.

An answer can be dumped directly onto disc by the Keep/Save instruction:

ks:\$a\$

On disc the answers are stored in a System.Log file but this file is essentially another Pilot lesson. Therefore by use

as an indication of the lesson's end so that answers from separate runs are clearly indicated.

Apple have now come up with an extra piece of software which allows analysis of responses filed on the System.Log.

This package is the Apple SuperPilot Log and consists of a master disc and user guide.

Its use is very similar to that described above — the lesson uses the Keep instruction to encode onto the System.Log file information about the responses and routing information.

The difference is that, by using a set format for the Keep instruction, it allows detailed quantitative analysis of the responses by the SuperPilot log.

The log assumes the information to be organised in three hierarchical levels — the lesson which is divided into sections which in turn are divided into items.

Each item is basically a question/answer routine. Again, the name of the lesson is automatically recorded in the log. K:p,name allows the name of the student taking the lesson

```

r:SYSTEM.Log for lesson KEEPTABS
#KEEPTABS
K:p,Brian
K:s, YES/NO ANSWERS
K:l,y#1/.775
K:2,n/2.775
K:f, END YES/NO ANSWERS
K:s, MULTIPLE CHOICE TESTS
K:3,c
K:3,d
K:4,3/2.75
K:f, UNSUCCESSFUL END OF MULTI CHOICE TEST
K:s, OPEN ENDED RESPONSES
K:5,t,A SCOTTISH LOUGH/10.3
K:6,x,78
K:f#, END OF OPEN ENDED RESPONSES
K:s, UNANTICIPATED RESPONSES
K:7,u,HELP I'M LOCKED INSIDE A COMPUTER
K:f, END OF LESSON
E:
#KEEPTABS
K:p,Alice
K:s, YES/NO ANSWERS
K:l,n/9.675
K:2,n/3.95001
K:f, END YES/NO ANSWERS
K:s, MULTIPLE CHOICE TESTS
K:4,a#3;1/1.5
K:f#, SUCCESSFUL END OF MULTI CHOICE TEST
K:s, OPEN ENDED RESPONSES
K:5,t,A COAT/7.25002
K:6,x,4
K:f#, END OF OPEN ENDED RESPONSES
K:s, UNANTICIPATED RESPONSES
K:7,u,SHALL I TRY LIGHTING A FIRE
K:f, END OF LESSON
E:

```

Figure 1:
A System. Log file

biguities in the lesson itself.

For each item, five pieces of information are displayed (see Figure II):

- Number of responses.
- Number of correct responses.
- Number of correct responses on the first attempt.
- The mean and standard deviation of the number of attempts.
- The mean and standard deviation of the response time.

Additional information may be given depending on the type of the response.

For example, analysis of open ended numeric responses produces the mean, standard deviation, and maximum and minimum values for the response (see Figure III).

If the item is of the multiple choice type, then a frequency distribution of the choices is output.

Unanticipated responses and open ended text items may also be displayed (see Figure IV).

Analysis of one student's responses may produce two results. The naming of a given section results in output similar to the above except that it refers to only the named student.

However if analysis of all sections is requested, then a sum-

```

** Item Analysis **
Lesson:  KEEPTABS
Section: YES/NO ANSWERS

Analysis of item 1
# responses:      10
# correct:        3
# correct first try: 3
Average tries:   1.00
Stdv. tries:     0.00
Average time:    0:06
Stdv. time:      0:03
    
```

Figure II: Analysis of simple Yes/No questions

```

** Item Analysis **
Lesson:  1KEEPTABS
Section: OPEN ENDED NUMERIC R

Analysis of item 1
Min. value:      0.00
Max. value:     18.00
Avg. value:      8.76
Stdv.:          4.85
# responses:     21
Average time:    0:04
Stdv. time:      0:03
    
```

Figure III: Analysis of open ended numeric responses

mary is produced for each one containing the following information – the number of times a section was started and successfully completed, the average time spent in the section and the average score obtained by the student.

Class analysis allows analysis of a particular section for the whole group of students. This will produce a list of students together with their scores (see Figure V).

These scores may also be shown in graphical form as a frequency chart.

All these analyses may be output to a printer. Generally, the frequency charts can only be output to an Apple Silentype although the User Guide does indicate that modifications can be made to the printer program

on the SuperPilot log to accommodate other printers.

Unfortunately, no details are given and the reader is referred to the SuperPilot technical support package (yet more expense!) for details.

The SuperPilot log has a few other features including the manual entry of scores for producing class lists, or graphing of results and the ability to join together log files from different discs.

So how useful is this latest piece of SuperPilot software? I am not convinced that using the SuperPilot log to assess students is particularly useful.

It certainly wouldn't take long for my students to realise that I was using this form of assessment and react accordingly – like passing the answers round!

On the other hand it is very useful in being able to assess the lesson itself. Lesson evaluation is vital if good computer aided learning is to be produced.

Essential in this process is knowing the answers to questions such as: Are all my question/answer routines operating as anticipated? Have any sections led students to misinterpretations or wrong conclusions? What route did a student take through the lesson? How long did a student spend on the lesson or in a particular section?

Certainly the SuperPilot log allows the CAL author to assess these aspects of his lessons and modify them accordingly, so leading to the production of better instructional material.

The extensive elaboration of the Keep instruction explained

in the package is available from SuperPilot itself but is not explained in the manual. This is a pity since many users will want to record responses or routing information without the extensive analysis facilities provided by the log.

This the user could do from SuperPilot but only if he had

```

Unanticipated responses
for item 7
AN APPLE
A SCOTSMAN IN A TOSH
A FIRM THAT MAKES SWEETS
A RAINCOAT
A COAT TO KEEP THE RAIN OFF
A SWEET
A LARGE RED APPLE FROM USA
AN APPLE
A SMALL COMPUTER
I DON'T KNOW
    
```

Figure IV: Listing of unanticipated responses

read the SuperPilot log manual.

The only thing the log provides which is novel is the ability to perform the statistical analysis of the actual responses. This is what you are paying for – everything else is provided by SuperPilot.

Name	Score
KEITH	0
TONY	6
ROY	6
BRIAN	1
STEVE	3
ROGER	12
ALICE	3
AMYAN	7
JOE	8
DAVE	10

Figure V: Class scores

I think the extension of the Keep instruction should have been included in the original manual. As it is, you either buy the SuperPilot log package to find the information or you invent the routines for yourself – with a little thought, it can be done.

One further point. I have noticed, albeit only when testing routines, that the Keep instruction may operate inconsistently.

It will, for example, on several runs of the same lesson record responses correctly but will then subsequently only record the starts and ends of the lesson and no other responses. This can be infuriating, of course – but what price perfection?

AppleTips

If like me you are prone to making typing errors when entering hex code listings and find correcting such errors a problem, try using any word processor that outputs data as a TEXT file, for example Applewriter II.

Simply preface your listing with the CALL to enter the monitor then type away. End your entry with a Ctrl-C (Ctrl-V, Ctrl-C, Ctrl-V in Applewriter II or IIe).

You can then simply EXEC your text file to enter the hex data into memory. Any mistakes can be easily corrected

using your wordprocessor to edit the TEXT file.

For example, type the following data into your word processor and SAVE it as DEMO.TEXT:

```

MON C,I,O
CALL -151
0300:20 58 FC A2 00 BD 11 03
0308:20 ED FD E8 E0 16 D0 F5
0310:60 C1 D0 D0 CC C5 BD C3
0318:CF CD D0 D5 D4 C5 D2 BD
0320:C4 C9 D3 D0 CC C1 D9
REM <CTRL-C>
BSAVE DEMO,A#300,L#27
CALL 768
    
```

Now EXEC DEMO.TEXT. Your program is in memory, has been saved to disc and has just run. – J.D. Williams

THE Editor is, as its name suggests, an editor for Basic programs. There are now several editors on the market and all have their strengths and weaknesses, and this one is no exception.

Its main weakness from my point of view is that it is just an editor and doesn't offer any additional development aids. Its strength is that it really does quite a nice job of editing.

A feature I especially liked was that on booting you are offered three choices of where to put the editor in memory – below DOS, on the language card or DOS on the language card with the editor where DOS used to be.

This last option yields the maximum free memory. In fact if you don't already have a program for moving DOS onto a language card you get one for free.

The Editor comes with an easily understood manual which details the various available commands.

The Editor itself is invoked by typing Ctrl-E.

Most of the commands can be abbreviated and set to operate on specified line ranges,

No extras with The Editor, but it does its job diligently

which is a nice feature.

LIST is somewhat like the Apple version but the space bar halts the listing and then allows single stepping through the program.

DELETE has similar syntax to *LIST*.

INSERT provides auto line numbering for input at specified start and increment values. It will not allow clashes with existing program lines or interleaving which can cause problems.

RENUMBER is similar to the

facility provided on the System Master disc, but with simpler syntax. It will not allow renumbering that would lead to logical clashes in the program. It does not, however, offer the Hold/Merge options – a serious shortcoming.

SHOW/KEYWORD are two subcommands that instruct the editor to display control characters (inverse mode) and to treat the Applesoft commands (for example, *PRINT,NEXT...*) as normal

text for editing/search purposes.

EDIT invokes a powerful line editing facility. On entry one can specify the line range to be edited and within that range that only lines containing a specific string should be edited.

Thus all lines between 100 and 600 containing 'FRED=' could be edited in turn. The line editing commands then provide deletion, insertion, cursor positioning and a very useful *FIND* option. This allows one to jump to the exact part of the line required.

FIND is a global search command which prints out all lines containing a specified string. Again, a line range can be set.

CHANGE is a global command which allows the replacement of one string for another over the specified line range. The change can be automatic or prompted, allowing each change to be accepted or rejected as desired.

All lines altered are displayed on the screen. By setting the second string to null it will delete all occurrences of the first string.

That concludes a rapid survey of the features offered – well almost. *M* will put you into the Apple monitor. Much nicer than that nasty *CALL-151* all the time.

Unfortunately the only problem I encountered occurred here. The monitor command to display the Apple registers is: *Ctrl-E* and... hey presto, back in the editor!

I'm informed that a single *POKE* can change the Editor, invoke character, so if you use the monitor a lot you might want to do that. A note to tell you which location to change would be helpful.

In conclusion then, if you want a complete program development tool you will have to look elsewhere. But if you want an easy to use but comprehensive editor for Basic programs you won't be disappointed with *The Editor*.

Peter Gorry

AppleTip

P *POKE -24003, 96* or *A23D: 60* will disable the *NOMON* command and therefore make disc access visible even if a program has used *NOMON C, I, O*.

The reverse process is achieved by *POKE -24003, 44* or *A23D: 2C*. This is particularly useful when using *EXEC* files to run programs where inputs into Basic are otherwise invisible.

The *MON* flag at *AA5E* may also be manipulated directly from Basic by a *POKE* to *-21922* with *0* to disable *MON C, I, O* or *64* for *C, 32* for *I*, and *16* for *O*, or any other combination.

Derek Turner

P Have you ever accidentally overwritten a precious program by

forgetting which program you had in memory and saving it using the wrong name?

I have, so I solved the problem by always including the program name within the program itself. It is always on line 9007 which is in block 90 which is a sub-routine where I always initialise all my program variables. Then I include lines 1 and 7 in my programs. They are as below:

```
1 GOTO 1000:REM START OF MAIN LOOP
7 TEXT:HOME:60SUB 9000
:VTAB 2:PRINT NP$;VN$;DT$;0:VTAB 1:END
9007 NP$='NAME OF PROGRAM'
9008 VN$='VERSION'
9009 DT$='DATE'
9010 RETURN
```

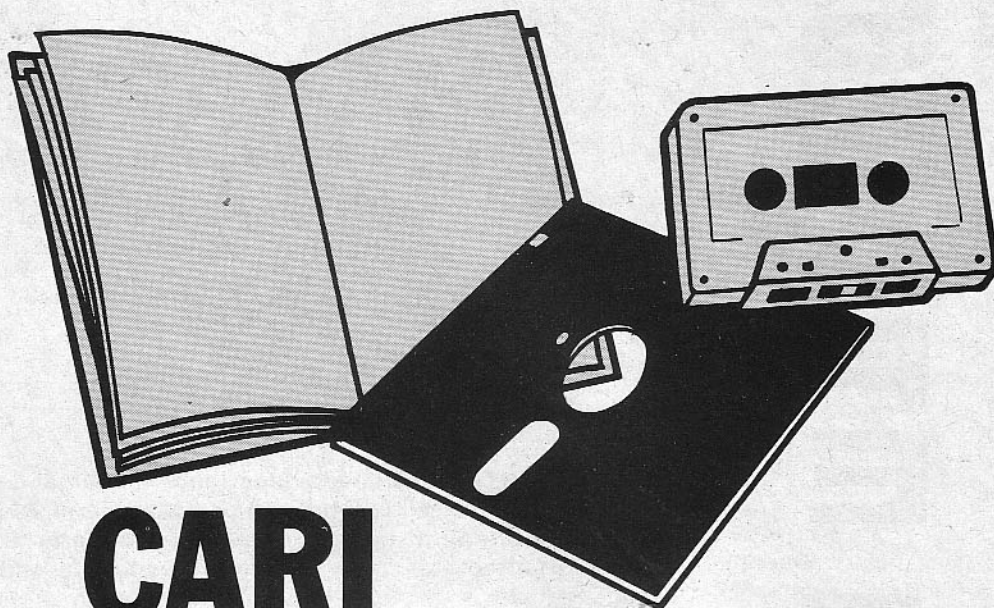
Then if you type in *RUN7* the cursor will be positioned at the top of the screen just before the statement reading:

```
SAVE NAME OF PROGRAM-V1
12APR84,D1
```

This means that you cannot make a mistake, though you can change the version, date or drive quite easily if you wish.

Marie Donegan

Product: *The Editor*
Price: £26
Distributor: *Micro Computer Consultants, Ascott House, 227 Elliott Street, Tyldesley, Manchester M29 8DG*



CARI on computing

By HUGH DOBBS

IF you have been following my occasional series on computers and language learning you may recognise Christopher Jones as the author of the Storyboard and Clozemaster programs.

It turns out that he is also a folksinger and songwriter with a sense of humour and a particular interest in English as a second language. All these threads come together in the Back Home package.

It started as a collection of songs published by Longmans in 1980 on record and cassette.

In 1983 a companion booklet was added which includes teaching suggestions and questions as well as the words of the songs. Wida then added the computer programs — Storyboard, Clozemaster and another called Dictation, all slightly improved since I reviewed the first two.

The other package, Micro Verse, is a less-polished production with a slightly blurred but adequate manual, and is based on the same three programs.

Dictation allows you to type in the poem or song, but characters will only be accepted and appear on the screen if correct. You can opt to type on a clear screen or to have the skeleton of stars as for Storyboard.

At the end you are given a score based on your accuracy. This could be used to test your typing accuracy, to help you to learn the text, or as a straight dictation test using the audio cassette.

The software is very effective, fun to use, and requiring only a good choice of material. Both packages have a good choice of material.

The poems in Micro Verse, read on cassette by the author, cover a range of topics and use language which make them especially appropriate for junior secondary or even primary students, while the songs in Back Home seem to be directed more at young adults with their treatment of love, poverty, loneliness and the job interview.

In fact everyone seems to find something to suit him/herself, and my children of seven and four have been having a wonderful time as

assistant reviewers.

One thing that I found slightly alarming was a suggested answer to a question about Toothache, one of the Back Home songs: "We rely too much on specialists. The only reliable way to get things done is to do them yourself".

Since the "hero" is going home with a book called "Dentistry: Do It Yourself", this is a rather bald statement, and I would prefer to see some discussion of the hazards to avoid in doing things yourself.

All in all these are two packages one would be proud to have written, but it's just as well that I didn't write Back Home, as our local equivalent of Charlie's General Store is... wait for it... Charlie's!

Reading Computers And Reading Instruction I am very much aware of its American origin. Programs mentioned are for Pet, Apple, Atari, TI99/4A, IBM PC, Tandy and unnamed systems. The only unAmerican item is a picture of a Timex (Sinclair) micro.

This is not too much of a disadvantage for us, since the

vast majority of the programs are in fact for Apples.

Out of over 100 packages I had only heard of one, other than Zork. Clearly either there is nothing worth exporting, or we shall have to write and find out.

This could well be a valuable resource list.

The main body of the book provides a clear discussion, for the benefit of the teacher with little computer experience, of reasons for using computers in the teaching of reading, and of the ways in which they can, or may soon, be used.

There are sections on reading readiness, word identification, comprehension, the purposes of reading, advanced skills, computers in remedial work and a rather helpful one on how to evaluate software.

Unfortunately this requires one to test the software, which is difficult if no one stocks it.

The resource section, in addition to brief descriptions of the 100 plus programs, gives references to numerous relevant articles in (American) magazines and books, and to rather fewer listings of pro-

grams published in five magazines of which only Creative Computing is often seen over here.

There are a few trivial oddities. Software throughout is apparently plural. Two raised to the seventh power is said to be 1,024 (p17) and Figure 6.1 has a terminal connected to a host computer via telephone lines, whereas most systems these days would have modems at both ends rather than being connected directly.

These are irrelevant to the purpose of the book, which is very helpful (English/Irish edition soon please).

Hugh Dobbs

Back Home by Christopher Jones, Wida Software and Longmans audio cassette, manual, workbook and discs, £27.50.

Micro Verse by Josephine Jones and Christopher Jones, Wida Software, 2 Nicholas Gardens, London W5 5HY audio cassette, manual and discs, £20.

Computers And Reading Instruction, by Leo and Olga Geoffrion, Addison-Wesley paperback, 218pp, £11.85.

SHAPE TABLE EDITOR

Part XII of the Apple User Graphics Library shows you how to automate the shape table building business

LAST month I started an introduction to shape tables; a simplified picture of how they are organised internally, how to use them, and where to put them in memory. This month we'll look at how to construct a table in detail.

Finally for those of you with normal lives to lead, and without the benefit of 16 fingers to count on, there is the *Apple User* shape table editor program to automate the whole process.

When designing a shape for a shape table it is convenient to think of oneself as standing in a majestic room with large square tiles on the floor.

One can draw a pattern or shape on the floor by moving from tile to tile. When you move you have the option of painting or plotting the vacated tile or leaving it unchanged.

What we must store in the table is the series of moving and painting instructions.

To start with, let's look at the plotting instructions available with shape tables. We are allowed to move only one step at a time and it can be Up, Down, Right or Left—we cannot move diagonally. It is this lack of diagonal movement that often causes shapes to "disintegrate" at large SCALES.

In order to keep the space occupied by the instructions to a minimum they are coded in a very compact form. Imagine having counters, rather like coins, with 1 on one side and 0 on the other. We only need two counters to represent the above movements.

```
00 Up
01 Right
10 Down
11 Left
```

We can use a third counter to represent leaving the tile unchanged (0), or painting it (1). Thus three counters are sufficient to represent each move/paint instruction. For instance, the instructions: move up painting the tile as you leave it, move right leaving the tile unchanged

and move down again painting the tile, would become:

```
100
001
110
```

How does all of this relate to storing numbers in the Apple? Unfortunately we must introduce a small piece of jargon at this point.

A single unit of memory in the Apple is called a byte, which can hold a number between 0 and 255. We can picture a byte as eight of our counters in a line.

There are 256 possible combinations of 1s and 0s ranging from all zeros (representing 0), to all ones (representing 255). Each "counter" is called a bit.

Our job now is to pack as many plotting instructions into each byte as possible. Since an instruction takes three counters it seems obvious that we can get two instructions (6 counters) into each byte (8 counters), leaving two left over. The byte is filled from the right hand end first, thus the first two instructions above would become:

```
00:001:100
```

I have inserted colons purely for clarity. We now have to work out which number, in binary, this particular combination of ones and zeros corresponds to. In fact it is the number 12. We have finally calculated the value of the first byte of our plotting instructions!

Unfortunately, just in case you were getting the hang of

this, the fiends at Microsoft who wrote Applesoft reasoned that they could squeeze even more instructions in if they could use the two unused counters as well.

The non-plotting instructions don't use the third counter (or more accurately it's a zero) so the movement can be represented with only two counters, as in our original example.

Thus if the third instruction is a non-plotting one it can be put into the last two bits of the byte. If the instruction is a plotting one it must start in the next byte and the two extra bits are left zero.

The quick witted among you will have spotted a problem here—does 00 in the last two bits (left hand end) mean UP-No-Plot or I-couldn't-fit-a-plotting-instruction-in-here.

To overcome this ambiguity a value of 00 in these bits is always ignored. In fact when all the remaining bits in a byte are zero they will all be ignored.

You must bear this in mind when coding Up-No-Plot instructions.

Finally we must signify the end of our instructions, and we do this by supplying a byte with all eight bits zero. Since moving up without plotting is represented by 000, two of these in succession can, in the worst possible case, produce just such a byte when you didn't mean it.

You must always plan your shape to avoid such a situation. If you must move up a long way without plotting anything you

Start + 0	2	Number of shapes
1	0	(blank)
2	6	} Offset to shape 1
3	0	
4	11	} Offset to shape 2
5	0	
6	229	} Shape 1 +
7	23	
8	14	
9	5	} Shape 2 -
10	0	
11	56	
12	63	
13	0	

Figure 1: A complete shape table

will have to put in some dummy rights and lefts as well.

The shape table editor program always shows you the byte values before it adds the shape to the table. If there is a zero in the middle you must reject the shape and do it in another way.

Our example set of moves can now be coded entirely as:

```
00001100 (12)
00000110 (6)
00000000 (0)
```

the numbers in brackets being the decimal values of each byte.

Once a shape has been coded it must be incorporated into a table. Last month I showed schematically how the index and shapes are arranged in the table. Figure 1 shows in detail the layout of a complete table containing two shapes, a + and a - sign.

The problem with constructing tables by hand is that any editing, inserting shapes, deleting shapes, adding shapes or altering them all require extensive recalculation and modification to the whole table.

The shape table editor program provided here gives all the facilities needed to construct

and edit shape tables. The program is menu driven and provides eight editing functions:

Load table

This loads an existing shape table from disc. The table is brought into memory at the beginning of hi-res page 2, starting at location 16384. The program variables have been set to start at the end of hi-res page 2, so there is room for 8k of table.

The program is currently configured to allow 200 shapes and a total length of 2000 plotting instructions. Each new shape can have a maximum of 100 instructions.

These limits can easily be changed by altering the array values in line 120.

New table

Clears any existing table and starts a new one. The shape plotting instructions are entered using two letters for each step.

The first letter is one of U/D/L/R for the direction, followed by Y/N depending on whether plotting is required or not.

During shape entry a magnified version of the shape is

plotted on the lo-res screen as it is entered.

An instruction can be cancelled using the backspace (left arrow) key - as for normal input.

In fact if you backspace to a square that was on and issue a no-plot instruction the lo-res version will still leave the point on - but the shape will be stored correctly.

This occurs because a no-plot instruction leaves the background colour unchanged. If in any doubt backspace to the last blank square.

The shape input is terminated with the letter E. The program then displays the byte values in hex and decimal. This allows you to make sure that the only zero value is at the end. Providing all is fine it is added to the table.

Add shape

Allows a shape to be added on to the end of the table currently in memory. Data input is exactly the same as before.

Insert shape

Allows a new shape to be inserted into the table at any desired place - rather than just added to the end. This routine

can be used to replace any shape in the table.

For instance if shape 3 needs replacing this is achieved by inserting the replacement shape before shape 4 and then deleting the old shape 3.

Delete shape

Deletes a given shape from the table. A value of 0 cancels the command in case you selected this option by mistake.

Display shape

Displays a given shape from the current table on the hi-res screen. The shape is DRAWn and XDRAWn at SCALE values of 1,2 and 3.

Table info

Provides information about the current table, such as the number of shapes, its length and the memory locations of each shape. This information is of more use to the experienced programmer rather than the novice.

Save table

This routine saves the current table to disc. The user is asked only for the filename. Option 1 above can be used to read the table back in again for further editing at a later date.

A table is not saved unless this command is issued, so it is important that you do this before quitting the program.

Well, that's all for the program. It makes extensive use of PEEKs and POKEs and uses integer arrays to hold temporary versions of the table. In this way the table contents are always kept in the correct order and the table length is an absolute minimum.

The only drawback to using Basic is that it gets a little slow with large tables.

Shape tables are stored as binary files and they can be BLOADED into memory anywhere. In last month's article I discussed several places to put shape tables and it is up to you to decide where.

If you have saved a table as TABLE1 and want it to be loaded into memory at location 20000 you will need a line in the program that says:

```
PRINT CHR$(4);"BLOAD
TABLE1, A20000"
```

Don't forget to set locations 232 and 233 to point to this address.

GRAPHICS

```

100 REM SHAPE TABLE EDITOR
110 LOMEM: 24576; TS = 16384; POKE
    232,0; POKE 233,64; D$ = CHR$
    (13) + CHR$ (4)
120 DIM S1(100),V1(100),SA%(200)
    ,SL%(200),IA%(200),SD%(2000)

130 TEXT : HOME : RPT = 0
140 PRINT "SHAPE TABLE PROGRAM"
150 PRINT "*****";
    PRINT : PRINT
160 PRINT "1 LOAD TABLE": PRINT
    "2 NEW TABLE": PRINT "3 AD
    D SHAPE": PRINT "4 INSERT S
    HAPE"
170 PRINT "5 DELETE SHAPE": PRINT
    "6 DISPLAY SHAPE": PRINT "7
    TABLE INFO"
180 PRINT "8 SAVE TABLE": PRINT
    "9 EXIT": PRINT : PRINT "WH
    ICH":
190 GET MN$:MN = VAL (MN$): IF
    MN < 1 OR MN > 9 THEN GOTO
    190
200 IF MN = 9 THEN GOTO 230
210 ON MN GOSUB 5000,4000,2500,2
    700,3000,6000,7000,8000
220 GOTO 130
230 END
1000 REM FILL ARRAYS
1010 NS = PEEK (TS);SL = 0;TL =
    0;J = 0
1020 FOR I = 1 TO NS:IL = TS + 2
    + I
1030 SS = PEEK (IL) + PEEK (IL +
    1) * 256;SA%(I) = SS
1040 J = 0;SL = SL + 1;IA%(I) = S
    L
1050 SD%(SL) = PEEK (TS + SS + J
    )
1060 IF SD%(SL) = 0 THEN GOTO 1
    080
1070 J = J + 1;SL = SL + 1; GOTO
    1050
1080 SL%(I) = J; NEXT I
1090 TL = SL + NS * 2 + 2; REM T
    ABLE LENGTH
1100 RETURN
1200 REM POKE INTO MEMORY
1210 IF NS = 0 THEN RETURN
1220 DS = TS + 2 * NS + 2;BA = DS
    - 1;DL = 0
1230 POKE TS,NS; POKE TS + 1,0
1240 FOR I = 1 TO NS;IL = TS + 2
    + I
1250 SL = IA%(I) - 1;OS = BA - TS
    + 1
1260 SL = SL + 1;BA = BA + 1;DL =
    DL + 1
1270 POKE BA,SD%(SL): IF SD%(SL)
    < > 0 THEN GOTO 1260
1280 H% = INT (OS / 256);L% = OS
    - 256 * H%
1290 POKE IL,L%: POKE IL + 1,H%
1300 NEXT :TL = 2 * NS + 2 + DL
1310 RETURN
1400 REM VECTOR INPUT
1410 PRINT "VECTOR";V + 1; " "
    ;
1420 M = 0; GET M$: PRINT M$;: HTAB
    25;DX = 0;DY = 0
1430 IF M$ = "R" THEN M = 1;DX =
    1
1440 IF M$ = "D" THEN M = 2;DY =
    1
1450 IF M$ = "L" THEN M = 3;DX =
    - 1
1460 IF M$ = "U" THEN M = -0;DY =
    - 1
1470 IF M$ = "E" THEN RETURN
1480 IF M$ = CHR$ (8) THEN RETURN
1490 IF M = 0 AND M$ < > "U" THEN
    PRINT : GOTO 1530
1500 GET P$: PRINT P$
1510 IF P$ = "Y" THEN M = M + 4;
    RETURN
1520 IF P$ = "N" THEN RETURN
1530 CALL - 198; GOTO 1400
1600 REM LO-RES DISPLAY
1610 COLOR= 0C; IF M > = 4 THEN
    COLOR= 15
1620 PLOT XL,YL;XL = XL + DX;YL =
    YL + DY
1630 OC = SCRN( XL,YL); REM SAV
    E SCREEN COLOUR
1640 COLOR= 5; PLOT XL,YL
1650 RETURN
1700 REM DELETE VECTOR ROUTINE
1710 PRINT : IF I = 0 THEN RETURN
1720 I = I - 1;M = S1(I);S1(I) =
    0; IF M > 3 THEN M = M - 4
1730 DX = 0;DY = 0;OC = 0; REM E
    RASE
1740 DX = DX - (M = 1) + (M = 3);
    REM SET DX
1750 DY = DY + (M = 0) - (M = 2);
    REM SET DY
1760 GOSUB 1600
1770 RETURN
1800 PRINT : PRINT "ADD TO TABLE
    (Y/N) ? "; GET A$
1810 IF A$ = "N" THEN Q = 0; GOTO
    1850
1820 IF A$ < > "Y" THEN GOTO 1
    800
1830 NS = NS + 1;IA%(NI) = SL + 1
1840 FOR V = 0 TO Q;SD%(SL + V +
    1) = V1(V); NEXT
1850 SL = SL + Q + 1
1860 RETURN
2000 REM ADD SHAPE ROUTINE
2010 TEXT : HOME : PRINT
2020 PRINT "INFORMATION FOR EACH
    VECTOR IS ";: PRINT
2030 PRINT " MOVE PLO
    T"
2040 PRINT " U/D/L/R Y/
    N"
2050 PRINT : PRINT "E TO END": PRINT
    : PRINT
2060 B = 0;Q = 0;I = 0
2070 FOR K = 0 TO 100;V1(K) = 0;
    S1(K) = 0; NEXT K
2080 GOSUB 9000; REM WAIT FOR K
    EY
2090 VTAB 20
2100 XL = 20;YL = 20; SR :OC = SCRN(
    XL,YL); COLOR= 5; PLOT XL,YL
2110 PRINT
2120 PRINT " U/D/L/R
    PLOT (Y/N) "
2130 PRINT
2140 REM ENTER PLOT ACTIONS
2150 V = -1; GOSUB 1400
2160 REM CONTINUE UNTIL E IS IN
    PUT
2170 IF M$ = "E" THEN GOTO 2200
2180 IF M$ = CHR$ (8) THEN GOSUB
    1700; GOTO 2150
2190 S1(I) = M;I = I + 1; GOSUB 1
    600; GOTO 2150
2200 PRINT : TEXT : HOME
2210 REM PACK VECTORS INTO V1()
    ARRAY
2220 FOR V = 0 TO I
2230 IF B = 2 AND S1(V) > 0 AND
    S1(V) < 4 THEN 2290
2240 IF B < 2 AND (S1(V) > 0 OR
    S1(V) > 4) THEN 2290
2250 IF B = 2 AND (S1(V) = 0 OR

```



```

S1(V) > 3) THEN 2280
2260 IF B = 0 THEN 2290
2270 IF B = 1 AND S1(V + 1) > 0 AND
S1(V + 1) < 4 THEN 2290
2280 B = 0:Q = Q + 1
2290 V1(Q) = V1(Q) + S1(V) * (B ^
B)
2300 B = B + 1
2310 IF B > 2 THEN B = 0:Q = Q +
1
2320 NEXT V
2330 REM DISPLAY THE VECTORS AS

2340 REM HEXADECIMAL NUMBERS
2350 PRINT "BYTE","VECTOR","DECI
MAL"
2360 FOR V = 0 TO Q
2370 H% = V1(V) / 16:L% = V1(V) -
H% * 16
2380 IF H% > 9 THEN H% = H% + 7
2390 IF L% > 9 THEN L% = L% + 7
2400 PRINT V, CHR$(H% + 176): CHR$(
L% + 176),V1(V)
2410 NEXT V
2420 RETURN
2500 REM ADD SHAPE
2510 GOSUB 1000: GOSUB 2000:N1 =
NS + 1
2520 GOSUB 1800: GOSUB 1200: RETURN

2700 REM INSERT SHAPE
2710 TEXT ; HOME : GOSUB 1000: PRINT
"NUMBER OF SHAPES = ":NS
2720 PRINT : INPUT "INSERT BEFOR

```

```

E SHAPE = ":IS
2730 IF IS < 1 OR IS > NS THEN GOTO
2720
2740 GOSUB 2500: IF A$ = "N" THEN
RETURN
2750 PRINT "INSERTING.":TEMP =
IA%(NS)
2760 FOR I = NS TO IS + 1 STEP -
1:IA%(I) = IA%(I - 1): NEXT
2770 IA%(IS) = TEMP: GOSUB 1200: RETURN
3000 REM DELETE SHAPE
3010 TEXT ; HOME : GOSUB 1000: PRINT
"NUMBER OF SHAPES = ":NS
3020 PRINT : INPUT "DELETE SHAPE
NUMBER (0=QUIT) = ":DS
3030 IF DS < 0 OR DS > NS THEN GOTO
3020
3040 IF DS = 0 THEN RETURN
3050 FOR I = DS TO NS - 1:IA%(I)
= IA%(I + 1): NEXT
3060 NS = NS - 1: GOSUB 1200: RETURN

4000 REM NEW TABLE
4010 NS = 0: POKE TS,0:SL = 0
4020 GOSUB 2000:N1 = NS + 1
4030 GOSUB 1800
4040 PRINT : PRINT "ANOTHER SHAP
E (Y/N) ? ": GET A$
4050 IF A$ = "Y" THEN GOTO 4020

4060 GOSUB 1200: REM POKE INTO
MEMORY
4070 RETURN

```

```

5000 REM LOAD TABLE
5010 TEXT ; HOME : INPUT "FILENA
ME = ":F$
5020 PRINT D$"BLOAD ":F$:".A1638
4"
5030 GOSUB 1000: REM SET UP ARR
AYS
5040 RETURN
6000 REM SHOW SHAPE
6010 IF NS = 0 THEN RETURN
6020 TEXT ; HOME : PRINT "NUMBER
OF SHAPES = ":NS
6030 PRINT : INPUT "SHAPE NUMBER
= ":SN
6040 IF SN < 0 OR SN > NS THEN GOTO
6030
6050 HGR = HCOLOR= 3: ROT= 0
6060 FOR I = 1 TO 3: SCALE= I
6070 DRAW SN AT 40,I * 40: XDRAW
SN AT 120,I * 40
6080 NEXT : VTAB 22: PRINT "DRAW
","XDRAW","SHAPE":SN;
6090 GOSUB 9000
6100 RETURN
7000 REM SHAPE TABLE INFO
7010 GOSUB 1000: REM FILL ARRAY
S
7020 IF NS = 0 THEN RETURN
7030 TEXT ; HOME : PRINT "TABLE
INFORMATION"
7040 PRINT : PRINT "NUMBER OF SH
APES = ":NS
7050 PRINT "TABLE STARTS AT ":TS
7060 PRINT : PRINT "SHAPE"."STAR
T","END"
7070 FOR I = 1 TO NS
7080 SA = SA%(I) + TS:SE = SA + S
L%(I)
7090 PRINT I,SA,SE
7100 IF (I - INT(I / 10) * 10)
= 0 THEN GOSUB 9000
7110 NEXT : PRINT : PRINT "TABLE
LENGTH = ":TL
7120 GOSUB 9000: RETURN
8000 REM SAVE TABLE
8010 TEXT ; HOME : PRINT "POKING
INTO MEMORY.": PRINT
8020 GOSUB 1200: PRINT : INPUT "
FILENAME = ":F$
8030 PRINT D$"BSAVE ":F$:".A":TS
";L":TL
8040 RETURN
9000 PRINT : PRINT "PRESS ANY KE
Y TO CONTINUE": GET A$: PRINT
: RETURN

```

appletips

t Being at school I thought that I ought to be more security minded about my programs. People were always listing them and cataloging the data on my disc.

So I compiled a set of miscellaneous POKEs which proved very effective.

One of the best is POKE 2049,1 which causes the first line to list repeatedly.

POKE 50,128 makes all output and thus the disc catalog and listings of programs invisible. To scramble any text output POKE 50,random.

This last set of POKEs makes pressing Reset run the

program: POKE 1010,102:POKE 1011,213:POKE 1012,112 which proves very useful to Reset finger-happy people. — **Paul Mullan.**

t If you use either Appleworks or Three Easy Pieces in your office, a simple patch will make them print pound instead of dollar in the spreadsheet.

For Appleworks it is (on the program disc) track 14, sector 0F, byte AA and for the other track 13, sector 02, byte A5 — simply change the byte from \$ to £. — **Peter Bradley.**



Take advantage of a Visicalc disadvantage

HERE is a nice little routine to help you summarise and save data, using one of the disadvantages of Visicalc.

In recalculation, Visicalc works from top left to bottom right of the sheet, recalculating in either rows or columns. To demonstrate this, set for manual recalculation (/GRM):

Type in cell A1 ... (A3)

Type in cell A3 ... (A2)

Type in cell A2 ... 100

Now press "!" for recalculation.

Cell A3 shows 100 - the value in (A2). Cell A1 still shows 0 because this was the value in A3 at the start of recalculation.

Normally we should take care that this feature does not produce wrong results in our recalculations.

We can, however, turn this feature to our advantage. Figure 1 shows the basic spreadsheet to be set up. It is important that this is set up in sequence to avoid complications.

Check that the letter "C" is showing at the top right of the

1	A	B	C	D	E	F	G	H
	COMPANY	LTD.	SALES	PROGRESS 1977-84				
3	YEAR		AREA 1	AREA 2	AREA 3	AREA 4	ALL AREAS (CHECK)	
5		NA TOTALS	NA	NA	NA	NA	NA	NA
		NA TOTALS	NA	NA	NA	NA	NA	NA
		NA TOTALS	NA	NA	NA	NA	NA	NA
		NA TOTALS	NA	NA	NA	NA	NA	NA
		NA TOTALS	NA	NA	NA	NA	NA	NA
		NA TOTALS	NA	NA	NA	NA	NA	NA
12		NA TOTALS	NA	NA	NA	NA	NA	NA
14	JAN		NA	NA	NA	NA	NA	NA
	FEB		NA	NA	NA	NA	NA	NA
	MAR		NA	NA	NA	NA	NA	NA
	APRIL		NA	NA	NA	NA	NA	NA
	MAY		NA	NA	NA	NA	NA	NA
	JUNE		NA	NA	NA	NA	NA	NA
	JULY		NA	NA	NA	NA	NA	NA
	AUG		NA	NA	NA	NA	NA	NA
	SEPT		NA	NA	NA	NA	NA	NA
	OCT		NA	NA	NA	NA	NA	NA
	NOV		NA	NA	NA	NA	NA	NA
25	DEC		NA	NA	NA	NA	NA	NA
27		NA TOTALS	NA	NA	NA	NA	NA	NA

9	NA TOTALS
10	1977 TOTALS
11	1978 TOTALS
12	1979 TOTALS
14	JAN
	FEB
	MAR
	APRIL
	MAY
	JUNE
	JULY
	AUG
	SEPT
	OCT
	NOV
25	DEC
27	1980 TOTALS

Figure 1

Figure 2

screen. If the letter "R" is showing, then type /GOC.

Set up manual recalculation by typing /GRM.

Set up dollar format in columns C5..28, D5..28, E5..28, F5..28, G5..28 and H5..12 using /F\$.

Set up the titles shown in rows 1 to 4, rows 13, 26, 28 and columns B5..B12, A14..A25.

Fill in the full block of cells C14..F14..F25..C25 and cell A27 with @NA (that is, figures not available).

Column G is the total of columns C, D, E and F. Insert the formula in G5...@SUM(C5..F5), and similarly in G6 to G12 and in G14 to G25 and also in G27.

Line 27 is the addition of the January to December figures, so C27 should have the formula @SUM(C14..C25). Fill in the formulae in D27, E27, F27, G27.

Insert a title line across line 13. (>A13 Return /TH Return). This will deter you from straying into the top 12 lines when

Warning: Think twice before pressing the ! key. If all data hasn't been entered you'll have quite a job correcting the figures!

By VIC TANN

entering data.

The formulae to be entered in C5 to C12 are: C12..(C27), C11..(C12), C10..(C11); C9..(C10), C8..(C9), C7..(C8), C6..(C7) and C5..(C6).

Similarly enter these equations in columns D, E, F, G and A. This can easily be done by replicating across each row - set cursor at C12, /R Return

D12.. G12 Return R). This should be done working up from C12 to C5. Cell A12 should have (A27-1), then A11..(A12), A10..(A11) etc as before.

H is a checking column. The formulae are H5.....@SUM(C5..F5). This should give the same answer as the adjacent cell G5.

Now the basic spreadsheet is ready. Make sure you save it now before entering data.

Having set up the basic sheet we can now enter some sales figures.

Fill in the figures for year 1977 in C14 to C25, D14 to D25, E14 to E25 and F14 to F25. Enter '1977' in cell A27.

Now press "!" for the first

recalculation. This will give you the totals across and down the sheet in row 27 and column G. No figures should have appeared yet above line 14.

Now enter figures for 1978. Enter 1978 in cell A27. Enter the 1978 data in cells C14 to C25, D14 to D25, E14 to E25 and F14 to F25.

Press "!" again for recalculation. This time the revised totals for 1978 appear in row 27 and column G, but the figures for 1977 are not lost. They have moved up to row 12. As each year's figures are entered this summary is extended at the top of the sheet.

Figure 11 shows a partly completed sheet with four year's figures entered. Notice the summaries of years 1977 to 1979 working their way up from row 12.


One word of warning: think twice before pressing the "!" key. If all the data has not been entered you may have quite a job correcting the figures.

So we have created a very useful spreadsheet which compiles and summarises data.

The sheet can be further extended to compare each year's performance and to produce predictions by entering further equations in the area to the right of cells H5 to H12.

I will leave you to develop this for your own needs.

NA	NA	NA	NA	NA	NA
1394.25	985.53	2009.96	1640.28	6030.02	6030.02
1424.52	1815.32	2148.53	1943.64	7332.01	7332.01
1908.61	2337.86	2616.70	2115.71	8978.88	8978.88
208.77	323.88	324.65	157.43	1014.73	
177.99	144.00	134.75	123.43	580.17	
123.90	201.99	215.42	241.64	782.95	
241.97	321.00	321.90	214.88	1099.75	
122.80	222.77	164.85	155.88	666.30	
145.43	213.00	199.87	176.58	734.88	
333.00	222.88	177.32	124.64	857.84	
124.77	135.00	176.53	152.86	589.16	
135.88	188.70	342.00	432.00	1098.58	
222.99	144.88	124.76	175.66	668.29	
155.67	122.11	310.00	145.78	733.56	
123.77	321.87	423.00	132.70	1001.34	
2116.94	2562.08	2915.05	2233.48	9827.55	



Setlister is a utility which I use to obtain readable listings of programs on my Epson MX80 printer which can be put into a program binder without the code getting trapped by the binder clamps.

Firstly I wanted the listing to be 72 characters wide, not 40, and secondly I wanted several lines to be skipped at the page fold.

I run this utility at the start of a programming session with the printer head line set four lines below the fold.

In practise the utility skips eight lines at this point, four on the old page and four on the new.

The parameters can be changed if required. Line 40 alters the width and Line 60 the number of lines skipped.

- F.J. Maguire.

```

5 REM * LIST MODE LINES-72
6 REM * SWITCH ON PERF-SKIP
7 REM *
10 D$ = CHR$(4): REM CTRL D
20 PRINT D$;"PRE1"
30 PRINT CHR$(13)
40 POKE 1657,72
50 REM SWITCH ON PERF-SKIP
60 PRINT CHR$(27);"N"; CHR$(8)
90 PRINT D$;"PRE0"
```


MY company is in the business of supplying high volume components to the automotive industry throughout the world. This means that we are expected to be highly competitive with our prices if we are to stay in business.

The whole of the auto industry operates on very tight margins – a bit hard to believe when you look at the price of new cars in the showroom I know! – so this also means that the estimated prices given in the quotation to the customer have to be very accurate.

As well as being competitive and accurate on price we also have to deliver the quotation as quickly as possible, preferably before the competition.

How do you achieve all this with a customer quotation system that takes an average of eight days, that involves staff in five different departments, and that requires a lot of cross referencing to ensure consistency in prices?

We put this question to some local D.P. consultants. The answer they came up with was:

- Hardware (a well known minicomputer), £35,000.
- Software (tailor made and inadequate), £35,000.
- Development and installation, 18 months.

A bit expensive – and who can wait 18 months?

As I already had Apple computers installed in my engineering department and have programming experience I explored the microcomputer option.

Writing a simple database program for comparing prices would be easy, I thought, but there is no way that I would have the time to write a program that could calculate price estimates for a wide range of products, methods and materials.

A chat with my local Apple supplier revealed the answer was Apple plus Multiplan.

- Cost of two Apple IIe's plus peripherals, £4,500.
- Software (Microsoft Multiplan), £178.
- Lead time to design and install, two months.

This is how the system works:

A simple file and enquire

Taking care of business

HARRY MOORE describes how Apple and Multiplan came to the rescue of a large manufacturer of automotive components and helped provide a better service to customers

system written in Basic. All new products are classified according to their size (volume) and method of moulding.

For example all products between 20 and 25 cubic cms are code CM3.

Upon receipt of a customer enquiry the estimator will classify the product size and decide on the moulding method (horizontal or vertical injection).

He will then key in product code and moulding method to one of the Apples and a list of similar past quotes will be displayed.

The estimator can then zoom in if he thinks that one of the past quotes may be similar to the current enquiry.

He can continue playing tunes until he finds something similar. If required then a "quick quote" based on previous estimates can be supplied within the hour.

If a more detailed and accurate quote is required he refers to the structured estimating system (SES).

The whole system is designed around a master Source

File. This contains all the current cost data for materials, labour and overheads.

It is updated on a regular basis and all estimate sheets are linked to it using Multiplan's excellent External Copy facility.

The significant benefit of this is that quotations are perpetually up to date as each time you load a completed quotation it automatically reads its cost data off the Source File and updates itself. There is no longer any need for those lengthy update exercises.

Multiplan boot disc loaded and press Return (we do not bother with system disc as it is not needed unless you require Help).

Identify product group (shaped, tubular, or large) and injection moulding method. Data discs are allocated for each product group. Load appropriate one.

Each data disc contains Source File (basic cost per operation) and master estimate sheets for product group and moulding method.

Using the Transfer command

select an estimate sheet. Multiplan allows you to display catalog by using any of the arrow keys. As the estimate sheet is loaded it will select the appropriate costs from the Source File using the External Link facility and load them onto the estimate sheet.

The cells being read from the file will be displayed at the bottom of the monitor as they are being loaded.

The estimator now enters data onto the sheet. All cells are locked apart from those requiring an input. Ctrl-F is used exclusively, as this tabs the cursor from one unlocked cell to the next.

There is no danger of accidental damage to the layout. The sheet is then saved using the Transfer command onto a separate data disc containing finished estimates.

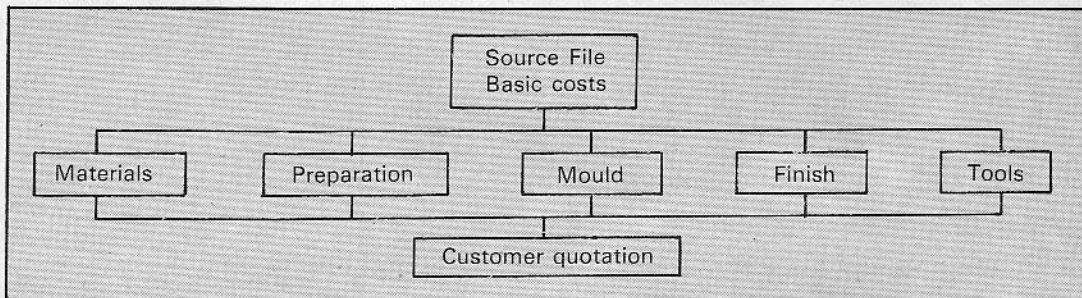
The estimator now fills in the remaining estimate sheets and finally loads up a blank quotation sheet. This sheet allows him to key in the file names and cell names to copy from using a standard name register integrated into the quotation itself.

The quotation sheet reads the subtotals from the individual estimate sheets and compiles a summary. Using the Transfer command the quotation is saved to disc.

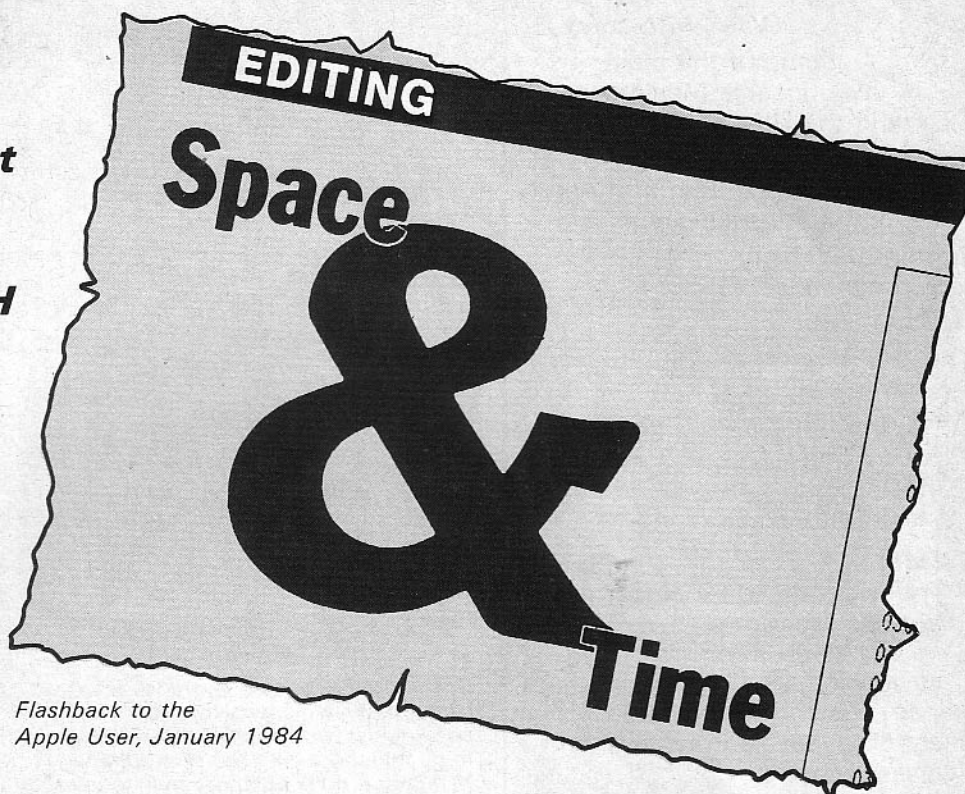
Finally a print out is made and given to the Sales office to supply to the customer. Job done!

The whole job can be done within 24 hours and because all the basic cost data is kept on the computer file staff don't need to run around with bits of paper so much.

The main benefit, of course, is that the customer gets an early quote. Must be good for business!



Take a leaf out of the BBC Micro's book and use KEITH NELSON's update of...



Flashback to the Apple User, January 1984

ANYONE who has seen the BBC Micro's screen editor might, like myself, have a little bit of envy for the ease with which it can edit programs without the struggle involved when trying to do so with the Apple.

Now you can achieve this style of editing by adding the following lines to A. Jameson's Ampersand List routine (*Apple User*, January 1984). This addition will allow the control of two cursors, one of which is a copy cursor.

To use the new editor simply BRUN the program which will then set up the ampersand hooks. The editor can be loaded either before or after your program is in the computer, after which you just type &Lx (where x = the line number to be edited).

Now Mr Jameson's routine will display the line without the extra spaces that Applesoft

adds. The copy cursor is then placed at the beginning of the line to be edited - the line indicated by > prompt.

The second cursor is placed below this line and to the right of the] prompt. By typing the right arrow key the characters under the copy cursor will be copied and displayed below at the second cursor position.

The copy cursor can be moved left or right in order to skip over or to recopy part of the line by the use of Ctrl-J or Ctrl-K.

The backspace arrow key will

move only the second cursor back along the lower line to correct any errors.

Remember, though, that characters back spaced over will be deleted from the input buffer and will either have to be retyped or the copy cursor moved back by use of the control keys and that part recopied.

New text is easy to insert as it is simply a matter of typing what you want at the keyboard. This text will then be displayed on the lower line only.

Another feature is the ability to copy to the end of the line quickly. By pressing Ctrl-C all the characters from the copy cursor position to the end of the line being edited will be copied.

Another useful feature of the Ctrl-C is the ability to replicate lines by simply listing the line and changing its number, then Ctrl-C to copy the rest of the line.

WARNING: The normal ESC I,J,K,M will still function but will not have the same effect as before.

```
SOURCE FILE: EDITOR1
----- NEXT OBJECT FILE NAME IS EDITOR1.OBJO
9425: 1 ORG EQU $9425
0019: 2 FLAG1 EQU $19
0073: 3 HIMEM EQU $73
00FF: 4 SCREEN EQU $FF
0006: 5 BABIL EQU $6
0008: 6 CH1 EQU $8
0009: 7 CV1 EQU $9
FD35: 8 RDCHAR EQU $FD35
0032: 9 INVFLB EQU $32
FC58: 10 HOME EQU $FC58
001A: 11 TALLY EQU $1A
0009: 12 LINPTR EQU $09
002A: 13 CH EQU $2A
0025: 14 CV EQU $25
009B: 15 LOWTR EQU $9B
009D: 16 TOKENL EQU $9D
00B1: 17 CHRGET EQU $B1
03F5: 18 AMPERV EQU $3F5
D412: 19 ERROR EQU $D412
D61A: 20 FNDLIN EQU $D61A
D72C: 21 NXTOK EQU $D72C
DAFB: 22 CRDO EQU $DAFB
DB64: 23 PRWT EQU $DB64
DD67: 24 FRMNUM EQU $DD67
E752: 25 GETADR EQU $E752
ED24: 26 LINPRT EQU $ED24
F273: 27 NORMAL EQU $F273
F399: 28 TEXT EQU $F399
FC22: 29 VTAB EQU $FC22
FC9C: 30 CLREOL EQU $FC9C
FE81: 31 SETINV EQU $FE81

FE84: 32 SETNORM EQU $FE84
FFA9: 33 SAVE EQU $FFA9
9425:20 4A FF 34 JSR SAVE
9428:A9 4C 35 LDA #4C
942A:8D F5 03 36 STA AMPERV
942D:A9 3F 37 LDA #)START
942F:A0 94 38 LDY #(START
9431:8D F6 03 39 STA AMPERV+1
9434:8C F7 03 40 STY AMPERV+2
9437:38 41 SEC
9438:E9 01 42 SBC #1
943A:85 73 43 STA HIMEM
943C:84 74 44 STY HIMEM+1
943E:60 45 RTS
943F:48 46 START PHA
9440:20 58 FC 47 JSR HOME
9443:A9 00 48 LDA #00
9445:85 19 49 STA FLAG1
9447:A6 25 50 LDX CV
9449:20 99 F3 51 JSR TEXT
944C:86 25 52 STX CV
944E:20 73 F2 53 JSR NORMAL
9451:20 22 FC 54 JSR VTAB
9454:58 55 PLA
9455:C9 4C 56 CMP #4C
9457:F0 05 57 BEQ ISL
9459:A2 10 58 LDX #10
945B:4C 12 D4 59 ERR JMP ERROR
945E:20 B1 00 60 ISL JSR CHRGET
9461:20 67 DD 61 JSR FRMNUM
9464:20 52 E7 62 JSR GETADR

9467:20 1A D6 63 JSR FNDLIN
946A:A2 5A 64 LDX #5A
946C:90 ED 65 BCC ERR
946E:A9 20 66 LDA #20
9470:20 64 DB 67 JSR PRWT
9473:A0 02 68 LDY #02
9475:B1 9B 69 LDA (LOWTR),Y
9477:C8 70 INY
9478:1A 71 TAX
9479:B1 9B 72 LDA (LOWTR),Y
947B:84 09 73 STY LINPTR
947D:20 24 ED 74 JSR LINPRT
9480:A5 24 75 LDA CH
9482:85 1A 76 STA TALLY
9484:E5 09 77 NXCH INC LINPTR
9486:1A 09 78 LDY LINPTR
9488:B1 9B 79 LDA (LOWTR),Y
948A:F0 3A 80 BEQ ENDLIN
948C:10 06 81 BPL NOTOK
948E:C9 BA 82 CMP #BA
9490:D0 0F 83 BNE NOTPRT
9492:A9 3F 84 LDA #3F
9494:C9 20 85 NOTOK CMP #20
9496:90 02 86 BCC LBTCR
9498:09 80 87 ORA #80
949A:E5 1A 88 LSTCHR INC TALLY
949C:20 64 DB 89 JSR PRWT
949F:1D E3 90 BNE NXCH
94A1:38 91 NOTPRT SEC
94A2:E9 7F 92 SBC #7F
94A4:1A 93 TAX
```


EDITING

94A51A0 D0	94	LDY	##D0		
94A7184 9D	95	STY	TOKENL		
94A9188	96	DEV			
94AA184 9E	97	STY	TOKENL+1		
94AC1A0 FF	98	LDY	##FF		
94AE1CA	99	TOK1	DEX		
94AF1F0 07	100	BEG	TOK2		
94B1120 2C D7	101	TOK	JSR	NXTOK	
94B4110 FB	102	BPL	TOK		
94B6130 F6	103	BMI	TOK1		
94B8120 2C D7	104	TOK2	JSR	NXTOK	
94BB130 DD	105	BMI	LSTCHR		
94BD109 CO	106	ORA	##CO		
94BF1E6 1A	107	INC	TALLY		
94C1120 64 DB	108	JSR	PRWT		
94C41D0 F2	109	BNE	TOK2		
94C6120 9C FC	110	ENDLINE	JSR	CLREOL	
94C9120 FB DA	111	JSR	CRDD		
94CC120 9C FC	112	JSR	CLREOL		
94CF120 80 FE	113	JSR	SETINV		
94D21A9 00	114	LDA	##00		
94D41A6 1A	115	LDX	TALLY		
94D61CA	116	DEX			
94D7120 24 ED	117	JSR	LINPRT		
94DA120 84 FE	118	JSR	SETNORM		
94DD1A9 00	119	LDA	##00		
94DF185 06	120	STA	BAS1L		
94E1185 09	121	STA	CV1		
94E3185 19	122	STA	FLAG1		
94E51A9 01	123	LDR	##01		
94E7185 08	124	STA	CHI		
94E91A9 04	125	LDA	##04		
94EB185 07	126	STA	BAS1L+1		
94ED1A9 BE	127	LDA	##BE	REM ASCII ''	
94EF18D 00 04	128	STA	##00		
94F2120 BC 95	129	JSR	FLASH		
94F5120 29 95	130	JSR	GETLNZ		
94F8120 33 D5	131	JSR	##D533	STORE LINE IN BASIC	
94FB14C 44 D4	132	JMP	##D444	AND EXIT	
94FE1A5 32	133	NOTCR	LDA	INVFLB	
9500148	134	PHA			
95011A9 FF	135	LDA	##FF		
9503185 32	136	STA	INVFLB		
950518D 00 02	137	LDA	##200, X		
9508120 7C 95	138	JSR	COU		
950B168	139	PLA			
950E185 32	140	STA	INVFLB		
950E18D 00 02	141	LDA	##200, X		
95111C9 88	142	CMR	##88		
95131F0 1E	143	BEG	BCKSPC		
95151C9 98	144	CMR	##98		
95171F0 0A	145	BEG	CANCEL		
95191E0 F8	146	CPX	##F8		
951B190 03	147	BCC	NOTCR1		
951D120 3A FF	148	JSR	##FF3A		
95201E8	149	NOTCR1	INX		
95211D0 14	150	BNE	NXTCHAR		
95231A9 DC	151	CANCEL	LDA	##DC	
9525120 7C 95	152	JSR	COU		
9528160	153	RTS			
9529120 7A 95	154	BETLNZ	JBR	CRDUT	
952C1A5 33	155	LDA	##33		
952E120 7C 95	156	JBR	COU		
95311A2 01	157	LDX	##01		
953318A	158	BCKSPC	TAX		
95341F0 F3	159	BEG	GETLNZ		
95361CA	160	DEX			
95371A5 19	161	NXTCHAR	LDA	FLAG1	
95391C9 01	162	CMR	##01	CHECK AND SEE IF CNTRL 'C' SET	
953B1F0 1F	163	BEG	CNTRL		
953D120 35 FD	164	JSR	RDCHAR		
95401C9 8B	165	CMR	##8B	IS CHAR CNTRL 'K'	
95421D0 06	166	BNE	NOTCNTRLK		
9544120 7F 95	167	JSR	MOVE	MOVE CURSOR ON WITHOUT COPYING	
954714C 37 95	168	JMP	NXTCHAR		
954A1C9 8A	169	NOTCNTRLK	CMR	##8A	IS CHAR CNTRL 'J'
954C1D0 06	170	BNE	NOTCNTRLJ		
954E120 09 95	171	JSR	BACK	MOVE CURSOR BACK WITHOUT COPYING	
955114C 37 95	172	JMP	NXTCHAR		
95541C9 83	173	NOTCNTRLK	CMR	##83	IS CHAR CNTRL 'C'
95561D0 0B	174	BNE	NOTCNTRLC		
95581A9 01	175	LDA	##01		
955A185 19	176	STA	FLAG1	SET FLAG FOR COPY TO END OF LINE	
955C1A5 1A	177	CNTRL	LDA	TALLY	
955E1F0 1A	178	BEG	CRDUT		
9560120 7F 95	179	JSR	MOVE		
95631C9 95	180	NOTCNTRL	CMR	##95	
95651D0 03	181	BNE	CAPTST		
9567120 7F 95	182	JSR	MOVE		
956A1C9 E0	183	CAPTST	CMR	##E0	
956C190 02	184	BCC	ADDINP		
956E1A9 40	185	EOR	##40		
957019D 00 02	186	ADDINP	STA	##200, X	
95731C9 8D	187	CMR	##8D		
95751D0 87	188	BNE	NOTCR		
9577120 9C FC	189	JSR	CLREOL		
957A1A9 8D	190	CRDUT	LDA	##8D	
957C16C 36 00	191	CRDUT	JMP	##36	
957F1A5 FF	192	MOVE	LDA	SCREEN	
95811A4 08	193	LDY	CHI		
9583191 06	194	STA	(BAS1L), Y		
9585148	195	PHA			
95861E6 08	196	INC	CHI		
95881A5 08	197	LDA	CHI		
958A1C9 28	198	CMR	##40		
958C1D0 0B	199	BNE	OK		
958E1A9 00	200	LDA	##00		
9590185 08	201	STA	CHI		
95921E6 09	202	INC	CV1		
95941A5 09	203	LDA	CV1		
9596120 A4 95	204	JSR	BASCALC		
95991A5 1A	205	OK	LDA	TALLY	
959B1F0 02	206	BEG	OK1		
959D1C6 1A	207	DEC	TALLY		
959F120 BC 95	208	OK1	JSR	FLASH	
95A2168	209	PLA			
95A3160	210	RTS			
95A4148	211	BASCALC	PHA	CALCULATE NEW BASE ADDRESS	
95A514A	212	LDR	A		
95A6129 03	213	AND	##03		
95A8109 04	214	ORA	##04		
95AA185 07	215	STA	BAS1L+1		
95AC168	216	PLA			
95AD129 18	217	AND	##18		
95AF190 02	218	BCC	BASCALC2		
95B1169 7F	219	ADC	##7F		
95B3185 06	220	BASCALC2	STA	BAS1L	
95B510A	221	ABL	A		
95B610A	222	ABL	A		
95B7105 06	223	ORA	BAS1L		
95B9185 06	224	STA	BAS1L		
95BB160	225	RTS			
95BC1A4 08	226	FLASH	LDY	CHI	DISPLAY FLASHING CURSOR
95BE1B1 06	227	LDA	(BAS1L), Y		
95C0185 FF	228	STA	SCREEN		
95C2129 3F	229	AND	##3F		
95C4109 40	230	ORA	##40		
95C6191 06	231	STA	(BAS1L), Y		
95C8160	232	RTS			
95C91A5 FF	233	BACK	LDA	SCREEN	
95CB1A4 08	234	LDY	CHI		
95CD191 06	235	STA	(BAS1L), Y		
95CF148	236	PHA			
95D01C6 08	237	DEC	CHI		
95D21A5 08	238	LDA	CHI		
95D41C9 FF	239	CMR	##FF	BEGINING OF LINE?	
95D61D0 18	240	BNE	OK3		
95D81A5 09	241	LDA	CV1	CHECK ARE WE AT BEGINING	
95DA1C9 00	242	CMR	##00	OF LINE	
95DC1D0 0C	243	BNE	OK2	NOT AT LINE START	
95DE1E6 08	244	INC	CHI	YES! SO INCREMENT CURSOR TO KEEP	
95E01A5 09	245	LDA	CV1	ON SCREEN	
95E2120 A4 95	246	JSR	BASCALC		
95E5120 BC 95	247	JSR	FLASH		
95E8168	248	PLA			
95E9160	249	RTS			
95EA1C6 09	250	OK2	DEC	CV1	
95EC1A9 27	251	LDA	##27		
95EE185 08	252	STA	CHI		
95F01A5 09	253	OK3	LDA	CV1	
95F2120 A4 95	254	JSR	BASCALC		
95F51E6 1A	255	INC	TALLY		
95F7120 BC 95	256	JSR	FLASH		
95FA168	257	PLA			
95FB160	258	RTS			



i If you read my article on using a pseudo disc to automate CP/M (Apple User, July 1984), here is a refinement which you can use to spellproof from within Wordstar if you don't use Spellstar.

I find Spellstar presumptuous, intimidatory and far too rigid in the options offered. Also it has all that crazy American spelling.

For these and other reasons I prefer Spellguard

for the greater flexibility and English dictionary it contains.

Up to now when I have wanted to proofread a letter or article I have had to exit from Wordstar, change logged on drives, do a Ctrl-C on my Spellguard disc (in case I want to add words to my dictionary) run Spellguard, proofread my article, exit from Spellguard and rerun Wordstar.

However there is a better, and much simpler way. If you

followed my article you will have your Wordstar (copy) in drive A, all your files on the disc in drive B and a copy of the Wordstar master files on drive C (the pseudo disc).

As you have all the Wordstar files on drive C you do not need them also in drive A, so remove this disc and replace it with your Spellproof.

Now from the "No File Menu" change logged drives by typing L then A Return. Hit

R to run a program, and type in your spellproof program name, that is SP Return.

When it has done its job all you will have to do is exit from your spellproofing program and "Hit any Key to Return to Wordstar", to either create another letter, change your typos or print your letter.

And all this within Wordstar without having to see the operating system once. -

Peter Wilson.

MacTerminal

Window on the world

BILL HILL goes exploring the exciting possibilities of communicating by Mac

SOONER or later everyone who uses a personal computer gets around to thinking that, however great his or her machine is by itself, it would be terrific to be able to use it as a "window on the world" and to communicate with other computer users, access databases, transmit and receive data, and so on.

So far Macintosh users have had to be content with operating their machines in isolation, but all that is now changed with the launch of MacTerminal, the long-awaited communications package for the Mac.

By the time you read this article it should be available from Apple dealers for £99.

Having had a copy of the final release version for some weeks I've come to the happy conclusion that this may well be the most influential piece of software yet written for the Mac since MacWrite and MacPaint.

It has altered my Mac out of all recognition, making communications so simple and straightforward that I now take it for granted that I can send data anywhere, to anyone – and pull it in from any source, no matter how remote.

MacTerminal has obviously been born of the same minds

which staggered the computing world with the Macintosh operating system and the aforesaid MacWrite/Paint.

It is just as simple to use – even without a manual, which I have still not seen – and yet offers all the sophistication that any user could want.

First, the technical details. Used with a compatible modem, the package provides asynchronous communication through VT100, VT52 and TTY terminal emulation.

In business settings it can be used to emulate the IBM3270 family and ICL C03 communications, with the addition of recommended protocol converters.

It can also be used to gain access to remote information services such as British Telecom Gold and Easylink electronic

mail, including the ability to send telexes.

Like everything else on the Mac, MacTerminal is mouse-driven, using the now familiar pull-down menus. It's also completely compatible with MacWrite, and with the spreadsheet Multiplan – both of which can use the package as an important link to the world outside.

The only additional piece of hardware that users will require is a modem. The Mac will run quite happily with a Buzzbox costing only £75. However users who wish to access services using more than one baud rate would be advised to spend a bit more for a multi-rate modem. I used a WS2000, kindly supplied for review by Miracle Technology.

At a cost of just over £160, complete with all connecting cables, it offers not only the 300 baud full duplex mode required to access Telecom Gold but many others, including the 1200/75 mode needed for services like Prestel and some other databases.

I spent most of my time working with Telecom Gold – BT was good enough to give me

a free mailbox for a month. However I was so impressed with the service, and the way the Mac was able to access it, that as soon as my free month ran out I paid my registration fee of £115 and joined the cash customers.

As a business user of the Mac I found it was a service I didn't want to be without.

Anyone who has previously used a computer for communications will be familiar with the process of connecting up to a standard telephone socket. But for those who are not, nothing could be simpler.

The port at the rear of the Mac, marked with a telephone icon, is connected to the modem with the cable supplied. The modem is then connected to the phone socket with the standard BT connector, also supplied. The telephone cable plugs into the back of the modem, and you are ready.

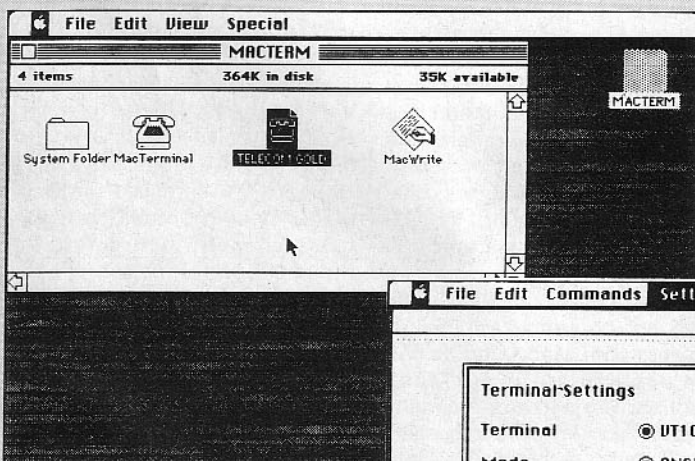
Now, not having a manual, the next bit took some trial and error – setting up the terminal emulation, handshakes, baud rates and so on. There are so many possible combinations of settings that it's mind-boggling.

Really, if you want to access a particular service, or talk to another user, you have to find out in advance which settings apply, otherwise you just have to plod your way through all the possible combinations. It can be a long job.

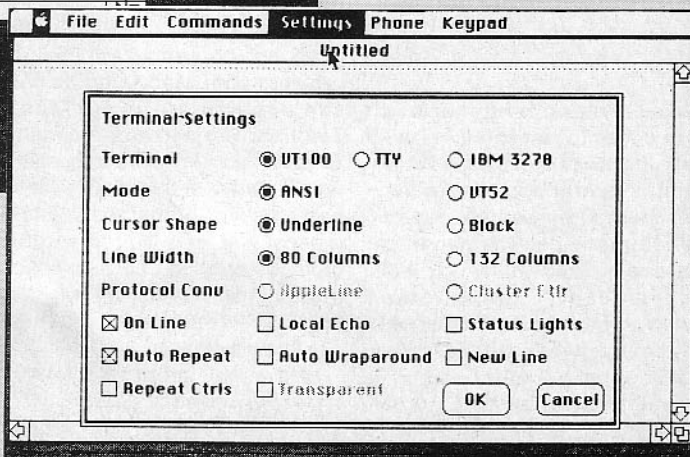
The world of communications is so wide, however, that for the purposes of this review we will stick to just one, Telecom Gold. This is a system of mainframe computers operated by British Telecom which are linked to "nodes" all over the country by a network known as Packet Switch Stream.

You use your telephone to dial up the nearest node – and if you live in a city like London, Birmingham, Glasgow or Manchester, you can do it all at local call rates.

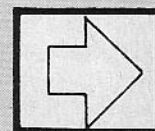
Each user has a mailbox



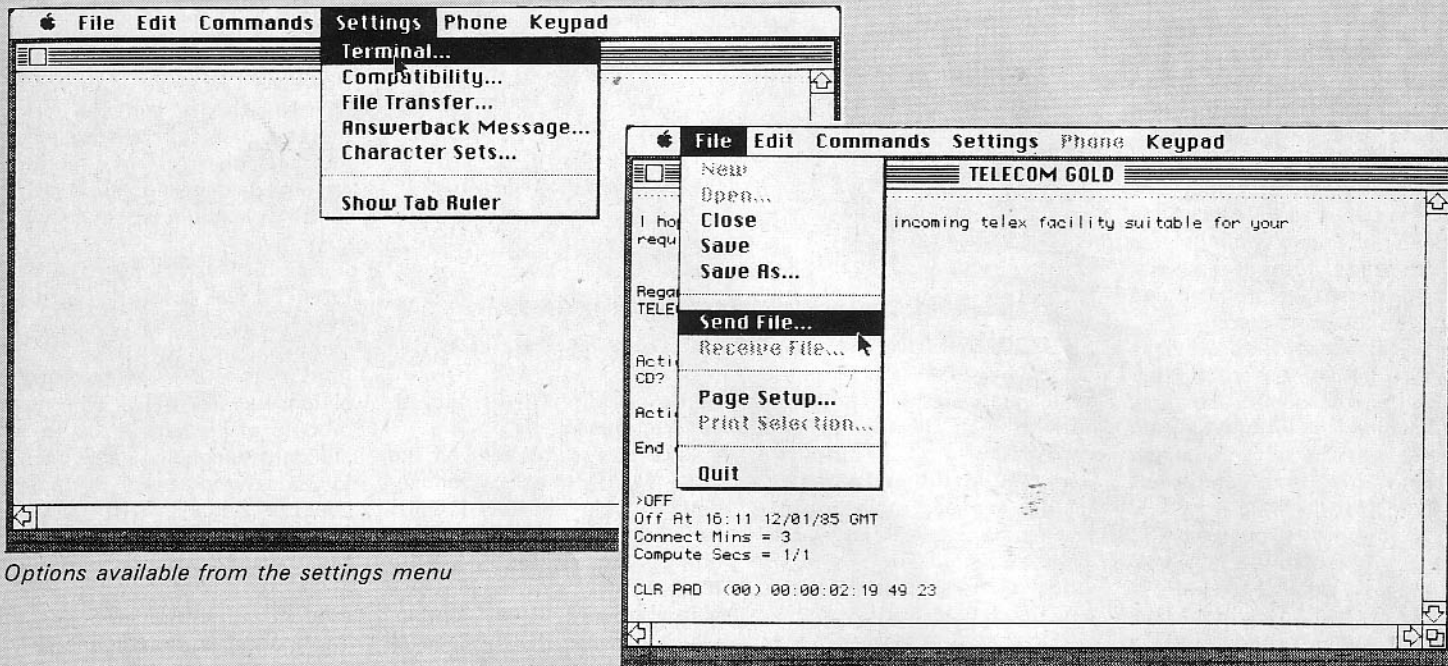
Above: MacTerminal desktop



Right: The terminal emulations and settings available from the menu



MacTerminal



Options available from the settings menu

Sending a text file is as easy as pulling down a menu with the mouse

identity and a password, and you require those and two 12 digit PSS codes known respectively as your network user identity and address, to log on to the system. Sounds complicated, but it isn't really. The system prompts you for each of them, and they take little effort to remember.

Once into the system you can send electronic mail almost anywhere in the world, for the British PSS system is only a small part of a worldwide network of mainframe computers, all linked by common protocols in more than 40 countries, with more being added all the time.

Sending a message to a user in the USA, for example, you tell the system you want to send mail, using the command MAIL SE. The response is a prompt which asks for the addressee, and you then fill in the required mailbox number. The UK computers are Systems 80, 81, 82, 83 and 84; a typical US address might be "98:TEXAN". Once you have entered the address the system prompts you for text.

At this point you can type in a message directly, but that costs a lot more, since you pay for connection time to the mainframe while you're typing. It's much easier to type up your message first in MacWrite – and there's the value of having it on the same disc.

You do have to be careful,

though. When you have typed up your document, you MUST save it before transmission using the Mac's "SAVE AS..." command, and use the mouse to click the "TEXT ONLY" option.

With your document already in MacWrite, when Telecom Gold asks you for text, you pull down the "FILE" menu, highlighting "SEND FILE", and release the mouse. The Mac then reads the disc, and tells you what text files you have, and you select the required one by clicking.

If you want to send another file which is not on that disc you have the option of ejecting the current disc and reading another. Once you have selected a file it loads automatically into the terminal package and requires only the Telecom Gold system command ".S" and it's gone.

You can append various other codes to justify your text – meaning that whatever line-width is operating at the other end, the addressee will receive the full message. You can also add codes like AR, which will automatically, through the system, send you an acknowledgement when the text is picked up at the other end.

One of the best features about the software is that you can store MacTerminal files of

all the services you access. I created a Telecom Gold file, which means that I only had to enter the settings once. Thereafter, instead of clicking the MacTerminal icon on the desk top, I can click the Telecom Gold one and MacTerminal automatically loads up set for that service.

You could do the same with any other system which might require different baud rates, handshake etc.

The package is also very clever when you are receiving data. If you pull a document from your mailbox it can be accessed using your Telecom Gold file and printed out from there by highlighting the bits you want and selecting "PRINT SELECTION" from the FILE menu.

Incidentally, the text length limits, which are occasionally a problem with MacWrite, do not seem to operate in MacTerminal. But the same Telecom Gold file can also be accessed without any need for file transfer as a MacWrite document, which means you can edit the text, change fonts, set page breaks, and so on, using all of the MacWrite features. It really is very clever.

Although I spent most of my time on Telecom Gold, I also used MacTerminal to access databases and user groups all

over this country and the USA. Sat at the keyboard of the Mac, it really felt as if the world was my oyster at last.

It's hard to know where to stop in a review of a software package like this, there's so much you can do with it. MacTerminal is integrated with Multiplan, so the business user could use his Mac to pull data from the company's mainframe, carry out his own modelling using Multiplan, then print out the results or send them to someone else in the same firm.

With a Mac, MacTerminal and a subscription to Telecom Gold, he could transmit documents and data to the USA, Hong Kong, Australia or any one of 40 other countries not only more cheaply than by other means, but far faster – and within minutes.

You could use it to talk direct to other Apple users, or users of any other kind of computer which will emulate the same kinds of terminals, and since they are world standard, that means just about anyone. Who knows, you might even want to talk to someone using a boring old IBM PC – although I can't think why!

This is one of those packages which are limited only by your own imagination. It's the best £99 worth a Mac user will ever get.

Out of the dark came the gleam of gold

WHEN I mentioned to Graham Price that we'd had another Macintosh book sent in for review, he ran out of the office muttering something about being parked on a double yellow line.

Oh well, "once more into the breach dear friends". At this rate we'll be filling the wall up with Mac books rather than the Shakespearean English dead.

Mastering Your Macintosh does seem a little different in approach, if not in content. It hangs the introductory material on four concepts – the mouse, the window, cut and paste and housekeeping.

It makes extensive use of screen dumps, sometimes to the extent that I was hard-pressed to notice the difference between consecutive dumps.

Following the concept chapters, there are chapters on (you guessed it) MacWrite and MacPaint. The remaining chapters are then devoted to MacDraw, MacProject and Microsoft's Multiplan and Chart.

I was beginning to understand Graham's reaction when I came upon the two appendices tucked away after the "Epilog". At last, I thought, something to distinguish this book from all the others.

Appendix A describes software development using

Lisa and Appendix B describes software development using Macintosh. In fact the latter turned out to be little more than a look at Microsoft Basic – hardly an exciting choice with Pascal and Forth being readily available and Logo in the offing.

The former, on the other hand, gives us an overview of the Lisa Pascal development environment, with a glance at the Quickdraw routines, the Toolbox routines, and parts of the operating system which are accessible to software developers.

I'm not sure whether it was

I'M not sure whether Mark of the Unicorn is pioneering new ground in marketing techniques or whether the firm has an over-zealous mailing department.

Either way, Mouse Stampede arrived packaged with Volume 1 of the Shorter Oxford English Dictionary. Hence, instead of weighing a few ounces, the package weighed close to 5lb.

As lexical aficionados will

the sheer novelty of finding Appendix A after all the usual material or the fact that I find the topic of software development for the Mac interesting. Either way, this bit of the book shone out like gold while all around was dark.

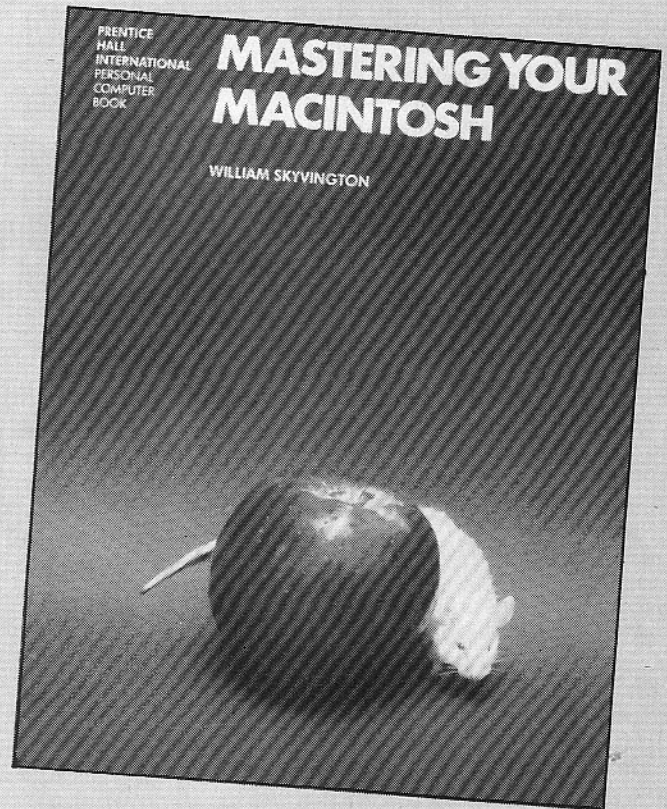
In fact I'm sure it's one of the ways we'll see the Mac book market going. With this in mind Appendix B became a little more interesting as an example demonstrating some of the Mac peculiarities – the Mouse(n) function, for example – to the would-be programmer.

William Skyvington's book is

as well written as any of the other Mac offerings I've seen. Perhaps he'll write another book on software development when more of the Mac languages are readily available. If he doesn't, I'm sure someone else will.

Cliff McKnight

Title: Mastering the Macintosh
Author: William Skyvington
Publisher: Prentice/Hall International
Price: £8.95



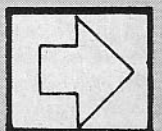
Mouse stampede clicks

rush to point out, Volume 1 runs from A to Markworthy, with Mark being one of the last few entries. Coincidence? Who knows? Anyway, it's a more recent edition than my own copy, so I'm eagerly awaiting Volume 2.

Mouse Stampede is the first game I've seen that was specially written for the Macintosh. It is played with the mouse, and the only time you need the keyboard is to enter a

name in the Hall of Fame. You have to be quick to do this – hang about and the game reverts to demo, with a blank appearing on the high score list of names.

The rules of the game are simple – shoot everything on



the screen. There's plenty to choose from, with cheese, cats, shopping trolleys, a knife, a fly, a bat, a paintbrush, a sneaker and a turtle, not to mention the mice which are advancing toward you. As you might imagine with such a collection of targets, the plot is irrelevant.

You are represented on the screen as the Mac mouse, and clicking fires an arrow. Holding down the button causes a constant stream of arrows, but it's possible to fire faster than the auto-repeat rate by clicking manually.

If you worried about the effects of Space Invaders on your keyboard, this game will give you sleepless nights worrying about your mouse.

The scoring depends on what you hit – and sometimes where you hit it – but the essence of the game is still "do unto others before they do you".

As an inveterate arcade game fan, I enjoyed playing Mouse Stampede. No matter how sophisticated the machine I'm using, I like to be able to take a breather from work and lose myself in an arcade game. Until Mouse Stampede arrived this has been a little difficult on the Mac.

As usual though, very little work gets done when a new arcade game arrives in our house. In fact, the amount of work done is inversely proportional to the addictiveness of the game.

In these terms, Mouse Stampede rates quite highly. On several occasions I had to drag myself away and revert to using the Apple II+ while the rest of the family continued to wear out my mouse button.

It may be the novelty of the first "proper" Mac arcade game, or simply the perennial willingness of my family to blast whatever presents itself on a VDU.

Either way, I don't think Mark of the Unicorn needed to bother with the dictionary. Mouse Stampede manages quite well without it.

Cliff McKnight

Title: *Mouse Stampede*
 Author: *Tom Wade*
 Publisher: *Mark of the Unicorn*



WHEN I first saw the A+ mouse, I thought "why bother?" After all, the Mac already has one, so why buy another? What makes the A+ mouse different is that it has no moving parts.

The standard Apple mouse runs on a little rubber ball. As the ball turns, so the arrow moves over the screen. If you've had a Mac for long you'll know that this system is susceptible to bits of fluff and grit. Oh, I *know* you've got a clean desk now, but wait until after you've had a biscuit with your cup of coffee.

The A+ beastie is described as an "optical" mouse. Turning it over reveals a couple of small holes, through one of which can be seen a red light. It's not too hard to deduce that the system relies on this light source being reflected, but how can you calibrate such a system over a wide variety of operating surfaces?

The answer is to provide the mouse with its own pre-calibrated operating surface. This takes the form of a 9in x 7.75in flat piece of what looks like aluminium alloy. On the bottom surface are two rubber strips to prevent it skidding across your desk.

The top is covered with a very fine mesh pattern. Close examination reveals that the vertical lines are blue while the horizontal lines are blackish. If your eyesight isn't that good the manual tells you to orientate the pad so that its width exceeds its height. This seems the natural way because it gives the pad the same orientation as the Mac screen.

The mouse slides across the pad on two pieces of something resembling fine velvet, although

The mouse of the future?

with a more synthetic feel. The pad is the only surface on which the mouse will work reliably.

Turn the pad (or the mouse) through 90 degrees and movement is restricted to the horizontal dimension. Lift the mouse more than a fraction of an inch and the arrow ceases to move.

This means that you can cover large distances just as you would with the ordinary mouse by a series of repeated passes over the same ground with a quick lift back to the starting point each time. (Isn't it hard to describe how you send the cursor scurrying around with a quick flick of the wrist?)

The A+ mouse is fractionally longer and wider than the standard issue, but stands only two-thirds as high. It also slopes in the other direction towards the cable at the back. Although this might look a little strange at first sight, it felt perfectly comfortable to use.

I've tested the A+ mouse on just about all of the Mac software I have and it performed flawlessly. It doesn't suffer from the occasional slipping, as the ball-based model does, and gave a really positive feel on arcade games like Mouse Stampede.

As well as being Mac-compatible it can also be used with a Lisa or an Apple IIc.

One small reservation I have is whether the advantages gained by the lack of moving parts are offset by the necessity for the special pad. Because the mouse I tested was loaned by DDT for review purposes, I didn't want to test the pad to destruction. For example, I'd have been interested in the effect of a scratched pad on mouse control.

Having said that, the pad seems very robust under the conditions in which I tested it. These included letting my two daughters loose with it. If Lorna, the three-year-old, doesn't wreck something it's probably indestructible!

Also, the manual doesn't suggest that any special care of the pad is necessary. In fact, the manual is very thin and very reassuring, suggesting that little can go wrong.

The section on trouble shooting boils down to checking that plugs and switches are in the right position and that the software is mouse-compatible.

In fact I only experienced one problem with the A+ mouse – my wrist got cold. The pad, being metallic, is chilly to the touch.

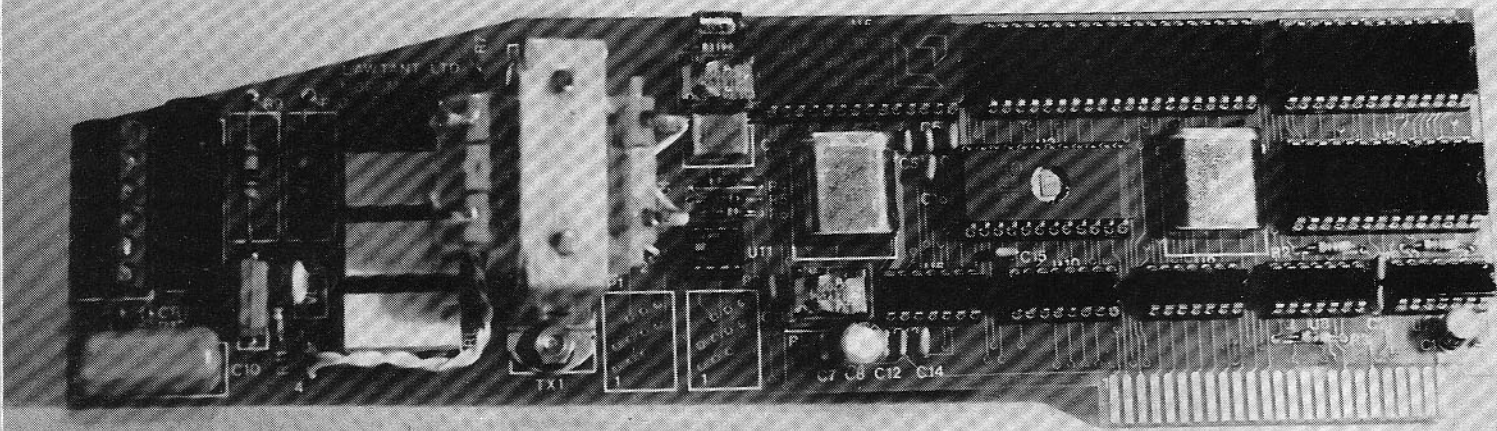
I cured this by the simple expedient of resting my wrist just below the pad, and had no further trouble. No doubt the trendies will attack the problem by using a tennis player's sweatband.

I haven't had either my Apple mouse or the A+ one long enough to see which is the more reliable. However, history (and physics) suggest that the fewer the number of moving parts the more reliable the equipment. If the special pad can survive, the A+ may be the mouse of the future.

Cliff McKnight

Product: *A+ Mouse for Macintosh, Lisa or Apple IIc*

Distributor: *DDT, Units 16A & B, Norman Way, Severn Bridge Industrial Estate, Portskewett, Newport, Gwent NP6 4YS.*
 Tel: 0291 423781



THE Merl single card modem for the Apple II+ and IIe series is supplied with a double sided disc, carrying on one side the operating system and on the other instructions which can either be viewed on screen or printed out.

The modem is a large Apple type peripheral card about 12 inches long and contains the serial interface, the modem chip, dialling/answer relays and telephone terminal block.

No telephone connecting lead is supplied, but the instructions are quite explicit on how to connect up the modem to the phone.

The modem chip is the much-used AM 7910, a multi-baud rate, multi-standard chip. The UART is the 6551 as used on the Apple Super Serial card. The Merl uses two to produce the split baud rates of 1200/75 and 75/1200.

The card is nicely made to a high standard, screen-printed and with plated through holes.

For various reasons Lawtant have had to use a line transformer which looks as if it could take a few thousand volts all by itself.

This bulky unit, which I believe may be changed at some time for a less obtrusive one, means that the card must occupy a slot which does not have another long card immediately to its right.

In my case this meant using slot 7, which did not cause any problems and is recognised by the software which comes with the card. Included on the card is an Eprom socket which may very well be used for future enhancements.

Having plugged the card in,

Modem card that does everything it should

re-assembled your Apple and connected the modem into your phone line you can boot up the supplied system disc.

The disc is really a self-contained terminal program. I do not intend to give a comparative analysis of the Merl software and, say, Ascii Express, Vicom or Data-Highway. It is not in the same class as these programs but it does allow the modem to be used for Prestel, Telecom-Gold, bulletin boards, and any other system which can use 300/300 CCITT or Bell, 1200/75 or 75/1200.

The menu-driven software allows the user to select common uses such as bulletin boards or Prestel or you can configure the modem to your own choice, say 300 baud Bell tones and a data word length of 7-E-1.

There is an auto answer mode which will allow you to leave your Apple in attendance, monitoring the telephone which, when it rings, will allow a caller to send a message to your system.

The Prestel mode uses the "*" instead of Prestel graphics characters and the text portion is displayed as normal Ascii. This is not an ideal way to view Prestel, and some odd things happen, like echoing back the text of mailboxes you have just entered, and the effects of

Prestel's new "dynamic cursor" have to be seen to be believed.

However by manipulating the menu structure of the software you can save Prestel frames for later printing.

Accessing bulletin boards with the software is much more satisfactory, although my Videx 80 column card is not recognised and I can only use upper case.

On the plus side the normal X-on X-off data flow control is available and additionally X-modem file transfer capability which is almost essential for data-transfer, especially at the 1200/75 baud rates which the modem can handle.

Therefore two people equipped with these modems can exchange text files at 1200 baud, remembering of course to switch between 1200 send/75 receive depending on who is sending the file.

Several utilities are included on the disc for converting text files from CP/M to DOS, Pascal to DOS and converting Basic programs into a text file ready for transmission.

To summarise, I found the Merl modem to be a professionally made device which does everything that it should. Its price at around £149 for the basic modem and £185 for the auto-answer/auto-dial version is excellent value.

The more expensive option actually represents better value than some of the alternative multi-standard modems with auto-dial/auto-answer facilities.

For the Apple user there is great potential for writing and running bulletin board software which will sense baud rates and switch accordingly.

The software is certainly adequate to use all the modem's features but there is a crying need for patches to enable it to be used with Ascii-Express, Vicom and Data-Highway.

If this was done Apple users would at last have the tele-computing power of their trans-Atlantic brethren for a very reasonable cost.

Quentin Reidford

Product: Merl single card modem

Distributor: Merl, 24 Franklins Road, Stevenage, Herts SG1 3BP. Tel: 0438 355915.

Editors note: Since this review was written Lawtant has informed us that the bug which gave problems with Prestel's dynamic cursor has been fixed. Also Apple II+ and IIe owners can now buy an optional Prom for the card which gives Prestel graphics in black-and-white.





ONE of the problems of programs that handle a lot of strings, particularly the string-sorting variety, is the large amount of garbage produced in moving strings around and the consequent waste of time during garbage collection.

Here is a very simple machine code utility that can be called from Applesoft to swap two strings over. Its prime use is to get rid of lines like:

```
10 LET TEMP$ = A$
20 LET A$ = B$
30 LET B$ = TEMP$
```

Instead you need only write:

```
10 CALL 768,A$,B$
```

Note that the routine checks

Try this clean-up utility from J.P. LEWIS

both for syntax and for legality — only strings will be swapped. If the parameters to the call are incorrect, or if the commas are missing, the routine will return with a SYNTAX:ERROR.

```

;Syntax is: CALL 768,A$,B$
;Applesoft routines used.
CHRGOT =#B7 ;Gets last character into ACC.
GETVAL =#DE60 ;Gets the variable being pointed at by TXTPTR
;If it is a string, then A0,A1 point at the
;string descriptor, and VALTYP becomes £FF
ERRMES =#DEC9 ;Prints out SYNTAX ERROR and exits.

;Applesoft variables used.
VALTYP =#11 ;Set to £FF if the last variable was a string.
VPNT =#A0 ;Part of FAC used to save the string pointer.

;Spare variable needed.
STR1 =#F9 ;To store pointer to 1st string of swap.
.OPT NOS,NOL
*
=#300
JSR NEXSTR ;Get pointer to first string.
LDA VPNT ;Now copy this to a safe location.
STA STR1
LDA VPNT+1
STA STR1+1
JSR NEXSTR
LDB £2 ;Get pointer to second string.
LDA (VPNT),Y ;Swap over the descriptors (3-bytes)
PHA
LDA (STR1),Y
STA (VPNT),Y
PLA
STA (STR1),Y
DEY
BPL LOOP1
RTS

;Return to Applesoft.
NEXSTR JSR CHRGOT
CMP £' ' ;Check that the syntax of the call
BNE ERROR ;is correct.
JSR GETVAL ;Get the variable into FAC
INC VALTYP ;Set to £FF if a string is found,
BNE ERROR ;so it should increment to zero.
RTS
ERROR JMP ERRMES

```

```

JCALL-151
*300.32F
0300- 20 1E 03 A5 A0 B5 F9 A5
0308- A1 B5 FA 20 1E 03 A0 02
0310- B1 A0 4B B1 F9 91 A0 68
0318- 91 F9 8B 10 F3 60 20 B7
0320- 00 C9 2C D0 08 20 60 DE
0328- E6 11 D0 01 60 4C C9 DE

```

appletip

DOS snag on the IIe

For some years now I have been using Computer Data Service's Memory Management System II (MMS) software for relocating DOS on to the 16k language card of an Apple II.

Recently I transferred to an Apple IIe and, to my dismay, all the programs which relocated DOS seized up solid at the relocation stage.

Since the memory switching for the II and IIe is supposed to be the same

and, because I needed my programs up and running in a hurry, I decided to investigate the MMS machine code.

The problem lies in a part of the code that places a small machine code program beneath \$C000 in memory.

The MMS program copies more bytes than it should and inadvertently spills over into the early \$C000 locations. This has no effect on the II but causes horrible auxiliary memory

bank switching on the IIe — hence the crash.

The problem is easily remedied as follows (but preferably use a copy of the MMS disc):

```

BLOAD MMS 2.0
POKE 2382,201
BSAVE MMS 2.0,A$800,L$500

```

You will have to reinstall MMS on any discs which have the old version — but they will then relocate DOS on either the II or the IIe.

P.A. Gorry

The hard answer to business data storage problems

ONE of the biggest problems with the Apple II range is the tiny capacity of the floppy discs.

Use your Apple seriously and you are forever changing discs, ending up with boxes full which all need indexing.

The answer is a Winchester hard disc system. Though they cost far more than the Apple itself, there are a number of practical benefits.

First, the capacity of the system is now many times that of a 5¼in floppy. Second, the Apple appears to have speeded up and your program loads virtually instantly. Third, your overall efficiency increases when there's no need to load more and more discs and keep initialising them.

But hard discs have always had one basic problem. You had just a single copy of your programs and data on the system. So a back-up had to be made.

This could be on floppy disc, lots and lots of them, or with some form of hard disc back-up system. Either way it detracted from the convenience of the hard disc system.

The Intec 505 is one of a range of British made hard disc systems combining the best of American technology with some specific parts designed and built in the UK.

Unlike many of the drives on the market, the Intec range use

a cartridge system for the hard discs. So one of their units has a single fixed disc and one in the form of a removable cartridge.

Though they are more expensive than a hard disc drive without any back-up system, add the cost of a tape streamer system and the difference is minimal.

As hard disc systems are

the user when required.

Any hard disc system used for a variety of operating systems like DOS, ProDOS, CP/M, Pascal etc., must have special sections of the hard disc prepared. In my case there was 1.4mbyte for DOS, 1.15mbyte for CP/M and 2.4mbyte for Pascal.

Intec supplies the system

By NEVILLE ASH

used essentially by Apple users rather than enthusiasts, any test must show how easy the system is to use, or not, for the first time user.

The unit supplied for test was the model 505, one fixed 5mbyte disc and one 5mbyte removable cartridge.

It had been supplied already configured for me, so this was one job I didn't need to do. However it could be changed by

ready configured whether it is bought direct or through a dealer. All you need do is load the programs that will be stored from now on the hard disc.

This is a once only job and is the only really technical side of using the system.

The procedures will be slightly different depending on the operating systems of the software involved.

The Intec drive comes with a

disc controller card and four utilities discs, which are only needed when initially loading the programs and making any changes. For day-to-day use they are not needed.

Intec's first instruction is to make working copies of these discs and place the originals in a safe place. Sound advice.

The disc controller card is recommended for slot 5. However it will work in any vacant slot. Two cables are connected and the system is ready. Plug in the mains cable separately and switch on.

Now turn on the Apple which will attempt to boot from the floppy disc drives. Press Ctrl-Reset to interrupt, and Apple DOS prompt appears. Enter PR#5 and the Apple boots from the Intec hard disc. Your Apple then displays the operating systems available and to select one just enter the first letter.

I chose CP/M and was told that there wasn't a Z80 card installed. This was incorrect as I had a Starcard fitted – the one supplied free with Wordstar last year.

I changed the card to one from U-Micros and there was no problem. Intec weren't aware of the Starcard problem, but are now looking into ways of solving it.

The first stage was to load the program I used most of all onto the hard disc. A program is loaded onto one particular volume – a section of the hard disc – using a utilities disc.

Option four is selected, with the volume to volume choice taken. The program asks how many volumes are being copied, then the source slot, 6, and the destination, in this case slot 5.

As a check you are asked



Intec 505 hard disc drive

whether you want to catalog the destination disc space first in case there are files which could be overwritten.

Alternatively individual files can be copied using an Intec version of FID, called FIDD.

Similar procedures are used when loading programs with other operating systems, and other procedures may be needed depending on the software used.

I used Format-80 on the Intec unit and found the speed of operation far faster. Although the program loads right into RAM it does take quite a time to load up, especially when you are looking at the Apple screen waiting to write an article.

It made returning to the floppy discs almost like going back to a typewriter from a word processing package.

For backing up from the fixed drive to the removable cartridge, the revised version of FIDD or the copying whole volumes option is used, depending on whether a whole

volume or some files are being backed up. Then either drive 1 or 2 must be specified – one for the fixed disc and the other for the cartridge.

Although my drive was installed by Intec I found that by removing it and starting all over again it was quite simple for most people to do themselves. Just like fitting another disc drive and controller card.

There's also a safety system which prevents you from removing the hard disc cartridge at the wrong time. It just won't come out. I tried.

While it's quite possible to reconfigure the hard disc yourself – simply follow the instructions on the utilities disc – it's really best to have the set-up done on your behalf.

If you change the configuration all the existing programs and information will be lost. So you'll need to back them up first.

To give you an idea, the five megabytes would need 34 5¼in discs to back it up!

You'd need to decide on how

much space would be needed for each operating system and then go back to loading up the programs and data all over again. Not a process to be started unless it's really necessary. Far better to get things right first time.

Although hard discs are supposed to need far more careful treatment than other parts of the computer system, I found that the Intec 505 was quite sturdy, especially as I made a point of moving it about and using it in different rooms.

The system has a purge cycle to create the correct conditions for the cartridge disc, and auto head retraction which protects the data in transit.

Overall the unit worked well. The only problem was with the Starcard which the system just didn't recognise.

This is something Intec will have to solve as there could be thousands of those cards around, and their users may be moving up to hard disc systems.

Apart from that, using a hard

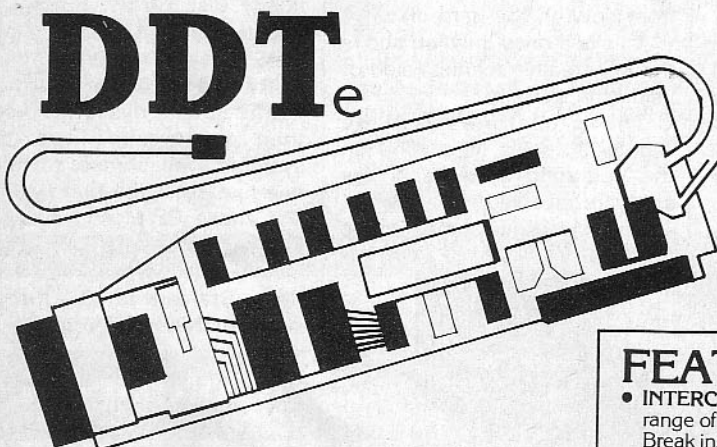
disc certainly removed one of the main drawbacks of using an Apple II in business – the lack of disc capacity.

It also solved the problem of back ups. Using those cartridges does cost £100 a time, but it's still far cheaper than re-entering all the information.

But it does cost £2,850 – nearly five times the cost of the Apple IIe. The only thing which seems likely to dramatically reduce the price of hard disc drives must be either mass production or some new form of technology which is cheaper to produce.

Until then the Intec 505 is well worth considering if you need more capacity with ease of use.

*Product: Intec 505
Distributors: Intec Interface
Technology Ltd., 41A –
45 Knight's Hill, West
Norwood, London SE27
OHS. Tel: 01-761 5999.*



The last word in Dynamic Debugging Tools for the Apple IIe

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FEATURES

- **INTERCEPT** into RAM or ROM using a range of qualifiers. Interrupts and Break instructions are not used to transfer control to/from the debug environment. This makes the card ideal for developing interrupt drivers – a common feature of PRODOS and other high level operating systems and languages.
- **VIEW** any APPLE screen without loss of data – an ideal tool for graphics development.
- **LIST** programs anywhere in memory using DDTe's own disassembler.
- **DUMP** blocks of memory from any of the APPLE IIe's main or auxiliary RAM or ROM.
- **WINDOWS** up to 8 can be set up anywhere in the APPLE memory and can be indexed on the X and Y registers.
- **REGISTERS** can be modified along with the screen and memory soft switches allowing transfer between programs held in different blocks of memory.
- **SINGLE STEP** through your program.
- **MODIFY** memory using HEX, assembly language opcodes, or directly in ASCII.
- **FIND** up to 8 bytes anywhere in the APPLE memory.
- **PRINT** any of DDTe's screens or print registers during single stepping for later analysis.

APPLE - DDTe

- is fully menu driven and self-prompting.
- is fully transparent to normal operation of the Apple IIe and can be left installed indefinitely.
- does NOT use any Apple environment including Page 0, stack or display RAM.

These features combine to make the DDTe card the most powerful Dynamic Debugging Tool yet available for the Apple IIe computer, and an ideal tool for anyone concerned with the development of hardware or software for the Apple IIe.

THE manual describes Xyphus as a fantasy role playing game which is as good a label as any. It goes on to give newcomers a little more information by explaining what a fantasy role playing game is – one where you assume the identity of a character in the fantasy world of the game.

Having taken on the task of playing a character, you then have to keep him or her (or it) alive. That's where the fun comes in.

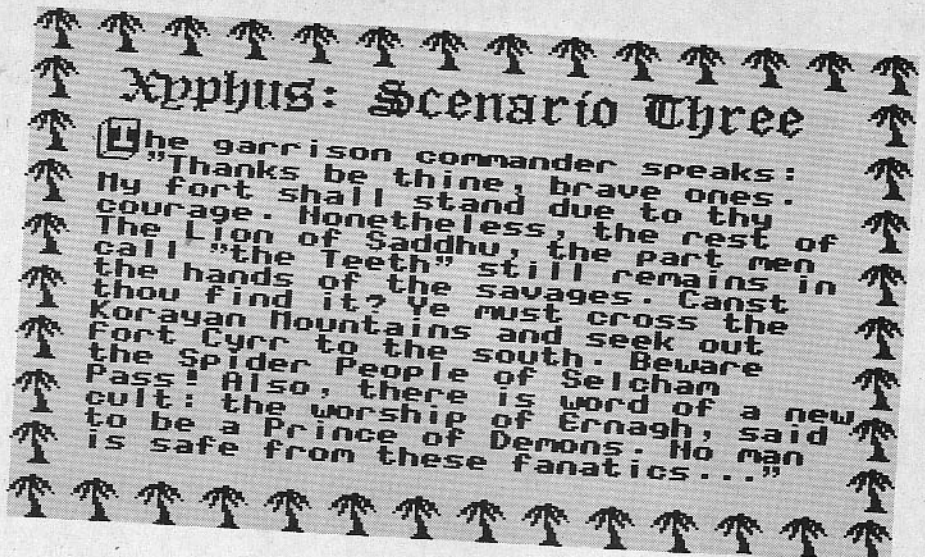
Xyphus was a demon lord who had his heart torn out of him 10,000 years ago by a mighty mage. He was "grievously wounded" as you might imagine, and pieces of his heart fell to the ground and formed Xiphoid Amulets which control all magic. The rest of the heart was hidden somewhere, apparently in the form of a gemstone the size of a human head.

The great conqueror Das (no relation to the modelling clay of the same name) has been unable to make any inroads into Arroya where the heart is hidden owing to the tribes of goblins and forces of demonic magic that hold sway there. This can only change when Xyphus is finally killed off.

Legend has it that a small band of wizardlings and warriors, no more than four strong, can slay Xyphus and open the lost continent. Oh well, look who drew the short straw once again...

Your band of four can be recruited from elves, humans or dwarves in any combination and each character can be either a fighter or a spellcaster. Creating characters in Xyphus is very simple – all you do is enter a name and choose a race and profession. Each race has different strengths and weaknesses, and while spellcasters can fight, fighters can't cast spells.

Like most similar games, your trusty band starts off with very little, though they do have some gold and are within a few moves of a trading post where all the necessary goods can be bought. The posts sell spells (very expensive), armour (must be purchased in a specific order)



You get value for money from fantasy games

and weapons (varying prices and uses).

Extra gold has to be won by fighting the rather large variety of hostile inhabitants. There are 59 types of nasty listed (with illustrations) in the manual, not including the five different kinds of zombies. The manual hints that the list is not exhaustive, but I can't say I noticed any newcomers as they decimated my band time after time.

Like most good adventure games, you can save the game when you get to a good position or are just plain tired out. Saving in Xyphus is the easiest I've ever come across – pressing Q rapidly saves the current position to your game disc and then lets you continue or switch off.

The game does not access the disc during play unless you win through to another level or get killed off, in which case it reverts to your last saved position. On starting a night's playing the game also goes automatically to the saved position.

Making a player disc can be a little tedious if you only have a single drive, but with two drives it's very easy. Actual play takes

a bit of getting used to unless you've played a lot of strategy board games.

Like many of these, the basic square isn't – it's a hexagon. This means that you can move east and west but not due north or south. The movement keys are conveniently set as T, Y, F, H, V and B. The G in the centre of this group of keys is used to signify standing still for one turn.

It's also possible to move the group as a whole, even if they aren't all in adjacent positions. However, dwarves tend to slow down group movement because they've only got little legs. Still, moving slowly as a party is sometimes better than waiting for dwarves to catch up.

Combat follows a bulldozer method – in order to fight you simply attempt to walk through someone or something. This has the advantage of not requiring another set of keys other than the movement ones.

The game looks a little better in colour, but it's perfectly playable on a monochrome set.

Like any game worth spending time on, Xyphus is a little difficult to begin with. Even if

your party contains spellcasters, they need a Xiphoid Amulet. These are a bit scarce, wear out, and only one can be held at a time.

The manual suggests that if you win through, you could play again with fewer members in your party. Personally, I could have used an extra four because I've only fought my way to level 3. Only another three to go...

Good fantasy role playing games offer value for money because they last so long – longer than many arcade games costing the same price.

If you like them in general, then I can recommend Xyphus as a fine example of the genre.

Be warned, though, you'll have to keep your oblate spheroids well hidden if you don't want them to be juggled with.

Denise McKnight

Title: Xyphus
Authors: Robert Waller and Dave Albert
Publisher: Penguin Software
Requirements: 48k Apple II family (Mac version also available)

Vector SSI and fight the Battle of Britain

A SUPERB simulation of the Battle of Britain, Fighter Command is without any doubt one of the very best of its type available.

The game comes with a large map of England, a German player aid card, a British player aid card and a set of diecut counters of the British squadrons that took part in the battle.

There are four scenarios and a campaign game which can be played on five levels of difficulty.

The first scenario, Phase I, covers the first week and a half of the battle. Phase II deals with the middle two weeks. Phase III runs through the last week of the battle and the fourth Eagle Day is an introduction to the game as it just covers that one day.

The campaign on the other hand covers the entire 34-day conflict in superb detail from August 13, 1940 - Eagle Day - through to September 15.

In a solo game the micro takes on the role of Herman Goering and the Luftwaffe. But in a two-player game the sequence of play would be German briefing, German orders, British briefing, British orders, British intercept phase, Computer overnight activity phase and finally victory determination.

During the German briefing phase the German player looks at a series of reports. The first is Yesterday's Operations which lists the number of aircraft and pilots lost and the number received as replacements.

The second report, Intel-

ligence, provides a summary of damaged targets considered to be out of action along with a guide to the estimated RAF strength. Both reports lie like mad.

The third item is the Readiness report which gives a guide to the current strength of the three Luftflotten.

The final part of this report takes a comprehensive look at the weather.

In the German orders phase the German player is asked if he wishes to launch raids. If the answer is No the British player takes over.

If Yes the German is asked to select the target type - airfield, radar station or industrial centre.

Then again he can send in a feint/sweep - the feint consists of bombers and fighters while the sweep is made up of

fighters.

After selecting the target type the player is asked to indicate primary and secondary targets.

Offset approach points for each raid may be selected plus the desired time of arrival over the target. An offset approach point can be used to fool the RAF into thinking the raid is going one way when it is in fact going to turn.

The bombers are selected by Gruppen and a listing of the strength, experience and morale of each individual gruppen is listed as you select them. The fighter escorts and escort mode are then added.

Having selected the forces, the last thing before moving onto the next is the height selection for the raid.

German bombers may only operate once a day while

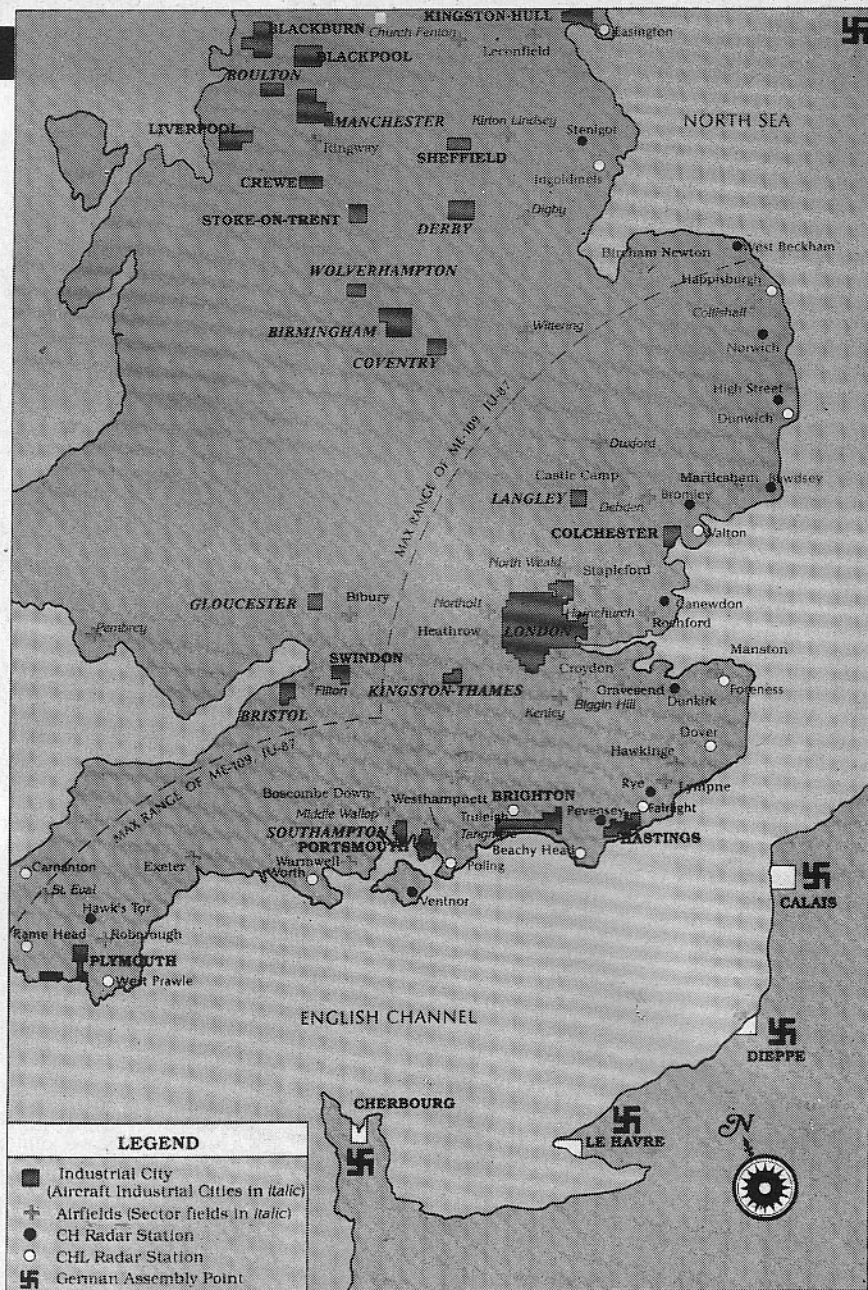
fighters may operate twice as long as there is a four hour break between missions.

The British briefing phase is the same as the German one with Yesterdays Operations reporting total number of targets bombed, total number of raids and the number of friendly and enemy aircraft lost. The latter is exaggerated with the time.

The Intelligence report gives an estimate of German strength which can be taken with the usual pinch of salt.

A Readiness report details every squadron in each of the four RAF groups and there is a Damage Summary which shows the level of current damage to cities, airfields and radar stations.

The first option in the British orders phase is Change Readiness and Tactics. Each of



the four RAF groups may be put on runway alert, cockpit alert, hut alert, 30-minute alert or 2-hour call.

In addition the British player sets up the tactics of the five aircraft types available to him – Spitfire, Hurricane, Defiant, Blenheim and Gladiator.

The second option is Patrol Stations of which up to 10 may be placed almost anywhere. Patrols may not be placed too close to the French coast.

The third option is to change individual squadron or airfield status. The last part of the orders phase is the transfer of individual squadrons from one airfield to another.

The British intercept phase is the heart of the game.

As soon as the British player has finished his book-keeping a map of Britain appears on the screen, to the right of which is an information window.

Here information on each raid appears as soon as it has been picked up by radar stations, patrol squadrons or the Observer Corps.

A clock at the bottom of the screen cycles in 30 minute intervals until German aircraft begin taking off from their bases. At which point the clock begins to cycle in 2 minute intervals. Although it gives the impression of being a real time simulation it is not – thankfully!

Once the clock starts the British player may interrupt the program. He may toggle between the Britain map and any one of three tactical maps.

Even though a raid may have been picked up by ground stations, finding it in the air may not be so easy. The size of the raid, the weather conditions and to some extent the morale of the RAF squadron will all have a bearing on the result.

During the Overnight Activity phase the computer works out the RAF replacements for each fighter type, depending on the damage to production centres and repairs damage to planes, airfields, radar stations and production centres.

It does the same for the German Gruppen along with adding in replacements.

In the Victory Determination phase the computer works out the total points gained by the Germans. Depending on the scenario, points are gained for

each airfield and radar station out of action, damage to industry, aircraft losses, etc.

I don't think I would want to make any major changes to the overall format. However I would like to add an option for the British player in that a recall order would be of some help.

On occasion one or more squadrons have been sent up to chase a raid. In the meantime the raid has bombed its target, turned, and is halfway home with the squadrons still chasing it.

You know they have no hope of catching up with it yet they continue the pointless chase until it disappears.

Against the computer the game plays well, though on the easy levels the computer controlled raids can be a little predictable, especially in good weather.

You can get through five or six days in a good evening against the computer. Against a human opponent it's a different story. One can find that raids come in at all times of the day in dribs and drabs to wear the RAF down and the British response to such a day can take up a good three hours or more, so I would never play this game face-to-face.

In a two player game I would not allow the German player to see the screen while I was doing my moves as the German could pick up intelligence he should not have, though I understand that some people play the game that way.

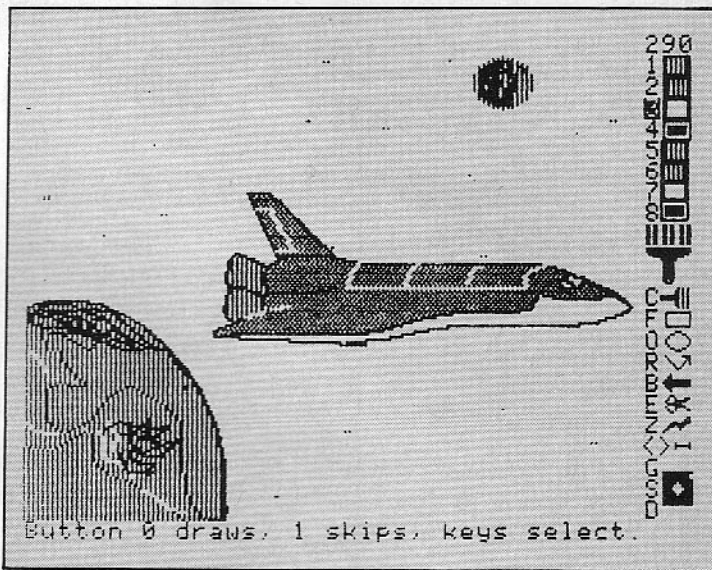
I prefer to play a human opponent by post. Yes I did say by post! It's an ideal postal game thanks to the game save options. There are three save options, but the two that make it possible by post are located before and after the German player's bash.

Being a postal board war-gamer for many years it is a natural progression for me.

Well done SSI and in particular Charles Merrow and Jack Avery. Now, how about the air war over Europe lads!

Robin Hood

*Title: Fighter Command
Authors: Charles Merrow
and Jack Avery.
Publisher: Strategic Simulations Inc.
Requirements: 48k*



One of the example screens from Picturewriter

Not what it claims, but fun all the same

PICTUREWRITER is claimed in the publisher's blurb to be a "step by step introduction to computer programming and editing for children". This it is not, but it is fun.

The package consists of a set of predrawn example pictures, a set of black/white outline drawings to colour, and facilities for producing your own pictures.

With a suitable graphics board – Grappler is specified – it is also possible to print out your efforts.

All the operations can be accompanied by what Scarborough term "music", but personally I felt this was a bit of an overstatement although the kids seemed to like it. Thankfully, the sound is optional.

After booting up – with compulsory music – you get the chance of going through a long and detailed tutorial. This is very helpful and allows you to join in at appropriate points.

A useful feature is that you can leave it at pretty well any point to go and do your own thing.

The actual drawing/colouring processes are all done by a cursor controlled by a joystick or the games paddles, with occasional help from the key-

board.

The cursor's length is variable and is controlled by the < and > keys which increase or decrease its length by a factor of two.

Pressing the joystick buttons advances the cursor in its current direction by its own length. If you press button 0 a line is drawn, while button 1 causes the cursor to move its own length without drawing.

After drawing a line the cursor jumps forward ready for the next instruction although it may be pinned so that it does not move after each operation.

The cursor's direction of travel is controlled by the joystick, and with a combination of cursor lengths and joystick movements it's possible to plot where you want.

I used the game paddles, since I haven't got a joystick, but they seemed to work quite effectively.

For maximum control you need to keep the cursor fairly short, or you overshoot what you're doing. The only trouble I had was that the cursor's length seemed to change rather arbitrarily as its direction changed.

As well as drawing with the cursor, it is possible to create

two preset shapes by pressing appropriate keys. If you press F the program draws a rectangular frame whose corners are the ends of the cursor. Pressing O – for oval – draws an oval or a circle.

Here you need to be careful because the oval shape is drawn in the frame whose corners are the ends of the cursor. This means that the positioning of the circle/oval is rather imprecise and could prove a bit tricky for some younger users of the program.

However, by entering B – for back up – it is possible to erase a single step instantly, so that if you have problems with your frames and ovals it is a simple matter to cancel and redraw over and over again until you are happy with the result.

If you wish to colour a section of a drawing you put the point of the cursor in the area to be coloured and press C. You are then given a choice of mixing

two different colours from a range of six. There are actually eight colours numbered, but numbers 4 and 8 are white – at least on my monitor.

A little paintbrush to the right of the screen shows the effect you've achieved and you get a chance of saying yes or no to your efforts.

If you enter the same number twice you get a block of solid colour.

When placing colours inside a picture you need to be careful to ensure that the edges are all joined up, or the colour leaks out and produces strange results.

In addition to the B command, it is possible to press E to enter the editor. This enables you to edit any part of the picture, and not just the previous step or two. You are asked which step you want to start editing at and when you've entered the appropriate number the cursor goes back to that step on the picture.

You are then given the option to move backward or forward a step and by pressing the buttons on the joystick/paddle you can page through the picture until you find the bit you want to alter. Having got there you can delete or add a step.

This might be a bit fiddly if you've got a very complicated or detailed picture, because it's not always easy to see the effects of your changes very clearly.

It seems a good idea to get the picture drawn and corrected before you add the colour, which only adds to the confusion if you've mixed drawing and colouring steps.

After each editing session and indeed at most points in the drawing operation, you may clear the screen and automatically redraw your picture.

Pictures may be saved to disc either in the screen or process format.

The process version takes up less space – depending on the

number of steps – and can later be amended, so there doesn't seem to be much advantage in using the screen version.

To sum up, we all found this quite an entertaining package although its value in an educational role is a bit more doubtful.

It has the great advantage that it can be used quite effectively at any computer age, so that tinies can draw random shapes or colour in existing pictures, while older children – and adults after bedtime – can have a lot of fun trying out more complex creations – although I don't think the Tate needs to worry yet.

Frank Lewis

Title: *Picturewriter*
 Author: *George Brackett*
 Publisher: *Scarborough Systems*
 Requirements: *64k and joystick (colour monitor recommended)*



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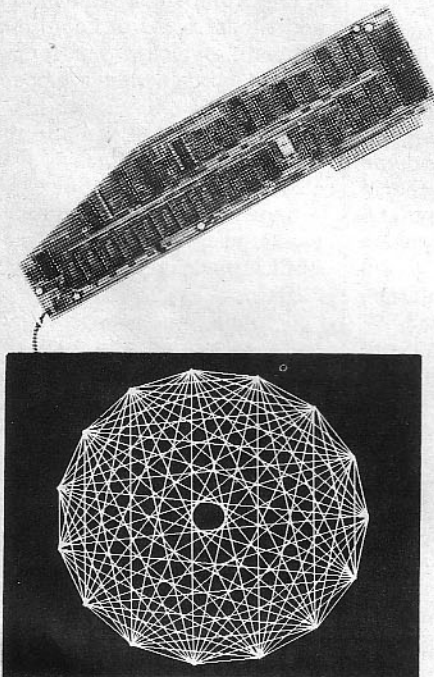
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Vision: RAM card with a memory for the future?

WHAT could you do with a megabyte of RAM? Run an immense Visicalc file? Load several very large programs into memory for simultaneous execution? Or maybe use it as a floppy disc without all of the access problems or slowness?

The possibilities are endless. The new 11 inch long Vision 128/256 RAM card from Zofarry has the hardware ready for when the price of 256k RAM chips comes down to a more realistic level and they become more readily available.

In the meantime, I have been playing around with 64k RAM chips to make up a RAM disc of 256k – a RAM disc is where you use large amounts of memory to simulate a floppy disc.

Having had the Saturn (now Titan) 128k RAM card for some time, I was naturally excited at the thought of being able to

have 256k of RAM to play around with.

One of the problems with a 128k card is that it is not a disc full. To explain, to use a RAM disc to its full you should keep your data on the RAM disc for all the advantages that it gives you in fast sorting, selecting and filing, and keep your application software on floppy.

You then only have to back up once at the end of a session, back onto floppy disc, and save on time and also wear and tear on your floppies.

With a 128k RAM card you do not quite get the full use of a floppy disc of 143k, leaving an annoying 15k of wasted space on all of your data discs. This could in fact be 31k if you have your RAM card in slot 0, as the operating system, if using Pascal, CP/M etc, will use 16k.

Therefore, I said to myself, with 256k of RAM card in slot 0,

I can do away with my 16k RAM cards (I used two with a 128k card to get 160k, or 144k after the operating system) and free two much-needed slots.

However what it does not say in any of the documentation – 16 loose photostat sheets of A4 – is that you cannot use the card for CP/M in slot 0 because the software is not available to support this configuration.

You find this out when you run the CP/M program V-DRIVE.COM. Since you cannot run CP/M without first loading the operating system into the card in slot 0, and you also cannot use the 256k card in slot 0 for CP/M, it means that if you own one of these golden oldies (and there are, I am informed, some three quarters of a million Apple II and II+ micros in use), you will have to keep your old 16k card in slot 0 and use your 256k card in

another slot (I would recommend slot 5).

This seems a terrible waste of a slot and money, and you without all that extra memory too! Of course, if you have an Apple IIe you will have the 16k already built into the machine.

There is one more snag to this, in that the documentation states "the Vision 128/256 card is fully compatible with Saturn and similar types of board and software", which was, as far as I can tell, correct when the board was at 128k.

But as soon as you add the other 128k – let's face it, why else did you buy a 256k card? – none of the Saturn software works, even though the Vision 256k is made up of two banks of 128k.

I found this out because I tried to cheat and use the Saturn CP/M software, which allows you to have your card in slot 0, on the Vision 128/256k card.

All works fine until you upgrade to 256k, and then the system hangs on you when you try to initialise the RAM disc.

Incidentally, even using the supplied software, and the RAM card in another slot, you can still only have 128k of pseudo disc because of the way in which Microsoft wrote the BIOS (the Basic Input/Output System).

A preboot is available from Vergecourt, the Ramex people, to enable you to have a 143k Visicalc file but because the Vision 128/256 card is made up of two 128k banks, it only sees

appletips

t While looking through the DOS commands I noticed that there is no way of changing the default slot or drive without accessing the disc, which may not be convenient during certain parts of a program.

As I was writing a program which required this type of change I had to change the default parameters directly in DOS. This is achieved quite simply as DOS has a default list of command parameters.

To change slot one has to put the

new value, being careful to keep within 1-7, into location \$AA6A. For example `POKE 43626,5` will reset the default slot parameter to 5 instead of 6.

To change the default drive then simply change location \$AA68 to a 1 or 2. For example `POKE 43624,2` will reset the default drive to 2.

This can also be used from assembly language as it changes the default values copied to the file manager parameter list.

Alan Ogg

the first bank. This is a problem with the Vision card, not the preboot.

The single disc of software supplied contains programs for Applesoft, Pascal and CP/M all on one side. You cannot boot the disc directly, but by booting up your own System Master of any of the three systems mentioned, can access the programs appropriate for the operating system concerned.

The Applesoft programs include a suite of three files to enable you to set up the RAM card as two additional pseudo disc drives of 128k each in a slot of your choice which of course must have the RAM card in it — another reason why you cannot have this card in slot 0.

Also included on the Applesoft section is a diagnostics program and a demonstration of using the RAM disc for hi-res screen switching.

Under CP/M there is one 17k file called V-DRIVE.COM which you must execute every time. There is no facility to save your choice of options to a separate file as with the Saturn, so you must answer the same questions every time.

Pascal has a setup program which only asks you for the location of the 128/256k card and which one you have, 128k or 256k. Any other RAM cards you may have such as a 16k card in slot 0 or an extended 80 column card in slot 3 are ignored, which is a shame.

All application programs written in Pascal will have a file called SYSTEM.STARTUP on the boot disc, which unfortunately is what you must also call the initialisation program supplied with the Pascal programs.

There is a way round this, and that is by changing the original SYSTEM.STARTUP to say STARTUP.CODE, then altering the source file supplied called STARTUP.TEXT as follows:

Add the words USES CHAINSTUFF; as the next line after PROGRAM STARTUP; (you must have CHAINSTUFF in the SYSTEM.LIBRARY).

Add SETCHAIN('MYDISC: STARTUP') where MYDISC is the name of the disc and STARTUP is the name of the code file to be executed directly

after initialisation, separated by a colon. This is to be added as the last line before END, that is:

```
SETCHAIN('MYDISC:
STARTUP')
END.
```

You can also change the name of the RAM disc to anything you want by changing the name within the quotes in the line DVID := 'V-DRIVE'; (maximum of seven letters).

After making the changes, re-compile the text file and transfer it to your boot disc. Then, after checking that you want to initialise the RAM disc, it will automatically run your application startup program.

The speed at which everything operates when using the RAM card as a pseudo disc emulator has to be seen to be believed.

To give an example, compiling a Pascal program of 1,142 lines, the longest I have, took 7 minutes 16 seconds using two disc drives with both the text file and the compiler on drive #5:

It only took 2 minutes 37 seconds to compile the same file with everything on the pseudo drive.

I have mixed feelings about this card. For around £350 you have a product which is ready hardware-wise for the next generation of RAM chips and which will soon give you the opportunity to have that megabyte of onboard RAM.

It is a cheaper way of obtaining 256k of RAM than buying two 128k RAM cards, but at the cost, so far, of poor software and limited documentation.

This product may well have been aimed at the hacker who may be willing to put up with these limitations, but there is a large field of businessmen and women who will want to use the card as a pseudo disc emulator, and the limitations mentioned may well deter them from taking the plunge.

Peter Wilson

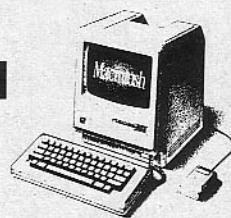
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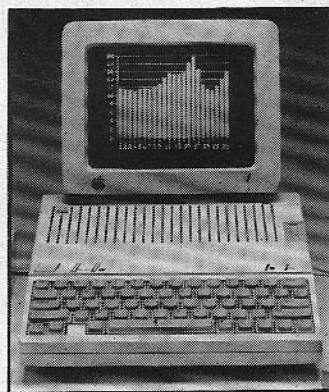
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☆☆☆OVERSEAS ORDERS A SPECIALITY☆☆☆

I HAVE recently managed to get a copy of ProDOS after repeated phone calls and a long wait and must agree with Messrs Gaunt and Spiller (Apple User January 1985) that the absence of a programmers' manual at the present time is not good enough.

Those of us who have bought Apples have come to expect better things from the company. I thought it was only some of the British companies that advertised products before they were ready for marketing!

Random data files can be handled by ProDOS if you make sure that the file to be converted does not contain "null" string records.

In other words, provided you write something ("null" string won't work) to every record within the data file it will convert to ProDOS using Convert.

I think this is quicker than the method suggested by Mr Gaunt.

So far ProDOS does speed up access to random data files, but is it worth it when you have to spend so much time working out how to do it in the first place? — **C.R.D. Campbell, Norwich.**

Aspiring millionaire

In the News section of December's Apple User, you ask "Who wants to be a millionaire?"

I've been a closet aspiring millionaire for some years now but I've decided to "come out"

Waiting for that programmers' manual

at last.

Could you please tell me the address of the company that sells Microvest — I've had no luck in tracing the package through the usual channels. — **Norman Bradfield, Plymouth, Devon.**

● The company in this case is Lombardy Computers, Netherfield, Gravel Path, Berkhamsted, Herts, HP4 2PF. Tel: 04427 4247.

No text file trick

I AM using an Apple IIe and am attempting to learn UCSD Pascal. I would be grateful if you could advise me if there is any way to either edit or create a text file from a code file.

For instance, if a text file is accidentally removed from the working disc and the directory is updated, is it possible to retrieve the original text file?

If no command exists to create a text file from a code file do you know of any routine or utility package that will allow the retrieval of the original text file? — **Stephen P. Lowe, Shrewsbury.**

● There is no easy, or even moderately difficult, way of

converting a code file (which is in p-code) to a text file (which is in English).

If you haven't written anything to the block in which the text file was existing you will be able to recover your file using utilities such as Bag of Tricks or CIA Files.

However it's not automatic and you will have to work at it. If you have written to that block on your disc you've had it, I'm afraid.

We have a program in for evaluation which might help you in the future but we haven't had chance to test it yet so keep your eyes on Apple User.

Of course, your letter indicates the importance of keeping back-up copies of everything! — **Max Parrott.**

Pascal pointers

READERS who have followed your Pascal Tutorial series may be interested to learn that USUS(UK), the UCSD Pascal Users' Society exists to help users of the p-System, such as Apple Pascal, to get the most from their systems.

A non-profit making body manned by voluntary officers, it

offers six newsletters a year, usually of 50+ pages, a software library of 60+ discs, national conferences, and special interest groups such as the Apple (Pascal) SIG.

Details can be obtained from the membership secretary, PO Box 448, Chelmsford, Essex, CM2 8QB. — **Stuart A. Bell, Sidmouth, Devon.**

Any odd effects?

AS a member of the Association for the Scientific Study of Anomalous Phenomena I am interested in cases of anomalous computer effects.

Can I appeal to readers for any information, at first or second hand, no matter how bizarre, concerning unexplainable malfunction or unexpected output?

All accounts will be treated in strictest confidence. — **Roger C. Morgan, 15A Kensington Court Gardens, London W8 5QF.**

Odd split

HAVING tried to solve the problems which some people have experienced with my WPL program (Apple User, May 1984), I notice that an error was introduced when you split the listing into columns.

On page 63 the first column of the listing just below the bottom had the line "dolnd psz+1". The four lines immediately below that are totally out of place — remove them, leaving just "pgo dolop" after "dolnd psz+1".

Two-thirds down the next column, after "f<DDDD<\$d<" there is a line gap — it is here that the four lines need to be inserted. — **Kevin Farrell, Sussex.**

A matter of memory

I RECENTLY wrote in Basic a large number-crunching statistical program for my 48k Apple II+.

Although it works perfectly well on a small database, the data arrays generated when all the data are included are slightly too large to be held in RAM — I get the dreaded "Out of memory" error.

Partly to overcome this problem I bought a Digitek 16k RAM card. I find, however, that

this has made no difference to the amount of data which can be handled.

Although I have moved the DOS upwards using the Master Create utility the extra 16k of memory seems to be unavailable to the program. Is there any way I can overcome this problem? — **David Havill, Luton.**

● Master Create will not move DOS into the RAM card because this area of memory is

"in parallel" with the Basic ROM. There are commercial utilities which will make the required move but I haven't noticed them advertised recently — you may have to shop around.

However, before spending money it will be worth checking if you can gain memory by compacting the program or splitting it and chaining the modules in some way. — **Max Parrott.**

Best drives buy? Just shop around

I AM a recent newcomer to Apple computing and I would like to hear from another Apple II+ or IIe user who would be willing to exchange programs, hints and tips.

Which disc drive under £200 do you consider to be the best for a second drive?

Also do you know of a POKE that enables you to print text as well as graphics on the hi-res screen, or anything else that will give the same results?

Though I find some of your

magazine difficult to grasp I hope to be able to understand it fully in the near future. —

Michael Wright, 'Pax' House, Crusheen, Dingle, Co. Kerry, Ireland.

● First the easy bit — all of the drives we've seen seem to be well-made and none have given any trouble.

However only time will tell whether they are as reliable as the original Apple units. So you might as well shop around and find the cheapest.

As far as putting text on the hi-res screen is concerned, unfortunately there's nothing as simple as a POKE.

You might like to look at the articles on Page 54 of the November 1983 issue, Page 37 of the January 1984 issue and the letters page of the November 1984 issue.

However if you are short of time and have a bit of money to spare you might like to investigate Copytext from Altim Software, 10 Madeley Street,

Tunstall, Stoke-on-Trent, Staffs ST6 5AT.

It's a package that allows you to put text on the hi-res screen and also edit the character set. It costs £9.95.

Several other packages also allow you to do this, but the Altim one has the advantage of being cheap.

If money is no object something like Penguin Software's Graphics Magician would give you text, drawing, animation and a whole lot more.

Assembler protocol

I REFER to the August 1984 issue of Apple User which contained the "Snags with assemblers" letter in Feedback referring to the use of the greater and less than >, < signs used by assemblers.

The very knowledgeable CALL-A.P.P.L.E. people say that the DOS Toolkit assembler is the only one on the market that reverses the use of these signs.

Therefore I propose that when readers send in large assembly language listings they specify what assembler they used, and any obvious changes that will have to be made to have it run on the DOS Toolkit assembler, as many people use this one.

I use Big Mac from CALL-A.P.P.L.E. and find it a joy to use — Jason W. Smith, St. Albans.

Music systems

IN your September 1984 issue you published a letter by Sr Elly Maria Pantekoek regarding Apple music systems and the disabled user.

I have information on a variety of music systems — although I have only seen the Mountain Music System adver-

tised in the UK. The book "The Musician and the Micro" by Ray Hammond (ISBN 0 7137 1299 6) gives details of various systems.

Many people are interested in the problems of disabled people, including the adaptation of computers to such use. I have a variety of information if any of your readers are interested. — Allan H. Campbell, 57 Weelsby Avenue, Grimsby, South Humberside DN32 0AV.

Stress analysis

WE have recently purchased an Apple II with 64k memory for use in our Engineering Department.

Our particular areas of interest are stress analysis on simple mechanical components (two or three dimensional) and pressure vessel design.

Any information of software packages available for this application would be gratefully received. — S. Rolls, Negretti Aviation, Stocklake, Aylesbury, Buckinghamshire HP20 1EY.

● Readers who know of specific software may write direct to you. In the meantime, you might like to investigate the "Engineering Software Guide for Apple Computers" published by CAE Consultants Inc, 41,

Travers Avenue, Yonkers, NY10705 and costing \$40.

This book lists packages for civil, mechanical, electrical, chemical and other engineering fields.

New clubs

IRISH readers might like to know of the formation of OIFIG, the Official Irish Forth Interest Group.

We propose to issue an occasional newsletter which will be available either on paper or on a DOS 3.3 disc. I would welcome contributions for publication, requests for advice, etc. — Hugh Dobbs, Newtown School, Waterford, Eire.

★ ★ ★

AN Apple users club has now been formed in Harrogate.

The Harrogate Apple Users Club meets at 7.30pm every third Wednesday in the month. — Peter Sutton, Harrogate. Tel: 0423 887923.

Alive and kicking

FURTHER to Allan Ogg's letter in the February Feedback I would like to point out that the VERIFY command is alive and working as part of the BASIC.SYSTEM (but not, strictly speaking, part of

ProDOS). On checking the "Programming with ProDOS" manual I find that Mr Ogg is correct in stating that there is no reference to VERIFY. It is only mentioned in the ProDOS technical notes.

It no longer checks a file's integrity. It just checks if it is present and gives a "Path Not Found" error if it isn't, thus supporting the application most programmers used the DOS 3.3 VERIFY for. — R. Young, Leeds.

Comal-80

IT is really very funny that Danish Apple dealers can't supply Apple Comal.

Apple Computer (Ireland) has supplied Comal-80 as part of the package deal for schools for several years and it has gone through several revisions.

Most versions have no access to high resolution graphics, because the combination of CP/M's use of \$0100 as the start of the TPA with the slightly odd remapping of memory by the Microsoft card meant that the hi-res pages were occupied by the Comal interpreter.

The address to write to is: Apple Computer (Ireland), Hollyhill Industrial Estate, Cork, Eire. Tel: 021 42088.

I'm afraid I do not know how much the Comal-80 package costs, as it came to us as part of a much larger deal. — Hugh Dobbs, Waterford, Eire.

