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June 1986
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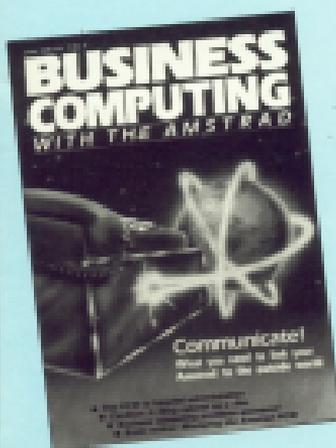
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The best Light Pen available for the Amstrad.

Music Box

The Electric Studio have commissioned the first light pen controlled Music Package, which is available on cassette, 5 disc and boasts an impressive list of features:

- 484, 664 and 6126 compatible.
- 3 channel polyphonic sound.
- Tone and volume Envelope Designer.*

- Internal storage of approximately 8000 notes.
- Save scores and envelopes to tape or disc.
- Use envelopes in own program.
- Any key as time signature.
- Automatic bar line insertion.
- Easy to use forms with light pen control options.
- Cursor music editor.
- Share necessary of channels in any combination.
- Playback: Key transposition; Tempo; Octave.
- Demonstration music included.

* The Envelope Designer uses the light pen to draw the graph of the envelopes — no numbers to enter. Sounds can be played while envelopes are edited.

The package can be controlled by either the ESP or DREAMS light pen, by joystick; or by cursor keys which will help all users get the full benefit from the various functions of the program.

THE PROGRAM WILL WORK WITHOUT A LIGHT PEN AND CAN BE PURCHASED SEPARATELY FOR USE WITH JOYSTICK OR KEYBOARD.

Multi-Text

As a direct result of ESP user requests, the Electric Studio is pleased to announce the release of "Multi-Text".

This package complements the already popular ESP graphics system by providing various text fonts in multiple sizes, which can be added to artwork created with the ESP Light Pen.

- 6 font styles • 4 font sizes • vertical-horizontal text • fill • width • stretch • copy • cut • paste • normal • load to overwrite • create with green or colour monitors • ESP light pen and screen dump compatible • keyboard option provided.

Running in mode 2, this package is ideal for users wishing to print newsletters, club sheets etc., by using Multi-Text with the ESP on Disk.

Supplied on tape with save to disc option and for use on the 484/664/ 6126 computers.

GSX PEN

ESX owners who have purchased or are considering the purchase of the Digital Research program DR Draw will be delighted by the news of the availability of an ESP Enhancement Pack.

This completes a pixel accurate light pen with GSX driver on disc, which will allow total control of DR Draw using the light pen instead of cursor key controls.

The cursor is controlled by the light pen which gives almost instant access to all parts of the screen, making menu selection a much speedier process and thus giving additional flexibility to the overall package which is an invaluable time saver for the program user.

Mouse Graphics

Available only for 6126 owners on disc, this complete graphics package with full ESP specification allows a mouse control device to replace the light pen.

Over 70 functions are included in the software making this the best graphics program currently available for the CPC6126 home computer.

If you already own a mouse this is a program you must buy.

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Business demand booms

DEMAND for professional and business packages for the Amstrad PCW8256 and the CPC8128 has forced a company to increase production by 50 per cent.

Bill Anderson, retail sales manager at Digital Research, said: "This rather contrived the view held by some industry pundits that people are only buying the 8256 machine for its word processing capabilities.

"Our are business packages that are clearly selling to users who are more than simply wordsmiths".

In the eight week period from the launch in January of Dr Graph, Dr Draw, Pascal/M1 and iCBasic Compiler, sales topped 3,500.

Anderson added: "We're shipping them out as fast as we can produce them. At the moment there is little graphics software available for these machines, which gives us the edge".

Most of the Amstrad format packages are being sold for the PCW8256.

The company, which sells through major distributors, is having talks which could lead to sales in the High Street chains.

Amstrad decides Sinclair's future

AMSTRAD bosses are currently finalising their long term plans for the future of what remains of Sir Clive Sinclair's once mighty computer empire.

And their decisions will have a dominant effect on the UK micro marketplace for years to come.

For Alan Sugar's £5 million purchase of the Sinclair brand that was once worth £126 million means he now controls companies which together produce more than two-thirds of the micros sold in this country.

It is a breathtaking achievement for Amstrad, which only entered the home computer market two years ago.

It effectively gives the company a stranglehold on the games machine market while providing a perfect springboard for its ambitions in the areas of serious home use and business.

The coup was pulled off with what one Amstrad source called "the cash in Alan Sugar's back pocket - a sum he wouldn't

worry about if it fell down a grid". The deal includes the rights to sell and manufacture all existing and future Sinclair computers and computer products, the Sinclair brand name, and intellectual property rights where they concern computers and computer-related products.

Amstrad will continue to market Sinclair computer products throughout the world - for the time being at least - under the Sinclair label.

Significantly, Amstrad has what amounts to first refusal on any future computer projects undertaken by Sinclair Research, the so-called dove remnant of Sir Clive's kingdom.

Alan Sugar has made it clear that his purchase of Sinclair will not lead to any tinkering with the formulae that has put Amstrad in the driving seat of the UK computer industry.

And at the press conference announcing the takeover, he stressed that he won't try to turn Sinclair machines into Amstrads.

"One of the main reasons so many Sinclair machines have been returned has been the incompatibility of their tape recorders, and one way round this is to give us our own recorder", he said.

"But if you start adding screens you start killing off Amstrad - and we mustn't forget who we are", he added. In the event, Amstrad is likely to kill off the Sinclair OS, and re-launch the Spectrum 128 with typical Amstrad advertising aggression, using the firm's proven marketing and distribution skills.

One possibility that can't be ruled out is that the Amstrad CPC464 - the company's first-born micro - could be produced in future with the Sinclair name on it.

Observers believe Sugar is trying out the idea of giving off his machines in the low end of the market the Sinclair label and reserving the Amstrad brand for computers aimed at the serious home user and the business sector.

SHOW LAUNCH FOR NEW PRODUCTS

MORE than half of the exhibitors at the next big Amstrad Computer Show in London are launching new products.

But such is the fierce competition in the market many are keeping their offerings secret until the Show at the National Exhibition Centre, on June 13, 14 and 15.

Because of the success of the previous London show when doors were closed several times to control the eager visitors, organisers Database Exhibitors decided to more than double the

available floor space.

"We are taking up two floors at the National for the June show to accommodate more exhibitors and of course allow more room for the expected rush of visitors", said Derek Meakin, head of Database.

"But instead of doubling the number of stall holders we found the first 86 that applied had snapped up the extra space for themselves".

The Exhibition Hall and Champagne Suite offer a 32,000 sq ft capacity for the show compared with 14,000 sq

ft the show covered last time.

A survey among the companies exhibiting shows that more and more are catering for the serious end of the market.

Comet Software is releasing Condit 1, an extensive database management and reporting system designed for the non-programmer. The Amstrad PCW8256 and PCW812 versions cost £39.99, with special show prices for their explanatory books.

DeVronics has produced a new memory upgrade for the PCW8256 which costs £39.99

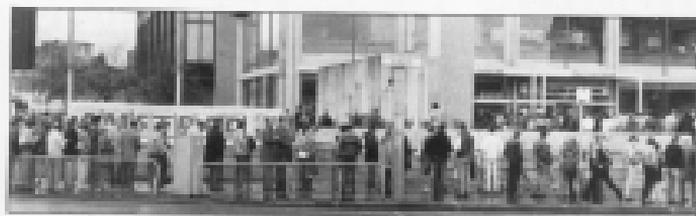
and will build up to 512k RAM.

Another first for the PCW range is TalkSoft from Load and Run. It is like a telephone address book with extra facilities and is being offered at the show price of £79.99.

AK Marketing has brought from Spain a new Super-Mouse, normally £99.95 but being offered £20 cheaper at the show.

For the CPC 464, 664 and 6128 Mirage Micro Computers will offer Miger which allows

Turn to Page 11



WITH an hour to go to the opening of the first Northern Amstrad Computer Show, more than 1,000 people were queuing patiently outside.

This set the scene for the event which was to eventually break all previous records for a two day machine specific show held in Manchester.

In all more than 10,000 enthusiasts travelled wet, cold and windy conditions to converge on the New Century Hall, in the heart of the city.

Nor were they to be disappointed. For more than 80 new products were unveiled on the first day and bargains galore available to 66 exhibitors compared with one another.

Even the elusive 3in discs were in plentiful supply - at least during the Saturday as heavy demand created shortages by Sunday.

With Amstrad's new

Northern Show breaks records

PCW8512 going on public display for the first time, there was nothing a strong showing on the business package front.

And the companies selling the micros themselves reported unusually high sales figures.

"It was a first class show, very much of the standard we are now learning to expect from Amstrad events organised by Database", observed one stallholder.

"Here was yet another example of Amstrad's continuing success story".

The only gloomy faces at the show belonged to some male visitors who had turned up

hoping to see busy Page 3 girl Samantha Fox play strip games.

Not in the flesh, but in the form of a new game from Maroch.

Within half an hour of Samantha Fox's Strip Poker going on display, it crashed thanks to too many men pouring away at the keyboard.

"Even though this was only 5am in digitised form, it certainly caused considerable excitement", reported a spokesman for the organisers.

"The trouble stemmed from the fact that some male visitors were over-enthusiastic to see her take her clothes off".

NEW PRODUCTS

From Page 9

transfer of cassette-based software to disc. It costs £49.95.

Master Key Data Intersect Services, which will be offered at a special price, allows recovery of accidentally erased files.

Visitors who buy their tickets in advance, saving £1 and a visit to the queue, can make even bigger savings inside the show.

Every company contacted by *Computing* with the Amstrad promised special offers, saving as much as £40 in some cases.

Fyde's Managing Accounting's new disk Big 3 which integrates DataMare, WordWare and MailWare is £20 cheaper with its show price of £49.95.

Microsoft's Bubbles game will be ready for the CPC machines, backed up with plus screens and a possible appearance of the star of the first Mail Diskette, currently starring as Valeria in BBC TV's serial *Anna Dornell*.

The Show is expected to exceed the 10,000 attendance at the last London Amstrad Show and a figure of 15,000 will not surprise the organisers.

More mouseware

MORE and more leading software houses are planning to make their programs compatible with the AMX Mouse.

In the last few months few programs have been developed with the AMX Mouse in mind - Mini Office II from Database Software and The Mouse Graphics program from Electric Studio.

And DCP's Art Studio package which is to be sold by BT's Rainbow division will be launched shortly.

"The AMX Mouse has been a runaway success from the moment it entered the Amstrad micro market and people will strive to be a winner", said Nick Pearson, managing director of manufacturers Advanced Memory Systems of Warrington.

PCW8256 wins business award

THE PCW8256, the jewel in the Amstrad crown, was judged Best Home and Small Business Computer of the Year at the British Microcomputing Awards in London. The CPC8128 was also nominated in the last three of the category.

The PCW8256 is now set for sales in both America and Canada following a contract with Sears.

The judges commented: "Those who scoffed when Amstrad boss Alan Sugar announced his intention to produce a complete word processing system for less than the cost of many a typewriter had second thoughts when the PCW8256 was launched.

"This £399 package was an immediate commercial success and has made many converts to new technology.

"We were impressed by the way Amstrad incorporated all the features of a reasonable word processor in a very low cost package by making a design as simple as possible".

The judges were also impressed with Digi-Chat by Sagesoft which scooped the major new category award Best Communications Software.

Sagesoft managing director David Goldman said: "We have always sought to offer the business public a combination of quality and innovation in our products. The award is a vital



Malcolm Miller, the Amstrad marketing director, receives the award from Dr David Owen

endorsement of that approach".

Sagesoft now claims to be the leading supplier of professional accounting software in the UK with over 50 per cent of the market, following sales of almost £1 million for its Amstrad business software alone in the four months ending in February.



Amstrad fans... Philip Mordecai with his father Mike

AMSTRAD FIGHTS BACK AFTER A COLLEGE BAN

A STUDENT at Hatfield Tertiary College has been censored by his principal — all because of his CPC6128.

Philip Mordecai, 17, found himself being told in no uncertain terms that he was not to use his Amstrad machine during his computer studies course. Instead, it was laid down to him that he use a BBC Micro.

Now this did not please the teenager — or his father for that matter. After all dad in the case just happens to be Mike Mordecai, Amstrad's software sales manager.

"It's a perfect example of the blindfolded being worn by many of the educationalists around today", Mike Mordecai told *Computing with the Amstrad*.

"Here they are fighting a marginal action for the old BBC Micro when there are much better and more cost efficient

machines around like the CPC6128".

The Amstrad boss believes that one of the reasons for this is the inability of many older teachers to come to terms with the new technology.

"They have only just got to grips with the BBC Micro and simply don't like the idea of having to learn about another machine", he says.

However times appear to be changing. Ever since it became known at the college just who Philip's father is, a number of younger lecturers have approached him with a view to buying Amstrad machines.

"I'm sure if it was up to them, there would be no problem in using my Amstrad on my course", said Philip. "After all everyone wants an Amstrad these days — with the exception of my principal that is..."

Riding to success on a Thingi

A FORMER Merseyside policeman has jumped on the Amstrad computer bandwagon believing he may well become wealthy in a matter of months.

Ex-crimo car driver Bob Glynn is convinced that his patented product will soon be a must for every Amstrad aficionado.

And judging by the reaction at the first Northern Amstrad Computer Show where it was unveiled, he may well be right.

For the Thingi turned out to be the talking point of the three day event.

"If simplicity is the key to success then this guy is going to make a fortune", said one observer.

The ability, if effectively named device is a method of folding documents attached to a monitor so that they can be



Bob Glynn found success at the Northern Amstrad Computer Show

easily read by someone using the computer keyboard.

It is a 18 inch long strip of polystyrene with Velcro strip adhesive at one end which enables it to be attached to the top of the monitor. At the other end is a large plastic clip which holds the paper.

Bob Glynn first got the idea when he visited a schoolteacher friend who was attempting to perform the same function with a bent ruler attached to his

monitor.

"It struck me as having tremendous potential, so I began to look around to see if there was anything on the market like that", recalls Bob.

"When I discovered there wasn't, we were off and running. After all, here was the perfect way for someone to be able to use the keyboard and read at the same time. In fact the answer is a keyboard operator's dream".

Which? picks CPCs

This consumer magazine *Which?* has nominated two Amstrad models as its Best Buys after recently testing five home computers.

The CPC464 and the CPC6128 were said to be "particularly good value if you want a display and a cassette recorder or disc drive to go with your computer".

Which? rated them: "Good performance and a good range of software".

The PCW8516 is to be tested later this year but the magazine does comment: "It seems to offer a lot for the price".

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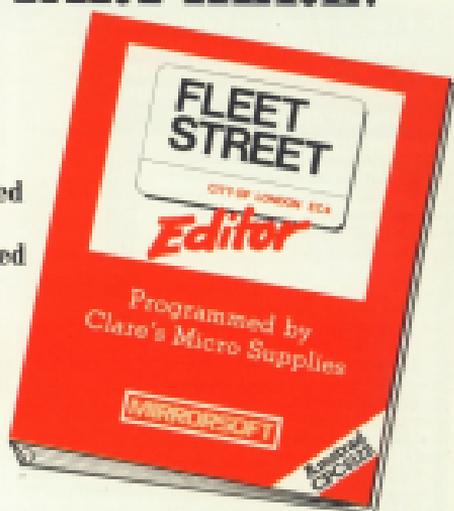
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MAJOR VARIABLES

A(20,20)	Holds the maze.
P(400) & Q(400)	Cells visited in process of building the maze.
OBJ(10)	Names of the various objects.
OX(1)	Set.
WX(10) & WY(20)	Positions of any note.
X & Y	Player's position.
PT	Pointer to P(400) & Q(400) during maze building.
N	Number of cells visited during maze building.
H1 & V1	Horizontal and vertical magnification of the 3-D view in the maze.
I	Number of objects in the maze.
R1 & R2	Random numbers used during maze building.
EG	Energy left.
OB	Player's host.

PROGRAM STRUCTURE

200-300	Initials program variables.
370-500	Wait for your input and then call various routines accordingly.
570-790	Design and draw the maze.
800-820	Shuffle the four possible directions of movement while building the maze to ensure that it is as intricate as possible.
830-850	Save coordinates during maze building.
860-880	Percell coordinates during maze building.
890-900	Display plan view of the maze.
900-1140	Draw 3-dimensional view inside the maze.
1150	Draws left hand 3-D view.
1160	Draws right hand 3-D view.
1170	Data for objects.
1180	Displays door.
1190-1240	Routine to pick up an object. Checks that an object is there and whether you are allowed to pick up another object.
1250-1270	Shows what you are carrying.
1280-1290	Checks for correct grammar when printing out objects - A gem, some paper and so on.
1300-1310	Tell you when you are next to an object.
1320	Waits for you to press Spacebar.
1330-1380	Routine to drop an object. Checks that an object is not already there and that you actually have the object to be dropped.
1390-1430	Displays your direction if you have the compass.
1440	Displays your coordinates if you have the wand.
1450-1530	Exit you from the maze on escape. Awarding credits according to time well you played.
1540-1550	Use food.
1560-1570	Drink water.
1580-1630	Displays your energy and offer advice if the energy is too low.
1640-1700	Write a note and drop it if you have both the pen and paper. Note not used the paper up and there is not already a note there.
1710	Displays notes.
1720-2090	Displays instructions.
2100	Displays table of commands.
2310-2360	Put a few extra gaps in the maze to make it easier to go through.

```

470 IF @410@>@240 THEN @070 @00
480 @-@117 @-@ THEN @-@
490 @070 @00
500 IF @410@>@240 THEN @070 @00
510 @-@117 @-@ THEN @-@
520 @070 @00
530 IF @410@>@240 THEN @070 @00
540 @0000 @00 IF @-@ AND @-@ AND @-
1 THEN @0000 @00 IF @-@ THEN @0000
070 @00 @00 IF @-@ AND @-@ AND @-@
THEN @070 @00
550 @0000 @00 IF @11,71 AND 7 THEN @-
@-117@+@11@070 @00
560 @070 @00
570 @00 @0000 @1,117@+@11@070@
@0000@+@0000 @1,11,11@0000 @00
580 @0000 @0771@+@1171@ IF @0000 *
AND @011 THEN @0000 @00 @00 IF @00
@000@111 AND @11@ THEN @-@@0000 @0

```

```

@0
590 @-@+@-@00000 @00@0000 @00 AND
@170@+@11@00 @00 @070 @00,148,000,7
@0,7@0
600 IF @12 THEN @070 @00
610 IF @11,7+@11@ THEN @070 @00
620 @0000 @00@11,11@+@11,71 OR 117+
@111,71@+@11,71 OR 4
630 @-@@070 @00
640 IF 1117 THEN @070 @00
650 IF @111,71@ THEN @070 @00
660 @0000 @00@11,71+@11,71 OR 11+
11@11,71@+@11,71 OR 0
670 @-@@070 @00
680 IF 7117 THEN @070 @00
690 IF @11,71+@11@ THEN @070 @00
700 @0000 @00@11,71@+@11,71 OR 417+
11@11,71@+@11,71 OR 1
710 @-@@070 @00

```

```

120 IF @12 THEN @070 @00
130 IF @11,7+@11@ THEN @070 @00
140 @0000 @00@11,71+@11,71 OR 117+
11@11,71@+@11,71 OR 1
150 @00
160 @000
170 IF @-@ THEN @0000 @00
180 @000 @000 @117+@11,71@+@11,71
OR @0000 @000@+@0000 @000@+@0000
190 @070@
200 @00 @00-11@ @11@
210 @1+@00+@11@+@11@+@11@+@11@+@11@
11+@11@+@11@+@11@
220 @070@
230 @-@+@11@ @117+@11,71@
240 @117+@11@+@11,71@+@11,71@

```


Some of the features of the new Mini Office II

What the word processor can do...

- Automatic tabular layout on embedded tables
- Flexible macros from database for personalised printing
- Choice from three methods of saving: 20 columns, 80 columns, 100 characters, 144 columns, 90 columns
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- Bold, copy, paste or delete words of text
- Select two tables, transfer contents or convert to text
- Search globally or selectively
- Check spelling against an internal per cent
- Set margins and line width, plus word and character counts

What the database can do...

- Automatic help topics (help)
- Database design: tables, 4-dimensional
- Flexible and powerful functions
- Search over multiple files
- Multi individual records
- Full flexible printout options
- Full records in the record processor
- Copy and paste records with field record saving

What the spreadsheet can do...

- Spreadsheet columns with any number of rows
- Copy formulae between cells
- Print either spreadsheet, or selectively
- Move records to a specific location
- Select records to a specific location
- Select records to a specific location
- Replicate automatically or manually

What the letter/printer can do...

- Change any style, tabulate and transfer labels
- Select label size and printer format
- Select address from database file

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- Enter data directly on screen
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- Display up to three pie charts
- Display up to three bar graphs
- Display up to three pie charts
- Display up to three bar graphs
- Display up to three pie charts

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IF...nested THEN confuse, why not settle for the simpler IF...ELSE

If you can remember last month's article THEN you should have no problems with the conditional statements. These are the program lines that depend on the results of a test before they are performed. If the test is true then the rest of the line is performed, whereas if it's false then the rest of the line is ignored.

Operator	Meaning
=	equal to
>	greater than
<	less than
>=	greater than or equal to
<=	less than or equal to
<>	not equal to

Figure 1: Comparative operators

```
10 REM Program 1
20 FOR loop1 TO 10
30 REM number
40 IF number=5 THEN PRINT "number" is
  number
50 NEXT loop
60 DATA 1,1,2,3,4
70 DATA 5,6,7,8,9
```

Program?

Program 1 should be familiar. In fact it's the same Program 1 as last month's so there are no excuses for not understanding it. Line 40 is the conditional statement. Here the condition is only true if number is equal to 5.

Figure 1 shows all the comparative operators available in Locomotive Basic. Refresh your memory as to what they do by putting them in line 40 and seeing if the results are what you expect.

Not content with our single condition we explored the use of three logical operators, NOT, AND and OR. They're all reasonably common sense concepts. NOT is just the negative, so:

IF NOT number=5 THEN...

will be true for all the times that number is anything but 5, that is it's NOT 5.

AND is used to give two conditions together. So if you have a line with

two conditions such as:

IF condition1 AND condition2 THEN...

the combined condition is only true if both component conditions are true at the same time. If one (or the other or both) is false then so is the whole condition.

Complementing this is the OR operator. Now if you have the line:

IF condition1 OR condition2 THEN...

the joint condition becomes true — and hence the rest of the line is

By PETE BIBBY

performed — if one OR the other of the conditions is true. The joint condition is only false when both conditions are false.

So much for revision. If you feel compelled to learn more about logical operators have a look at Bits and Bytes in the April 1985 *Composing with the Amibeam*, but not before you've had a look at Program 11.

```
10 REM Program 11
20 PRINT "Give me a number between 1
  and 10"
30 INPUT number
40 IF number<5 THEN PRINT "You entered
  a number less than 5"
50 IF number=5 THEN PRINT "You enter
  ed a number greater or equal to 5"
```

Program 11

This is an attempt to make the program take a decision and do one thing if number is less than 5 and another thing if it's greater or equal to 5. The condition of line 40 takes care of the first case while line 50's IF

deals with the second.

Notice that these two conditions cover all the possible values of 5. Every potential value of number is dealt with by one or other of the conditions. If it didn't there'd be values of number that would slip through both conditions with the program taking no action.

If you change the condition in line 40 so that it is now:

IF number=4 THEN PRINT...

you'll be able to see that when number is 5 the program works but nothing happens. The value 5 satisfies neither condition so nothing is printed.

In this case it's easily avoided but in more complicated programs leaving a gap in the condition is easily done. So if a program works but doesn't actually do anything, have a look at the IFs to make sure that they deal with all the possible values. Especially, look at the IFs that contain joint conditions.

There's another way of looking at the two conditions of Program 11. If number is less than 5 one thing is done, if it's not — or should I say NOT? — then another course of action is taken. Program 11 shows the use of NOT to choose between the two alternatives.

```
10 REM Program 11
20 PRINT "Give me a number between 1
  and 10"
30 INPUT number
40 IF number<5 THEN PRINT "You entered
  a number less than 5"
50 IF NOT number<5 THEN PRINT "You en
  tered a number greater or equal to 5"
```

Program 11

Here line 40 checks to see if number is less than 5. The next line GO TO's this condition to catch all the other values of number. Nothing can slip through this.

One point to grasp from all this is that we're dealing with a situation that has two alternatives. Either one condition is true or the other is. Depending on this the program either does one thing or another.

And from the way we've constructed them if the first condition isn't true then the second is. Either the first course of action is taken or else the second is performed. Program IV shows another way of arranging these mutually exclusive conditions (as they are known).

```

10 REM Program IV
20 PRINT "Give us a number between 1
and 3!"
30 INPUT number
40 IF number<5 THEN PRINT "You entered
a number less than 5" ELSE PRINT "You
entered a number greater or equal
to 5"

```

Program IV

This does the same job as the previous two except now one line (40) has taken the place of two (40, 50). And this is made possible by Locomotive Basic's IF . . . ELSE construction.

What this does is to allow the choice between two alternatives in one line, with only one condition to be tested. If the condition is true then the rest of the line between the THEN and the ELSE is performed. However should the condition not be true then only the part of the line after the ELSE is performed.

In Program IV this means that if number is less than 5, and hence the condition is true, then the message:

You entered a number less than 5

appears. Otherwise if the condition is false then the second message:

You entered a number greater or equal to 5

is displayed. If the first condition is true then the first course of action is taken. ELSE, if it's not true the second is taken.

This is a complete change from our simple IF where if the condition wasn't true the rest of the line was ignored. The micro knows that if there's an ELSE in the line it has

something to do should the test fail.

Again it's very much reminiscent, the Basic following the normal English usage. Try changing the conditions and values of line 40 in Program IV to thoroughly explore the IF . . . ELSE construction.

Notice, in its simple form at least, how it automatically takes care of any value that might slip through. Either the first condition is true or it's not. Either way one of the two alternative courses of action is taken.

Program V demonstrates, in a spectacularly pointless way one of the uses of IF . . . ELSE.

```

10 REM Program V
20 PRINT "Make a choice 1/2"
30 INPUT choice
40 IF choice<1 OR choice<=3 OR choice<=4
OR choice<=5
50 REM This is the result of choice 1
60 PRINT "You picked 1"
70 REM Not very exciting, is it?
80 REM 3 OR
90 REM This is the result of choice 2
100 PRINT "You picked 2"
110 REM Again, not very exciting
120 REM 3 OR
130 END

```

Program V

Depending on what value the user gives to choice the program does one of two things. It either performs the line between 100 and 130 or else it executes the code between 200 and 300. Line 40 is the one that allows the program to make this choice.

Here the value of choice is tested. If it's 1 then the condition is true and the program GO TO's to line 100. It works its way through the code it finds there and eventually line 130 uses another GO TO to send the program to the END of line 300. This neatly jumps over the rest of the program.

More jumping over code is seen if choice is given the value 2. Now the result of the comparison is false - it's not true that choice is 1.

Hence the program skips what comes after the ELSE and GO TO's to line 200. The result is that the second message is displayed and the program winds its weary way to the finish.

If you find these GO TO's rather nasty, full marks. I don't like them

either and soon we'll be seeing how to avoid them. However for the time being we'll stick to them.

More marks if you noticed that that last GO TO in line 130 isn't really needed. It is, however, good practice to have it there as it ties up the loose ends of the program. Again more on this later.

The main point to grasp from the program is the way that the IF . . . THEN allows it a measure of intelligence. It can choose between two alternatives. OK, so in this case the result is trivial but it's this ability to make choices that gives programs most of their power in real life.

The program can change its action in response to the user. For example, a tax program might perform one bit of code if the user earns £10,000 a year, another if he earns £30,000.

These bits of code don't have to be the silly messages we've had so far.

They can contain complex calculations giving useful results. And the program can decide which calculation to do in response to the user's circumstances.

I'll leave you to experiment with the Basic IF . . . ELSE and go on to a more complex structure, nested IF . . . ELSE's.

Heading back to Programs II to IV you'll remember that we tested a number to see if it was less than 5. If it was then an appropriate message was printed. If it was equal to or greater than 5 then another message appeared.

But what if you wanted to distinguish between these different cases where number was less than, equal to or greater than 5? And suppose each case has to have a different message. How would you go about it?

One way is to use a battery of IF statements such as:

```

IF number<5 THEN...
IF number=5 THEN...
IF number>5 THEN...

```

along with the necessary messages. Program VI shows another method of doing this using nested IF . . . ELSE's.

If line 40 looks complicated don't let it worry you - taken bit by bit it's quite simple. As you can see it consists of two IF . . . ELSE's. When it comes to the line the Amstrad deals with each if separately.

The first thing it does is to check

First Steps

From Page 21

the condition it meets after the first IF. Just as before if the condition is true it performs the code after the THEN, if the condition is not true it performs the code after the ELSE. In this case if number is less than 5 the micro displays:

less than

But if number is equal to or greater than 5 then the condition is false and the program goes on to the part after the ELSE.

And this is where the nested bit comes in. The code after the first ELSE is in itself an IF ... ELSE statement rather than the simple message or GOTO we've had before.

```

10 RUN Program VI
20 PRINT "Give us a number"
30 INPUT number
40 IF number < THEN PRINT "less than"
   * ELSE IF number> THEN PRINT "equal to"
   * ELSE PRINT "greater than"

```

Program VI

While we might find this complicated, to the Amstrad it's no problem.

It forgets all about the first condition - after all that's been dealt with so we'd have never got to this second IF - and tests the new IF ... ELSE just as before. The condition after the IF is evaluated and if true - number equals 5 - then:

equal to

appears. Should the test fail then the micro goes on to the code after the ELSE and:

greater than

is displayed.

As if that wasn't bad enough the code after this second ELSE could itself be an IF ... ELSE and so on. We might find it confusing but so long as we get the conditions correct the Amstrad can deal with it.

The point to grasp is that the program takes each IF ... ELSE in turn. Successive IF ... ELSEs are only dealt with if the previous condition is false. It's a bit like running the gauntlet. The final bit of code after the

last ELSE only gets performed if all the previous conditions are false.

Don't worry if nested IF ... THEN confuse you. You can easily do without them and just use the rather simpler IF ... ELSE on its own. And you'll avoid programs like Program VII which doesn't do what the programmer thought it would.

```

10 RUN Program VII
20 PRINT "Give us a number"
30 INPUT number
40 IF number < 5 AND number < THEN IF
   * ELSE IF number < 10
   * PRINT "not 7" ELSE PRINT "it's 7"

```

Program VII

Here the programmer was testing for a number in the range 6 to 9. Also he wanted a message printed when the number was 7. Can you figure out why this doesn't happen and rewrite the program to achieve what he wanted?

● That should keep you busy until next time when we'll be looking at IF again. What ELSE?

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OVER the last 25 years a number of people have asked me to teach them how to program. Their main problem is that they have learned, or been taught, about arrays, FOR loops, IF ... THEN ... ELSE constructs plus arithmetic and string handling techniques and so on but have no idea of how to analyse and/or solve a problem.

Now it is my belief that the best way to learn anything is to observe and analyse good examples and then try to reproduce the style. Note that even something as simple as indenting your FOR ... NEXT loop is good style because it helps make a program more readable.

Being able to read a program is the real crux of the matter because nowadays professional programmers spend most of their time reading, understanding and modifying vast program packages — very rarely do they get to actually write a program as such.

The fact that a programmer does very little programming seems to be the cause of a new fad in computer science departments, particularly in America where any and all competition is fierce.

The idea is to write a short program less than 50 lines and the shorter the better, in any language — Basic is the crudest and therefore the most used — so that it defines a people which can only be solved by someone who can read a listing.

A simple example is Listing 1. It may be only five lines long but it is not all that obvious what it wants. Note that a rule of this game is that everything in the program must have a reason or purpose.

5 089 Listing 1

```
10 INPUT "INPUT PROPER NUMBERS AND IN
A Nice PLANNING Dictionary" :ptd
20 FOR w=1 TO 17
30 IF INSTR(1,0,9) <> t THEN 30
40 NEXT t
50 IF VAL(LEFT$(t,1)*100+VAL(MID$(t,2,1)
),t) THEN 10
```

Listing 1

Analysis shows that lines 20 to 40 are checking that the string *t* contains all the digits 1 to 9 at least once. Line 50 then checks that the square of the first three digits in *t* is

Reading ability is half the battle

ALEATOIRE on the best way of becoming a proficient programmer

equal to the rest of the digits in *t*. In order to find if such a pattern is possible in nine or more digits we must write a program something like Listing 1:

```
5 :=17
10 :=144
15 c:=0:R=1:+=STR$(t)
20 FOR w=0 TO 9
30 IF INSTR(c,0,9) <> t THEN 10
40 NEXT t
50 IF VAL(LEFT$(t,1)*100+VAL(MID$(t,2,1)
),t) THEN PRINT c;" is OK"
60 GOTO 10
```

Listing 1

If you run this program you will obtain two possible answers. The first is 557 321469 which not only works (557²=31249) but is also the

number of letters in each word of the previous prompt from line 10.

Therefore, according to the rules of this peculiar pastime, the best answer is probably a nine word message using the number pattern of the second, and only other possible, solution.

Another example of this type of programming test is Listing 11:

Lines 10 and 370 show that it wants 11 strings of a certain type or property to be input before it is satisfied. Line 90 shows that the characters in the string can only be the digits 1 to 9 or the characters + and -.

Analysis of lines 130 to 160 reveals that the digits must start with a 1, be in the correct order and finish

```
10 FOR w=0 TO 10
20 INPUT "S TOP" :t
30 w:=0
40 w:=0
50 h=0
60 s=""
70 FOR w=1 TO LEN(t)
80 ch=MOD(t,w),11
90 IF INSTR("123456789+-",ch) <> t THEN 20
100 PRINT "Not like " :t
110 GOTO 20
120 IF INSTR("+-",ch) <> t THEN 200
130 CLEAR t
140 dig=ASC(ch)-48
150 s=ch&s
160 IF dig=0 THEN 180
170 PRINT "Not out of order"
180 GOTO 20
190 acc=acc*10+dig
200 GOTO 230
```

Listing 11

```
200 IF s& THEN h=h+acc ELSE h=0
210 w:=0
220 IF ch="+" THEN s="" ELSE s=s&ch
230 NEXT t
240 IF ch="+" THEN 270
250 PRINT "Not even 1/10 for that"
260 GOTO 20
270 IF s& THEN h=h+acc ELSE h=0
280 IF h THEN 290
290 IF w=0 THEN 320
300 FOR w=0 TO 9
310 IF ch=MOD(w,10) THEN 340
320 PRINT "Already had that"
330 GOTO 20
340 NEXT w
350 h=0
360 PRINT "That's " :t
370 NEXT s
380 PRINT "That's a feast"
```


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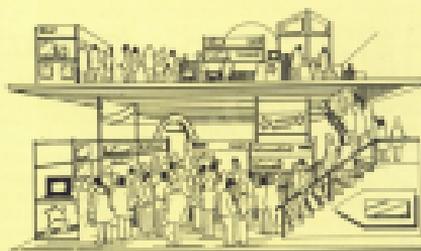
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Adventuring with Gandalf

I HAVE been maligned by Paul Reilly who says he has completed Dun Dersch and he's willing to help anyone who is stuck in the game. This has prompted me to start a new section, **Contact Corner**.

If you would like me to print your name and address in the column so that other adventurers can get in touch with you then let me know whether you welcome letters from anyone or just about specific adventures.

Also starting this month is the **Hall of Fame**. Some of the tips that are sent in by readers are too good for me to keep to myself, so I have decided to publish them. If you have any good tips for adventures, especially the harder ones, send them in and you may have a section all to yourself.

We'll be having another Top Ten soon, so keep those marks coming in.

I'd like to thank John Olson for his excellent solutions to Warlord and Hennes of Karn, and Paul and Clare Wilkins for their map of Warlord. Don't forget an SAE if you want copies of these.

Mindshadows from Actichlor is a graphical adventure that comes in two parts and you must complete the first part before being allowed to play the second. Also included on the tape is a good guide to adventure playing with plenty of tips on how to solve adventures in general and this game in particular.

You begin the game on a desert island and you don't know what to do, or even who you are as you have lost your memory. A clue in the des-

CONTACT CORNER

Paul Reilly
Mailbox 417723766
Puzzle!

Category: Help with Dun Dersch

Some tips are too good to keep to yourself...

HALL OF FAME

Robin of Sherwood - *Michael Jennings*

The bow, quiver and albin can be found by going through the waterfall. To get the silver arrow you must enter the archery contest at Nottingham. To escape after the contest grab the Sheriff and go through the portcullis.

To kill Belleme, stab him with the silver arrow. While Marise is with you go south from Leoford Grange and search the bushes.

To open the treasure chest TAKE SWORD the thief, ambush the cart and get into the cart. Once inside Nottingham wait until it is dark, leave the cart and go to the room with the chest and DROP SWORD.

Ambush Gregory the tax-collector and search the grain. Steal all the statue of Aedel and then examine it. One of the touchstones can be found by climbing Hema's holy tree and searching it.

Subnark - *Emma Larkin*

Wear the attainer from the galley, go north from the wardroom and then

jump. You now have a key. Examine the desk in the captain's cabin. Open the drawer and get the paper clip. Go to the sick-bay and pick the lock on the filing cabinet.

Warlord - *David Donnelly & Barry Newell*

Get the hare free to meet a god. Give the acorns to the raven and wear the tunic. Jump in the pool by the evaporation pits and go to fuge seven. Climb out and take the helmet. If you wear it the warlord will now let you get past.

Give the salt to the hillfort guard. Sleep when at the lake north of the teldon road. Buy meat with the iron. Kill the bear with the sword. Ignore the woman in the hut. She is a Roman goddess and will trick you if you let her.

The path through the swamp is E-S-N-E. Jump onto the straw in the brook. Wear the white coat to get through the firegate. Step into the ring of crystals.

cription of the initial location enables you to deduce that you need to attract the attention of a passing ship.

You have no matches, or indeed anything to use them on, so your first task is to rectify this situation. A search in a local habitat will provide you with the first object you need if you smell right.

A shipwreck and a visit to the jungle will find you well on your way but the cliff will help you strike gold, though you shouldn't get too tied up in what you are doing.

If you go pot-holing a map will help with the maze, but you shouldn't really need it as it's not that hard.

Now you should be ready to leave

the island and any problems here should soon be remedied if you remember the sea-stairs.

You are now halfway through the first part and a talk with the Captain should reveal your next problem. Solve this and you will go into the second part of the adventure.

I rate this as a beginner's adventure. I finished the first part in one sitting but I must confess that I am bogged down in the second part. I've got the password, but don't know how to use it. Can anyone help?

There are several differences between this and most other adventures. Since you have lost your memory there is a THINK command

that allows you to think about any characters and objects on the off-chance that they may help you to remember something.

I only got a response with this command once but *Advidia* says that it is possible to finish the game without discovering who you are if you don't THINK often enough!

There is the option to necessarily in fact of talking to the characters in the game. As well as the normal method of saving the game you can QUICKSAVE which saves your position in memory and saves time.

The graphics are drawn quickly and getting and dropping objects is displayed on-screen. The text is given in 80 column mode and gives a professional look to the game.

I am most impressed with the attention to detail.

If you try to climb the trees you are told you can't. Examining the trees reveals that there are monkeys there and examining them elicits the information that they are playing.

I have only seen such a high standard of detail in the Infocom games, generally acknowledged to be the best adventures on the market.

A balance has been struck between the number and complexity of puzzles in the game and the memory consumed by the graphics. If the programmer responsible for *Blindshadow* wrote a text-only game to this high standard then it would be a world beater. As it is, while superbly presented, it is very much a beginner's game.

PROBLEMS... PROBLEMS

Adriano De Biazl wrote from Italy to ask for help with *Jewels of Babylon*. He says he can't get started so here are some tips to get him going.

Climb into the rowing boat, row north and climb out of the boat. Take the plank and go to the rock pool. The crab will follow, so go to the canyon and shout.

You should now be into the main body of the game. The watch will fascinate the native and the fish will pacify the lion. J. Manning should also now have the answer she wanted, though another crafty answer to the riddles is that time will tell - sort of!

L. Needham wants the exact wording to use on the spheres in *Message from Andromeda*. ROTATE THE SPHERE and take it. Go to the blue room and DROP THE SPHERE ON THE PEDESTAL, and then ROTATE THE SPHERE.

J. Pores has the same problem as I had in *Emerald Isle* - how to cross the river/lake. After you have the canoe I think you simply GO NORTH.

Dave Hambleton is stuck in *Gems of Stradus*. Use a sharpened sword to get past the alien. There are three fireballs and a doused fire will prove helpful.

David Donnelly and Barry Newell both need help with *Warlord*. Capture the Roman and

give him to the druid in exchange for the amulet. This will also help you to get past the vale of whispers. To get past the Fomorian 'blaze' your sword on the stone slab to kill individuals and throw the urn into the fire in the village.

A.J. Humphreys wants to know what the pictures in the gallery mean in *Dun Dunok*. The idea is to match each picture with an object that can be bought somewhere in the city. You get an item of jewellery for each gallery that you complete and this should be given to Pita in exchange for a script with a message on.

Tim O'Connell has baffled me with his problem in the *Hobbit*. He says he is "stuck in an empty place. Below is a heavy rock door, above is a bow, to the east is a red golden dragon and below is a web and a round green door".

Where is this place? I have yet to see the *Hobbit* but my map doesn't agree with Tim's description. Can anyone help? Meanwhile Tim, Bard will kill the dragon for you and to get through the web you must SMASH WEB for each move you make.

Emma Larkin wants to know how to get the white pills-out of the bottle and where to find the combination of the safe in *Suburbia*. Can anyone help her?



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Ranked Best Modem and Software for Amstrad Computer User

I HAVE already introduced you to the principles of Forth and showed how this language handles its math. We did some simple sums and printed out the results last month.

We also saw how by typing in:

```
HLIST
```

we could examine the list of new command words — the vocabulary — used by Forth. Now we'll see how these words are used in programming.

The Forth word **VARIABLE** allows us to set up variables which can be used to store various values throughout the duration of a program.

To define a variable called **FRED** and give it an initial value of 99 we would type:

```
99 VARIABLE FRED
```

which will reserve a section of memory, store the value 99 there, and allow it to be referred to using the word **FRED**. Notice that, as usual, the number 99 comes before the words which will use it.

This variable can then be accessed using the **@** and **!** operators, which are similar to **PEEK** and **POKE** in Basic. Whenever the word **FRED** is now typed it will leave the address of the variable on the stack and we can then use **@** to **PEEK** the value stored there, or **!** to **POKE** a new number into this address. For example, the line:

```
FRED !
```

will store the address of **FRED** on the stack, remove this address and replace it with the value stored there — in this case 99 — and finally print this number to the screen.

Alternatively, we could use the Forth word **?** which combines the operations of **@** and **!** so that:

```
FRED ?
```

would print 99.

If we want to alter this value to, say, 500 we simply type:

```
500 FRED !
```

This works by first placing the value 500 on the stack, then the address of the variable **FRED**, then the word **!** takes the top two items from the stack and places the lower stack item at the address indicated by the top stack item. In other words it

The basic tools to construct Forth programs

places 500 at the address of **FRED**.

We can also have conditional tests in Forth, similar to the **IF ... THEN** structures of Basic, which we can use to execute different sets of words depending on the outcome of a particular test. For example, if we wished to test whether or not the top two numbers on the stack were equal we could use:

```
+ IF ." equal" THEN
```

which works as follows.

The word **+** takes the top two items from the stack and replaces

and of the statement.

We can also incorporate the word **ELSE**, as in Basic, to enable us to take some action if the two numbers are not equal. For example:

```
= IF ." equal" ELSE ." not equal" THEN
```

will still print "equal" if the numbers are the same but will now print "not equal" if they are different. This is similar to the Basic statement:

```
IF #0 THEN PRINT "equal" ELSE PRINT "not equal"
```

which has exactly the same effect except that the word order is reversed in Forth.

Forth also allows us to use loops in our programs, and these may be simple **FOR ... NEXT** type loops — as in Basic — or more complex types such as **BEGIN ... UNTIL** and **WHILE ... REPEAT**. The **FOR ... NEXT** type loop is implemented in Forth using the words **DO** and **LOOP**, as in the following example:

```
10 0 ." Hello" LOOP
```

which will print out Hello! on the screen 10 times.

The first number in this example is the limit of the loop — the number at which the loop will finish executing — and the second number is its starting value.

As usual these numbers are in the reverse order from what you might normally expect.

This loop will begin with an initial value of 0 and will execute the word between **DO** and **LOOP**. It will print Hello! incrementing the loop counter each time, until it reaches the value

STEPHEN DEVINE
concludes his
introduction to
a second language

them with a true flag if they are the same or a false flag if they are different.

The next word, **IF**, tests the flag on top of the stack and if it is true then all the following words up to the word **THEN** are executed.

In this case only one word is present and this is **!** which is similar to **!** except that it prints out all the following characters until a second **!** is encountered. Note the space after **!** which is essential since **!** is a Forth word.

So if the two numbers were equal we would get the word "equal" printed out on the screen. If, however, the word **IF** finds that the flag on the stack is not true then it skips over the following words until it meets the word **THEN**, when execution continues as normal, this time with the

From Page 29

10, when execution will continue with any words after the word LOOP.

This is slightly different from Basic's FOR ... NEXT loop which continues looping until the loop index is greater than the limit. Thus the Basic statement:

```
FOR I = 0 TO 10: PRINT "Hello" ; I  
NEXT I
```

would print the word Hello 11 times while its Forth equivalent would stop after the tenth printing.

Note that, unlike in Basic, you do not have to set aside a special variable — I in the above example — to contain the loop counter, since Forth does this for you automatically.

This means that you cannot easily access the loop counter while you are inside a loop, but some versions of Forth allow you to do this by providing the special word, I, which takes the current value of the loop counter and places it on top of the stack.

This can then be accessed like any other stack item, as in the following example which prints out the value of the loop index each time the loop is executed:

```
10 0 10 I . LOOP
```

Remember that I puts the loop index on to the stack and . takes it off again and prints it.

The Forth WHILE ... REPEAT loop operates in the same way as the Basic WHILE ... WEND — that is, the statements within the loop are executed as long as a specific condition is true.

The only difference in Forth is that the condition appears before the WHILE part and not after it, and an extra word, BEGIN, must be included at the start. For example:

```
BEGIN WHILE ." equal" ... other word  
... REPEAT
```

will repeatedly print "equal" and execute the other words as long as the top two stack items are the same.

The third loop structure usually provided by Forth is the BEGIN ... UNTIL loop which, as you might expect, will repeatedly execute the enclosed statements until a specific condition is true. For instance, the following example will repeat the enclosed words until the number on

top of the stack is equal to zero:

```
BEGIN ...new words... 0 UNTIL
```

0= is a Forth word which tests if the value on the stack is equal to zero and replaces it with a true flag if it is, and leaves a false flag if not.

Note that although this loop structure seems to be the exact opposite of the BEGIN ... WHILE ... REPEAT one there is one major difference. The BEGIN ... UNTIL loop will always execute at least once, since the relevant condition is not tested until after the enclosed statements. The WHILE ... REPEAT loop, however, will be skipped over entirely if its associated condition is false from the outset.

Let's return to arithmetic to illustrate some further Forth words and, in particular, to gain a better understanding of the operation of the stack.

Suppose that we had a number on the stack which we wished to add 3 to, then multiply the result by our original number. We could easily tackle the first step by using:

```
3 +
```

which would indeed add 3 to the top stack item and leave the result on the stack. But because the word + removes its arguments from the stack and replaces them with their sum we have now lost our original number and therefore can't perform the necessary multiplication.

We could first store this number in a variable until we had completed the addition and then retrieve its value when we wanted to multiply. But this involves using a lot of extra commands and would hardly be worth doing for such a trivial problem.

A far easier method involves using the stack itself as a temporary store by first making use of the word DUP which will make a copy of the top item on the stack.

We can then perform our addition as before, but this time we will be left with two numbers on the stack — the result of our addition and, below this, a copy of our first number. We can then proceed to multiply these two numbers together to obtain the final result.

Thus the complete process then becomes:

```
DUP 3 + .
```

with the final . added to print out the result.

In addition to DUP Forth provides other words which we can use to reorganize the stack. DROP will remove the top item from the stack and discard it, giving us access to the next item. OVER and ROT are similar to DUP, only more powerful. OVER will copy the second stack item to the top of the stack so that, for instance, if we typed:

```
4 4 OVER
```

the number 4 would be duplicated on top of the stack so that the stack would now contain:

```
4 4 4
```

with the far right 4 being the top item. ROT will rotate the top three stack items, bringing the third item to the top, so that:

```
4 2 3 ROT
```

would leave the stack containing:

```
3 2 4
```

with, again, the far right number being the top item. This is the standard form of notation for representing the order of items on the stack.

These four basic stack operations allow us to perform calculations on numbers which cannot otherwise be easily accessed.

For instance the line:

```
ROT DUP 4 ROT ROT
```

will bring the third stack item to the top, square it by making a copy of it and multiplying the original number by this copy, then rotate the top three items again to restore the original stack position. For example, after the sequence:

```
3 4 ROT DUP 4 ROT ROT
```

the stack will look like this:

```
20 4
```

that is, the third stack item will have been squared.

In all the previous arithmetic examples we have only concerned ourselves with the + and * operators. Of course Forth provides many more such operators, allowing us to subtract and divide, negate a number or convert it to a positive value and to perform other similar operations.

Both subtract (-) and divide (/)

operate on the top two stack items, with the top item being subtracted from, or divided into, the previous one. For instance:

```
10 7 -
```

will subtract 7 from 10 and print out the result, 3, while:

```
10 5 /
```

will divide 10 by 5 and print out 4 as the result. Note that because Forth uses only integer arithmetic, any remainder from a division will be lost, as in the case of:

```
10 3 /
```

which will print out 3 as the result, and not 3.3. However, we are able to find the remainder of any division by using the word **MOD**, as in the following example:

```
10 3 MOD
```

which will give us the answer 1, since this is what remains after we divide 10 by 3. These two operations are combined in the Forth word **MOD** which gives both the above results, so that:

```
3 3 MOD
```

will leave the stack containing:

```
2 1
```

since 6 divided by 3 gives 1 remainder 3.

We can negate a number using the word **MINUS**, which will change the sign of the top number on the stack, so that it becomes negative if it was previously positive and vice versa. For

instance:

```
4 MINUS
```

will print -4.

To convert a number to its absolute value we use **ABS**, which will always make the top stack item positive, regardless of what it was before.

The words **MAX** and **MIN** respectively leave the maximum and minimum of the top two numbers on the stack - and the logical operators **OR**, **AND**, **XOR** and **NOT** - which work just like their Basic counterparts.

There are also various conditions which we can test for, some of which we have already encountered, and these include **<**, **=**, **>**, **0=** and **0<**.

The first three compare the top two stack items with each other and the last two compare the number on top of the stack with zero. All these operations leave either a true flag or a false flag on the stack which can then be used to determine an appropriate course of action, depending on the outcome of the test.

No language would be complete without some means of accepting your input during the course of a program, and Forth provides this using the word **KEY**. This will cause Forth to wait for a key to be pressed and will then store its ASCII value on the stack.

We can use this fact to create a word, **GETID**, which will accept 10 characters from the keyboard and display them in reverse order. For this we must incorporate the word **EMIT** which will take an ASCII value from the stack and print out the correspond-

ing character. The complete definition is:

```
1 GETID 10 0 DO KEY LOOP 0 0 DO EMIT
  LOOP OR
```

The program listed last month has a number of special editing commands which enable you to examine and manipulate any vocabularies you create. These commands all begin with an asterisk (*) and are shown in Table 1.

The Amstrad specific commands are provided mainly to enable you to use graphics and they include the following:

CLS clears the graphics screen, just like the Basic command, and requires one parameter from the stack - the background ink which you wish to clear the screen to.

DRAW, **DRAWL**, **PLOT**, **PLOTR**, **MOVE**, **MOVER**, **TEXT**, **TEXTR** all operate just like their Basic counterparts, except that with the first four you cannot specify which ink to draw in - this must be done with the next command.

Each of these words takes its coordinates from the stack - the top item being the x coordinate and the next item the y coordinate.

GRAPEN sets the current ink in which all subsequent pointplotting and linedrawing will take place.

Two special words are provided - **RND** and **FRE**. **RND** will place a random number, in the range 0 to 32767, on the stack and **FRE** will place on the stack the amount of free

***WLST** Produces a complete list of all the core words recognised by the system.

***LIST** Lists all the additional words created. If a particular word is specified, such as ***LIST GETID**, it will list the complete definition of the specified word. This feature is not found in most other Forths.

***VARLIST** Lists all variables you set up, together with their current values.

***WORDSET** Erases a specified word, together with all subsequently defined words. This is necessary in case the word was used in the definition of some later word and is common to all Forth systems. Variables, however, may be individually deleted by this command without affecting any other variables.

Note that the core vocabulary is protected and cannot be deleted.

***SAVE** Saves the whole current user vocabulary to tape (or disc if connected) for later use. A tape file name must be specified and this must be no longer than eight characters. It may not be followed by an extension command. If no such extension is included the program will add the suffix **.ATH** to the filename.

***LOAD** Loads a previously saved vocabulary from tape (or disc), overwriting the current user vocabulary - but not the resident core vocabulary, which is always present. Note that the same constraints apply to the file name after ***SAVE**.

From Page 37

memory remaining.

Other screen operations such as ink setting and mode changing can easily be defined using Forth itself. The required definitions are shown below:

```

I CLS 13 ONIT I
I MODE 4 ONIT ONIT I
I PEN 13 ONIT ONIT I
I PAPER 14 ONIT ONIT I
I BORDER DUP 29 ONIT ONIT ONIT I
I FLORIDER 29 ONIT ONIT ONIT I
I INK DUP NOT 28 ONIT ONIT ONIT ONIT I
I
I FLINK NOT 28 ONIT ONIT ONIT ONIT I
I
I LOCATE 31 ONIT ONIT ONIT I
    
```

These commands all work by printing the appropriate control characters — using ONIT — for each operation. These characters are fully detailed in Chapter nine of the User Instructions.

The CLS command takes no parameters while the words MODE, PEN and PAPER each require one number from the stack.

Note that the INK and BORDER commands have two variants. This is because each ink can be set to display either one steady colour or to alternate between two different colours.

When using the control codes two parameters must be supplied, even if only a steady colour is required (in which case the two parameters must be the same).

To save us typing two numbers every time the normal INK or BORDER command requires only one colour which it duplicates before printing the appropriate control code.

The flashing variants, FLINK and

FLORIDER each require two colour parameters to provide a flashing colour.

To use the INK commands, you must type:

(ink number) (colour) IN

for a steady ink and:

(ink number) (first colour) (second colour) FLINK

to obtain a flashing ink.

The word LOCATE is used as follows:

(y-coordinate) (x-coordinate) LOCATE

and has exactly the same effect as the basic LOCATE.

These additional words, in conjunction with the words provided in the core vocabulary, should provide you with the basic tools to enable you to construct substantial Forth programs of your own.

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ONE 8080 utility supplied on Amstrad's CP/M disc which is useful, if only in the absence of anything better, is DDT.COM which stands for Dynamic Debugging Tool.

This is a CP/M debugger which allows us to load files from disc and control program execution as well as examine and change memory. Load and run DDT by typing its name and after it has signed-on issue the command:

^@

to display 30h bytes of memory starting at 0000h. The first number in a line is the address of the first byte displayed — 18 bytes from that address onwards are then displayed in hex.

At the end of the line are the Ascii characters which the values in memory might represent — if the value of a byte is not a legal Ascii character then a dot "." is printed instead.

This Ascii field makes it easier to scan and read blocks of text. You can examine a disc file by loading it into memory either from within DDT by using the L and R commands as follows:

^@L10,000 This initialises an PCB.
^R This reads the file specified in the PCB, or by typing its name as a parameter on the command line when you invoke DDT.

OF:

^@dt stat,00

^@dt test,00

The file is then loaded into the TPA as if it were a program about to execute and DDT displays some status information of the form:

NEXT PC
1500 0100

NEXT tells us the first memory location free above the program which has been loaded and **PC** tells us the address pointed to by the user program counter and is used as the default if you enter a command such as **D** without specifying an address. Note the value of **NEXT** — you will need to use it to work out the number of pages the program takes up if you intend to save any changes you might have to make.

To exit DDT just type **Ctrl-C** and you can then use the **CCP** save

Dynamic debugging

Part VI of COLIN FOSTER's exploration of CP/M 2.2

command to write your file in memory to disc if you have made any changes you want to keep.

If you ask DDT to load a .HEX file, such as the output from assemblers like ASM and Z80M, DDT will convert it to binary first and then load it into the appropriate place.

The **G** command will execute code — you can specify the entry address and up to two breakpoints. For example, typing:

^G

will execute code starting at whatever address the current value of the user program counter is pointing at while:

^G100,10,300

will execute code starting at address 100h, but will first insert a breakpoint instruction (RST 6) at addresses 124h and 300h.

DDT keeps track of the contents of the processor registers as used by the program being debugged — you can examine and change any of these with the **X** command. For example, typing:

^X

will display the current contents of all the registers. Typing:

^X0

will display the current value of the user program counter. If you then just press Enter it will not be changed but if you type a hex number then the user PC will be changed to this new value.

Similarly as will let you alter the accumulator, **xb**, **sd** and **sh** will let you alter the double registers **BC**, **DE** and

HL respectively and **sl** lets you alter the Stack Pointer.

The **T** command will trace through the program, displaying the contents of the processor registers after each instruction has been executed. Typing:

^T

will trace a single instruction. Typing:

^T0

will trace 30h (32 decimal) instructions — note that all numbers which you give DDT are taken to be hexadecimal. The associated command is **tr** (Trace) will execute the specified number of instructions but will only display the register states once, at the end.

This can be useful if, for example, you simply want to check the register contents on entry to and exit from a subroutine and don't want the screen cluttered up with all the intermediate results.

Unfortunately there is an important limitation on the usefulness of the trace commands — DDT is an 8080 utility and so only understands the subset of the Z80's instruction set which the old 8080 was able to execute (this was explained in more detail in last month's article).

This means that if we try to trace a program written specifically for a Z80, DDT will almost certainly meet an instruction which it does not understand. The consequences of this are unpredictable, but tend to be brief, spectacular and fatal.

So remember if you intend to

From Page 25

defining a program using DDT you must either write in 8080 assembler and use ASM, or if you have a Z80 assembler, restrict yourself to using instructions for which there are 8080 equivalents – see the table in last month's article for a list of these.

The same restriction applies to another useful facility, DDT's line assembler. Typing:

```
-L200
```

will put you into assembler mode and redisplay the address – 200h in this example – at which you wish to CRF your code. You can then type in a sequence of assembler instructions such as:

```
ORG    equ 4,2  
ORG    out 24  
ORG    ret  
ORG
```

and DDT will insert the appropriate machine code into memory. Just pressing Enter as it occurs gets you out of assembler mode. As you may have noticed the line assembler must be given 8080 mnemonics, not Z80.

The L command does the opposite of this – typing:

```
-L100
```

will display a disassembly of a section of code starting at the specified address. Again this will be displayed in 8080 assembler mnemonics and extra Z80 instructions will not be recognised – they will be printed as

17 – to show DDT's confusion.

The S or Substitute command allows you to step through memory, altering bytes if you wish. Typing:

```
-S100
```

will redisplay the address – 100h in this case – and will also show the value of the byte at that address. Just pressing Enter will step on to the next byte without changing the first one and typing a hex number will substitute it for the old value before stepping on to the next location. This continues until you enter a full stop.

To move a block of memory type a command such as:

```
-M100,201,1000
```

This copies the block starting at 100h and ending at 2FFh inclusive to an area starting at 6000h. The original memory area is not altered. To fill an area of memory with a value, for example 0FFh, type:

```
-F1000,1000,ff
```

which will fill the area starting at 1000h and ending at 1FFFh inclusive with the value 0FFh.

DDT has the ability to perform elementary hexadecimal arithmetic – typing a command in the form:

```
-A,x,y
```

where x and y are hex numbers will make DDT display the sum and the difference of the two numbers.

Use DDT to examine the SPA before and after loading a file and identify the information it contains. Look at any programs you have

written and practice tracing and executing the code using breakpoints. You'll be making a lot of use of DDT or something very similar if you start writing programs to run under CRM, so it is well worth learning how to use it properly.

There are many other debuggers around – CRM Plus, for example, comes with a more powerful one called SID – but all work in very similar ways to DDT. Often even the commands are the same – some can just do more than others.

Several are available in the public domain and Rick Samello's powerful Z80 debugger ZDE (SIO/M library volume number 2399) stands out here. But because the inevitable trade-off in a small system such as ours – the more powerful a debugger is, the bigger it is.

When you run a debugger the first thing it does is to relocate itself up into high memory just below the 8000h. When you then load other programs it fools them into thinking that it is part of the 8000h and so is not overwritten by them. However this trick means that the TPA available to other programs is reduced in size by the length of the debugger.

If you are only debugging small routines this should not be a problem, but if you wish to write and test large programs on an Amstrad you will probably want the smallest debugger you can find.

Having described the structure of CRM and some of the facilities and utility software available to us we'll use the knowledge to help us write routines and programs which will run under CRM on our Amstrads, and exploit its capabilities.

Last month I introduced the concept of 8000h function calls, which are routines inside the 8000h we can use to carry out particular functions for us by calling them in a standard way. These functions fall naturally into two groups – those which are concerned with disc operations and those which are not.

We'll start with the latter group as they're simpler. Figure 1 lists the 13 non-disc function calls with any parameters which they expect to receive as well as those which they

No.	Function	Input parameters	Output parameters
0	System reset	None	None
1	Console input	None	A = char
2	Console output	E = char	None
3	Reader input	None	A = char
4	Punch output	E = char	None
5	List output	E = char	None
6	Direct console I/O	E = 0FFh (input) E = char (output)	A = 00h (no char) A = char (char read) A = 00BYTE
7	Get 10BYTE	None	None
8	Set 10BYTE	E = 00BYTE	None
9	Print string	DE = addr of buffer	None
10	Read console buffer	DE = addr of buffer	(buffer) = char A = 00h (no char)
11	Get console status	None	A = 0FFh (char read) HL = Version No.
12	Return version number	None	HL = Version No.

Figure 1. Non-disc 8000h function calls

FINDBAD.COM

THIS utility lets you test a disc for damage or bad sectors non-destructively. It will test all sectors on the disc and group any bad ones it finds into a dummy file to prevent their use.

It should then be safe to use the disc as normal - however if you don't know why a sector has failed then treat the whole disc with suspicion and check it regularly if it is still in use.

FINDBAD should really only be used on blank discs immediately after formatting, otherwise if a bad sector is found any information in it will be lost. It will only run under CP/M 3.2 - not CP/M 3.1

NSWEEP.COM

THIS is the latest version (2.07) of the popular utility NewSweep. It is of particular use if you have two disc drives, but even on a single-drive system it allows you to selectively delete files, squash and unsquash text files, alter file attributes, rename files and much more.

Type ? once you are into NSWEEP to display a menu of functions. We'll explain a little about each in turn.

A - Retag files, T - Tag file for mass, W - Wildcard tag of files

Many of NSWEEP's functions operate on groups of files which you have selected for a common operation. T will tag the file the cursor is at to mark it for participation in any future multi-file operation. This will be shown on the file list by an *.

After any mass operation tagged files are put into limbo and marked with at. If you want to retag the same files for another operation type a, if not the first new t you do will untag all the old ones.

W allows you to specify groups of files for tagging using wildcard names - for example, typing *.com in response to NSWEEP's Tag what? prompt will tag all .COM files with names starting with C.

B - Back one file; at, sp - Forward one file; P - Find file

Pressing Enter or the spacebar will step you forward through the file list and B will move you

backwards which is useful for getting to files near the end of the alphabet. A faster way of reaching a particular file is to use f - NSWEEP then prompts with Find what? to which you can type any or all of the letters of the filename.

D - Delete file; @ - Erase T/U files

D allows you to delete the file which the cursor is at in the list - NSWEEP prompts for confirmation. @ allows you to delete some or all of either the files you have tagged for mass operations or the ones which you have not tagged.

NSWEEP prompts for tagged or untagged files and whether you want to confirm individual files. If you type a in response to the Delete (Y/N/Q) prompt the operation will abort.

L - Log new disc/user

Type L or L allow you get New drives/user/mask? To select drive B; for example, just type B. To log to user 2 on drive A: type a2. To only deal with .COM files in the currently logged drive/user area type *com - and so on.

M - Mass file copy

This command allows you to copy any number of files which you have previously tagged to another disc and/or user area. Typing a r after the drive/user specification will force NSWEEP to verify each file after copying it.

Y - View a file -and P - Print a file on the LST device

These commands will work on squashed files as well as normal ones - you don't even need to unprepare a file before you look at it or print it out.

Q - Squash/Unsquash files

NSWEEP uses Huffman coding to reduce the size of a text file by between a third and a half - this is useful on systems like the Amstrad where we have very small discs.

When you type q you are prompted with Squash, Unsquash or Reverse (S, U, R)? Select an appropriate and you are

prompted with Copy to drive/user? Type a for drive A, current user; b2 for drive B; user 2 and so on. All files you have previously tagged will then be squashed or unsquashed as requested.

R - Rename files

Type r and you are prompted with New name, or ? Typing a new name will rename the file that you are currently at in the list. Typing * takes you to a further prompt Old name?

You can specify the numeral of the file(s) you wish to rename. The real power of the command lies in its ability to accept wildcard filenames, for example, *.xxx means all files with extensions of XXX.

After this you are prompted for New name? which again will accept wildcards. So, for example, if we answered ?yyy to this we would take all files with extensions of .xxx, keep their names the same but change their extents to .yyy. It gets better - this command also allows us to change a file's user number.

The following dialogue Old name? D:*.xxx New name? Z? yyy would not only change the filename as before but would also move the affected files from user 0 to user 2.

S - Check remaining space

This allows us to check the space free on any disc before copying files to it - NSWEEP prompts for the drive to check.

Y - Set file status

Type y or Y and you get Which flag (1-4, B,S,A)? One to four are the user bits in the filename - used for file protection by some programs such as MBasic, for example.

R is the RW/S/W flag which when set writes/Deletes-protects a file. B is met with W, S is the BSYS/SOEH flag which when set hides a file from a directory listing. It is met with O, A is the "Archive" flag which is used under CP/M 3 only. NSWEEP will work happily under both CP/M 2.2 and CP/M 3.

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will return. We'll examine the functions individually next month, but for the moment we'll look at the way these powers are invoked.

As an example let's use function number 2 - Console Output, often abbreviated to CONOUT. We would use this function to print a character on the screen.

From Figure 1 we see that the BIOS expects us to put the character we want to print into register E, and will return nothing - in other words we won't get any error messages back if things go wrong as we will with more complex functions.

If we remember from last month that we also need to put the number of the function we want into register C and execute a CALL instruction to address 0005 of the SPA we can write the short assembler program on the right to print an asterisk on the screen.

Notice how we finished the

```

; Program to demonstrate use of BIOS
; function 2 - CONOUT - by printing
; a * on the screen.
;
org 100h ; Start at base of TPB
;
console equ 2 ; Function number for CONOUT
start equ 0005 ; Start boot address of start of SPA
bios equ 0005 ; BIOS entry point in SPA
;
start: ld c,console ; Set function number into C
      ld e,*' ; Character into E
      call bios ; Call BIOS routine to print character
;
      jp start ; Finish properly when we come back
; from BIOS - execute a warm boot
; and restart GPF
;
      end
    
```

program - the

jp start

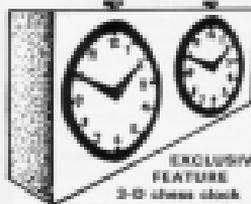
instruction executes a jump to

address 0000h in the SPA, which contains another jump into the BIOS to perform a Warm Boot and brings us back to the CCP prompt.

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Create records by copying from similar records	NO	YES
Records output in alphabetic sequence	NO	YES
Records output can be selected/sorted on any field	NO	YES
Records can be output to word processor file	NO	YES
Use of 8256 Memory drive for quick program loading	NO	YES
Full use of any number of disc drives for data	NO	YES
Use of one program disc at start of Day	NO	YES
Need to swap discs during normal processing	YES	NO
Help key available for any input	NO	YES
Programs can be password protected	NO	YES
Single menu for selection of all programs	NO	YES
Full use of 8256 special function keys	NO	YES
Date entries validated as genuine dates	NO	YES
STOCK FEATURES		
Up to 8 characters in reference stock items	NO	YES
Stock items numbered 1 to maximum capacity	YES	NO
Record of supplier's orders for stock	NO	YES
Use of lead time to calculate delivery dates	NO	YES
Variety of stock analysis codes	NO	YES
Stock Re-Order level allows for outstanding orders	NO	YES
Up to 3 Sales Prices per stock item	NO	YES
Use of "price per" if stock sold by quantity	NO	YES
Stock quantity updated by invoice or direct issue	NO	YES
Percentage uplift of prices for groups of stock	NO	YES
Output of Price List to send to Customers	NO	YES
INVOICING FEATURES		
Use of name to reference customer	NO	YES
Customer analysed by Sales Area/Rep.	NO	YES
Automatic invoice discount by customer	NO	YES
Default delivery address for each customer	NO	YES
Invoice details built up on the screen	NO	YES
Discount rates at any stage of invoice	NO	YES
Manual lines of any stage of any invoice	NO	YES
Invoice printed and stock updated immediately	NO	YES
Maximum number of invoice lines per batch	118	2330
Profit statistics by product group by sales area	NO	YES
Profit statistics by product group by customer	NO	YES
Profit statistics comparison with last year	NO	YES
SALES, PURCHASE AND NOMINAL LEDGER FEATURES		
Complete flexibility over Account structure	NO	YES
Maximum number of items in posting batch	15	50
Input of more than 1 nominal allocation per item	NO	YES
Input of more than 1 VAT rate per posting item	NO	YES
General total check at end of posting batch	NO	YES
Print of Audit Trail at end of posting batch	NO	YES
General record held for every ledger posting batch	NO	YES
Set items as disputed for separate control totals	NO	YES
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THE POWER OF THE MOUSE

By
**GABRIEL
JACOBS**



If you still think a mouse is just a furry mammal you haven't been keeping up with hardware developments over the last few years. A mouse is also a small plastic box with one or more buttons on top, and a tracker-ball mechanism underneath.

It is linked to a computer via a cable — the mouse's tail, if you like — and the general idea is that it can be used for many operations instead of the keyboard.

When the mouse is pushed along a flat surface the tracker-ball rotates two discs set at right angles to each other. A light shines through perforations in the discs, and the pulsed signals are received by an encoder.

The pulses are sent to the computer, where they are interpreted as the length and direction of the tracker-ball movement, and a symbol — an arrow or a pencil — moves around the screen accordingly.

The buttons are there to execute

Product: AMX Mouse.

Price: \$89.95 for cassette, disc, Mouse and Interface.

Supplier: Advanced Memory Systems, 155-175 Wilshire Blvd., West Hollywood, California 90069. Tel: 0212 473000.

commands, for example to make a selection from a menu when the symbol is pointing to an item on it, or to pick up a shape and move it elsewhere on the screen.

When the first mouse gingerly crept into the marketplace with Apple's fabulous but expensive Lisa machine (which, like *Concord*, was too far ahead of its time to be a commercial success), it was thought by many to be something of a gimmick.

But Apple stuck to their guns and put it out as standard with the Macintosh. The species came to be

accepted as a desirable business tool, and has proliferated, as you would expect mice to do, on a number of machines.

Executives who for one reason or another are averse to the keyboard seem to love the little creatures. Good data entry requires accurate, rapid touch-typing, but many executives need do no more than select a few options, plus maybe a bit of cutting and pasting. A mouse is ideal. Perhaps equally important, it's also fun.

The AMX Mouse will interface with the Amstrad 664, 664 or 6128, taking its power from the monitor. It comes with simple push-connectors — no hard-wiring is involved — a range of software on cassette which is easily transferred to disc with the routines provided, and a fully documented and readable manual.

As a piece of hardware the product is not quite as well designed as some of its high-class competitors. It does

not feel as solid, not does it fit as comfortably in the hand as, say, Microsoft's No. 5 mouse for the IBM PC.

But it is reasonably well made, and in particular its three buttons, Execute, Move and Cancel, react to the lightest of touches, while having just enough travel to allow a finger to rest on them without activating them unintentionally.

Provided that the surface it moves over is fairly even and not too highly polished it produces a smooth and responsive movement of the screen pointer.

A mouse can only be used after loading the special software it requires. In this case AMX Control. It sets up an extended set of bar commands, then sits in memory allowing other programs to be loaded alongside it.

Some of the commands are concerned with pointer control, and include a *STEP* command which allows you to alter the number of pulses generated for a given amount of movement. This can turn the mouse into a precise pointing device, far more accurate than light pens or digitisers in the same price bracket.

As a bonus, AMX Control also gives you a set of commands which offer quick and easy ways of improving screen presentation. With a single command you can cover the screen with a desk-top background. You can produce overlapping windows which the mouse will treat as separate screen areas, changing its pointer symbol as it enters them.

Most important of all, you can load and display previously designed icons - graphic representations of ideas, such as a tiny picture of a waste bin which might be used as the symbol for deleting files. When the pointer symbol is moved to an icon the

Execute button will generate the code the icon has been set to represent.

All the AMX Control commands can be incorporated into your own basic or machine-code programs, and two of them can also be used very simply with commercial software. One converts the movement of the tracker-ball into cursor codes rather than graphics coordinates.

The other can be used to re-configure the buttons to return values different from the defaults - Return, Copy and Delete, for instance, or codes corresponding to the function keys. The commands cannot be guaranteed to work with every commercial program, but there were no problems with those I tested, including *Tasword*.

AMX Control must also be installed before running the customised application software included with the mouse, that is to say AMX Art, Pattern Designer and Icon Designer. In many ways this software is the most impressive part of the package, and certainly the one new users will be most concerned with.

■ **AMX Art** is a graphics program, driven by a series of pull-down mouse-controlled menus, which allows you to create pictures on the screen, save them to tape or disc, and dump them to an Epson[®]-or-compatible printer.

When the AMX Mouse was first made available for Amstrad machines late last year, the graphics were monochrome. The new release of AMX Art is in glorious colour, though of course you're still stuck with shades of grey at the printer.

The drawing area, which takes up most of the screen, is flanked on the left by a scrolling window from which you can choose any of 32 patterns in the wide range of colours offered. This is like having an artist's palette at your disposal, but with paint that can automatically produce hatching, dots, and stripes.

You simply move the pointer over the pattern you want, and press Execute to confirm your choice. The current pattern is displayed in a box at the bottom of the window, and can then be used in the drawing area. But first the drawing mode has to be selected.

This is done by moving the pointer to another scrolling window on the right-hand side of the drawing area

↳ *Anyone with even a scraping of talent can create effective paintings which would be much harder to achieve with pencil and paper* ↵

which contains icons representing the various modes available - Spray, Fill, Pencil, Rubber, Circle, Box, Text, and the like.

Having selected the mode, again with the Execute button, and re-centred the drawing area, the pointer symbol changes to conform with the current setting. So if you have chosen Spray the pointer symbol becomes a little spray gun, and you can spray the current pattern anywhere in the drawing area to your heart's content.

It is a simple matter to create varied and interesting designs. Within a few minutes of loading the program for the first time I had concocted a colourful work of abstract art, topped with some self-congratulatory text in large bold italics, the whole set in a background of a delicate shade of rose pink.

I admit that none of my subsequent attempts turned out to be either more aesthetically pleasing than that first one, or recognisable as true-to-life pictures, but that reflects my own artistic limitations rather than the quality of the program.

However, anyone with even a scraping of talent will be able to create effective paintings which would be much harder to achieve with real pencils, paint, brushes and paper.

With a judicious combination of the Spray Gun, the Paint Roller and the Pencil, complex and detailed designs can be built up, changed and re-changed until they are satisfactory.

There is even a Zoom facility which magnifies a selected area of the screen so that it can be edited pixel by pixel.

■ **Pattern Designer** is meant to be used in conjunction with AMX Art,

↳ *The new release of AMX Art is in glorious colour, though you're still stuck with shades of grey on the printer* ↵

From Page 41

and allows you to create your own set of up to 32 patterns, again by turning individual pixels on or off.

Using the mouse and a series of icons you can draw patterns on a blank 16 x 16 grid, edit existing ones, see what they will look like when reduced in size to the normal screen display, move half-baked ideas to a Scratchpad, put the ones you're happy with into a temporary window before saving them, in fact do just about anything with them.

Icon Designer works on exactly the same principles, but has some extra facilities for disc users, allowing greater flexibility in loading and saving. The program is meant primarily for designing icons to be incorporated into your own routines, so for some users it will be the most important module.

Icon-driven programs are just about the most effective way of providing a friendly interface between

man and computer - the AMX software itself is proof enough of that. Writing this kind of interface is normally a complex task, but with the AMX Mouse and Icon Designer, it really is a cinch.

Many manufacturers give prominence to the small footprint of their computers - the amount of room they take up on a desk - leaving that much more space available for documents, books, reading lamps, and other paraphernalia.

Yet the manufacturers of mice for mousesel meant to be used with these same machines proclaim the enormous benefits of their product, but admit the little fingerprints happen to require a fairly large undisturbed desk space. You have to decide where your priorities lie.

If desk space is not a serious problem the AMX Mouse is a superb buy.

At £88.88 it is not cheap in relation to the cost of your machine, but it is good value for money as mice

go, and the bundled software is magnificent. I can't think of another add-on in the same price range which will give you as much equipment combined with as much practical potential.

Added to this is what is almost certain to come. The AMX Mouse for the BBC Micro has been around for some time, and has generated a good deal of software, from extra utilities to mouse-driven music editors, both commercially and as listings in magazines.

We can already see the beginnings of this on Amstrad machines. Mrs Office 2 and Electric Studio's Light Pen software have been configured to be used with the AMX Mouse. And at the time of writing, AMX are putting the finishing touches to some new utilities, including extended commands for AMX Art such as Rotate, Stretch, Stretch and Mirror.

The AMX Mouse's future on the Amstrad looks as if it will be as rosy as that first picture I created.

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PASCAL THEORY

PASCAL arose from investigations into possible developments resulting from the inclusion of data structuring facilities in an ALGOL-60 like language.

It was designed around 1970 mainly by Professor Niklaus Wirth working at the Institute for Informatics in Zurich, but also benefited by the inclusion of some of the ideas of C.A.R. Hoare who was also working on data structuring facilities in programming languages.

He published his language in 1971 and named it after the great seventeenth century French philosopher Blaise Pascal, who invented one of the earliest known calculators.

Two years later, in 1973, Hoare

and Wirth attempted a formal definition of the language in response to user experience to bring light on areas of uncertainty. This led to a revision and extension of the original language.

As with all computer languages, Pascal was designed for a specific purpose. Niklaus Wirth's main objective was to produce a language better suited to teaching programming than any existing language at the time. He was successful in his aims and it soon became popular as a teaching language.

Very quickly user groups sprung up in several countries to exchange information and ideas on Pascal and the language was adopted by the University of California, San Diego in 1973/4 as their main teaching

... and practice: Hi-soft P

THESE are two Amstrad versions of Hi-soft Pascal, 4D and 4E. The first is a special version for disc owners which runs under CP/M, the second an ordinary version available on tape or disc that does not require CP/M.

The two implementations of the language are identical, the only differences are the editor, and storage of the source and object files. Perhaps I ought to make it clear that my own preference is for the CP/M version.

There are a total of 10 files on the CP/M Pascal disc. The two main utilities are HP80 the compiler, and ED80 a text editor.

The Pascal source text is written using ED80. This text editor is far superior to some word processors I've seen and could quite easily be used as such. The only missing functions are word wrap and justification, which in any case would be undesirable for writing programs.

The cursor can be moved throughout the text one character, word, line or screen at a time. Text can be entered in insert or overwrite mode and deleted one character, word or line at a time.

Markers can be placed around text

to define a block. This can then be moved, copied, deleted, read from or written to disc. There's quite a powerful find and replace function which also allows the use of wildcards.

Wherever possible the functions are obtained by using the same keystrokes as within Wordstar. This

places the object code in a .COM file.

Several options can be set affecting compilation. Listing can be enabled or disabled and sent to screen or printer. Error checking can be turned off or on and mathematical functions are real, or just integer, selected.

A standard CP/M .COM file is

By ROLAND WADDILOVE

means, for instance, that to move the cursor right you press Ctrl-D, left is Ctrl-S and quit is Ctrl-R.

Frankly the keys selected are appealing. Not to worry though, there's a file on the disc which enables you to alter almost every function of ED80 to your own personal taste. This is menu driven and very easy to operate.

The first thing most people will do is move those awful Wordstar cursor keys to their usual place on the Amstrad keyboard.

Having entered the Pascal source text and saved it to disc it can be compiled with HP80. This takes the source text from a .PAS file and

produced and, as with all transient commands, it is executed by typing its name.

I'm a complete noobie when it comes to CP/M, so being able to write CP/M utilities in Pascal is a great advantage. I can now type OS to clear the screen, FEN 3, PAPER 4 and so on. I'm sure a CP/M expert would never do this, but it works for me!

There are two manuals for Pascal Pascal, one describing the editor and the other the compiler. Neither will teach you Pascal, but they do contain all the experienced programmer needs to know to use this particular implementation.

The Pascal itself is pretty standard

language. UCSD were responsible for implementing Pascal for a wide range of computers.

One of the main reasons for Pascal catching on so quickly is that it is concise – the rules of grammar can be written down on just four or five pages.

Pascal is fairly simple to learn although complete beginners may have trouble initially as the knowledge required to write your first program is greater than for Basic.

Pascal is a highly structured language with a rigid format that the programmer is required to adhere to. Everything is laid out so neatly and logically that it is difficult to go wrong.

It encourages a style of programming in which programs are built up

step by step from small well defined procedures.

All programs start with the word 'program' followed by the name of the program. All the constants and variables used must be declared after the title, plus their type – for example, integer.

Any procedures used are defined following the variables and constants and the action part of the program commences with 'begin' and finishes with 'end'.

Pascal programs are very readable, being almost self documenting and needing very few comments. The program flow is easy to follow and the structure clear, making alterations, improvements and debugging very simple.

Lisp is quite interesting. Forth is

fast and powerful. Basic just a Micker Mouse toy for kids – but Pascal is a real programmer's language and a delight to use.

Pascal is a compiled language, not an interpreted one like Basic which means that Pascal programs run many times faster than their Basic equivalents.

There are two popular ways of implementing Pascal, each with its own advantages.

Either the text of the source program can be compiled to pure machine code – which makes it very fast but specific to that machine – or it can be compiled to P-Code which is then interpreted when run, not unlike Forth.

This is slower but more easily transferred to other machines.

t Pascal

and virtually identical to ISO-Pascal on the BBC Micro and Electron. I borrowed a Pascal book from the editor of *Apple User* and tried a few examples – they all ran perfectly, and somewhat faster than the Apple II, I might add. So there are plenty of books and tutorial guides the novice can turn to even though none are specifically for the Amstrad.

Pascal 4T, tape or disc, differs in the way it operates, though the implementation of the language is identical.

The whole of the compiler, runtime routines and editor are loaded and are resident in memory at the same time. This leaves around 20k for both your source text and object code, which are both present at the same time. Compare this with around 30k for source and 30k for object code under CP/M.

The source text is entered in the same way as Basic with line numbers. Editing is with the cursor and Copy keys.

In addition to the normal Basic editor several other functions are available from a menu, including search and replace and a separate line editor. Text may be inserted,

deleted, overwritten, deleted or abandoned, and can be saved to disc or tape.

The text can be compiled and the object code run or saved. The saved code can be run without the compiler being present, which means you can write your machine code routines in a high level language.

The advantages of these implementations are legion. Why use a Basic compiler when you can write in a high level language like Pascal? The Pascal compiler can cope with real numbers, arrays, SIN, COS, TAN, LOG and many more. Can any Basic compiler?

And if you want speed and haven't the time or the knowledge to write in machine code, then use Pascal.

As with the CP/M version, the manual is simply a reference guide for the Pascal programmer and not a tutorial, though there are several examples to type in.

A number of additional functions have been included in both versions of Pascal. FEEL and FOME are obvious, INLINE places 280 machine code in the memory at the current compiler address, USER calls a machine code routine and NEW reserves space for a variable.

A turtle graphics package written in Pascal has been included with Pascal 4T. This, combined with

Pascal's structure and wide range of commands, produces a powerful language for drawing quite complex patterns.

Being a compiled language, Pascal tends to be faster than Basic. In a test which simply involved counting from 0 to 30,000 Basic took 33 seconds whereas CP/M Pascal took only 20 – quite a significant increase in speed.

Porting Basic to use an integer for the loop counter brings the time down to 13 seconds. By setting some compiler options, error checking within the Pascal program can be turned off and the program forced to use integers only. Pascal then took only 1 second – 13 times faster than Basic.

This won't always be the case, as it depends on what you are doing, but some speed increase is always assured.

There are a few restrictions with HiSoft Pascal. Neither version will allow procedures or functions as parameters, and a record type may not have a variant part. CP/M Pascal allows files of CHWK only, whereas 4T does not allow files, although variables may be stored on tape.

Pascal is a structured programming language. I love it and would be quite happy to throw away Basic. HiSoft's versions are excellent, and I can thoroughly recommend them.

No comment!

DUDLEY BROOKE shows how to strip out those space-grabbing REMs after they have done their job

ONE of the nice things about listings in *Computing with the Amstrad* is the generous use of REM statements. These are an invaluable aid to the programmer.

Unfortunately as far as the Amstrad itself is concerned they are a waste of time and space. In fact a REM takes longer to be ignored than it takes a GOTO to be executed.

If you want to prove it you'll be glad to know that you can time any command using Program 1 by inserting the command in line 40 and running it. The time given will be for a single execution of the command.

What is really required is a method of removing REMs after a program has been typed in and fully debugged. Unfortunately it is almost impossible to use Basic for this task as the program would be modifying itself. The results of doing this are unpredictable and potentially disastrous.

So to have an independent program in memory and in the interests of speed we have to resort to machine code.

To discover how best to write REM Stripper I looked at the tokens used by Basic to store commands after they have been typed into a program. For further information on tokens I would recommend John Hughes' article published in the November and December 1985 issues of *Computing with the Amstrad*. Briefly though, Basic translates each command in the program into a single byte code.

A large part of a Basic program's work is jumping from line to line by means of such commands as GOTO, GOSUB and RUN. In most computers when you type a command with a line

number, for example GOTO 20, the computer will store this as a token and the two bytes following will be the line number, as shown in Figure 1.

When the program is running the interpreter finds the GOTO token and then picks up the line number which follows it. It then has to start at the bottom of the program and work up until it finds the relevant line.

This is very inefficient. Tutorials written for other computers recommend that the most used parts of the program are placed at the beginning and DATA statements, instructions and the such like are at the end. This type of structure is frequently seen on the CPC range of computers, but it is unnecessary and can even slow a program down when DATA statements are used frequently.

Looking at Figure 1 you will see that your Amstrad stores jumps in four bytes instead of three and this makes a significant difference. The &20 byte merely tells the interpreter to insert a space when listing - this is not really part of the instruction and may be disregarded.

Look at Program 11 and then compare this with the representation of line 10 in memory - Figure 2. Note the extra byte (&1E) between the GOTO token and the line number which is the form of the command prior to running the program.

In Figure 11 we see the command after it has been run - the extra byte

has changed to &1D and the destination has changed to &0179. This number is the memory address of line 20 and the advantage of this is that the interpreter can now jump directly to the destination of the jump. Amazingly the GOTO in this form will now execute more quickly than a REM statement.

Some line descendant commands do not take advantage of this system, for example RESTORE. To allow you to investigate this further type in Program 12 and save it. It displays the bytes that make up line 10, the first line of the program. You can alter this as you wish.

486 owners might be alarmed at the DDCS command. This is available but you must use an extra opening bracket, for example DDCS(0,0,0,0) in line 110. It operates perfectly otherwise and makes formatting numbers very easy. To make the program easier to use I have redefined some keys on the keypad.

Key 0 executes a RUN so that line 10 is run.

Key 1 executes a RUN 80 so missing out the line before.

Key 2 gives you a blank line 10 to fill as you wish.

Key 3 allows you to edit line 10.

When run you will see at the top of the screen the words Line Specifier and underneath some numbers. The numbers in red are the addresses in memory, those in light blue are the values at that address in hex and in decimal.

Finally there are some symbols corresponding to character values. Beneath these four bytes there is the word Tokens and more output in the same format - these numbers are the tokens and data used by the interpreter.

This aspect of Basic's operation contributes greatly to its speed but it is not the entire story.

It is a fairly simple matter to

Token	Line number
0A	0A 0A

Figure 1: Memory format for other computers

Token	Space	Address	Type	Address
0A	20	1E	or 1D	0A 0A

Figure 2: Amstrad CPC format

Line number	Line length	GOTO token	Print space	Address type	Line number	Line end marker
0A 00	0A 00	0A 20	20	1E	14 00	00

Figure 3: Line 10 before execution

Line number	Line length	GOTO token	Print space	Address type	Memory address	Line end marker
0A 00	0A 00	0A 20	20	1D	78 01	00

Figure 4: Line 10 after execution

Program: *R.O.M.A.L.D.*
Price: £8.95
Supplier: Ocean, 8 Central
Square, Manchester M2
5EQ. Tel: 061-832 8632

With a name like *Cyrus 2*, *Ocean* and a box to match, it is no wonder that the rulers of the *Real World* have had to call in the *Remains Organisation* and their as yet untested robot to try and deal with him.

Remains - Remains Organisation Mobile Attack Droid - is an autonomous war droid capable of great speed and manoeuvrability.

Glenn lives in the capital

Program: *Ping Pong*
Price: £8.95
Supplier: Imagine Software, 8
Central Square, Manchester
M2 5AQ. Tel: 061-832
8632

When you see *Ping Pong* you'll realise just how far computer games have developed over the last few years.

Remember the early days when you had to control a little white paddle and try to hit the ball past either the computer or an opponent, all in 2D!

Ping Pong is a 3D game of table tennis in which the table is viewed from over the shoulder of one of the players and the bats are held, as the

Android action

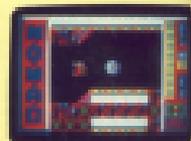
city of a man-made android and you must guide *Norman* through the city to his headquarters to rid the universe of this seemingly invisible being.

The screen leader is a fair representation of the picture on the inlay card. You guide *Norman* by either joystick or keyboard, rotating it left or right and directing it using forward or reverse thrust, firing your photon cannons to destroy anything in sight.

There are four sections to get through, slums, city-centre, headquarters and finally 'The Inner Sanctum', all defended with a variety of deadly weapons ranging from fast seeking missiles to suicidal *Robotzugs*.

The graphics are colourful and relatively smooth if a little chunky, but the sound is not desert for a game of this type.

Ocean are noted for reasonable games so anyone who



likes this type will get a fair amount of pleasure from it.
Jonathan Stern

Sound:	4
Graphics:	7
Presentation:	6
Value for money:	6
Overall:	6

3D table tennis

game instructions as nicely put it, by disembodied hands.

The title screen displays a table, the imagine legs, and a small penguin which keeps getting hit with a ping-pong ball which bounces smoothly over the screen. There is also some excellent incidental music.

The game is a fairly true representation of table tennis in which you can drive, smash, cut or spin the ball using either backward or forward shots against the computer or an opponent.

To serve, you throw the ball into the air and then drive or

spin it across the table. After that it's really up to you what shots you make, but as in the real game you'll find some are more effective than others.

The rules are the same as in the real thing but you only play up to 11 points a game, not 21.

There are five different levels of play from slow to fast so you can work your way up steadily.

The screen not only displays the table, and bats but also the scores and the game indicator tells you whether you've hit the net or the ball is out. There is also a high score



display.
The sound is quite good and the graphics are up to *Imagine's* usual standard.

I really enjoyed this game, one which I will keep going back to.

Ian Duerden

Sound:	7
Graphics:	8
Presentation:	8
Value for money:	8
Overall:	8

Program: *Battle of the Planets*
Price: £9.95
Supplier: MicroGen, Unit 15,
The Warehouse Centre,
Brockwell Road, Wat 2044
42317

At 9:30am throughout last year's school summer holidays I tried my best to be in front of the TV set to watch *Battle of the Planets*. *MicroGen* have just released an arcade style space game of the same name. I choose my words carefully as the title is the only connection the game has with the cartoon.

As captain of the *Phoenix* it is your duty to protect the inhabitants of five planetary systems against the evil forces of *Zaltar*.

The screen is divided into distinct sections. At the bottom are two windows. The

Speedy animation

first contains a series of icons which provide you with an indication of shield, status, laser systems and so on.

The second can be made to provide a detailed readout of any of the five systems from the first window. The top two thirds of the screen is the view from the cockpit.

Allied craft are displayed as 3D wire frame type drawings - the title screen shows a series of these rotating gracefully in space.

The animation is very fast and free from flicker.

For those of you who have had the privilege to play the Amstrad version of *Elite*, I can tell you that the *Battle of the*

Planets' animation is faster.

However the ships do not react at all realistically. They tend to float towards you and then pass while rotating around various axes.

You will find it necessary at regular intervals to descend to the surface of a planet. This allows you to dock with both fuel and repair ships.

While on the surface the game takes on the guise of the arcade game *Battle Zone*.

Zaltar's forces are now at the controls of 3D tanks. Having wiped out his land forces it's up, up and away to save the next planetary system.

Ited a little more realism



been programmed into the combat aspect *Battle of the Planets* would have been a sure fire winner.

As it stands I feel that the competition from *Firebird's Elite* will prove a little too strong.

Jan Reels

Sound:	7
Graphics:	8
Playability:	8
Value for money:	8
Overall:	8

Glance behind

Program: Working Backwards
Price: £14.95 (also)
Supplier: Design Design, 125
Smalley Road, Chesham
WD8 3NF, Bucks. UK
Tel: 0494-205 6603

MOST companies look to the future to try and outdo their rivals for the next round of new games. But not Design Design who, with Working Backwards, are going in the other direction.

The packaging thinks it is a compact disc, not a computer disc as it states that it contains the hit singles Dark Star, Tank Hunters and On the Run and an unreleased tennis version of

Hall of the Things. Mind you Design Design are noted for their alternative humour.

For the uninitiated, in Dark Star you control a fighter and have to wipe out the military centres of the Evil Lord who is in control of your galaxy.

Tank Hunters is based on the arcade game of the same name and you control a tank and have to destroy any enemy tanks in the vicinity. Both are in 3-D using wire frame graphics displays.

On the Run is a much more colourful maze game in which

you have to collect six dangerous flasks of chemicals within a set time limit while picking up objects and avoiding anything that moves.

The unreleased remix of the Hall of the Things should have remained unreleased. It is an old fashioned maze type of adventure game similar to ones found in books and magazines.

But the game had quite a run following amongst Spectrum owners a few years ago, so you may think differently.

At a price of £14.95, the



disc is quite good value for money considering that most companies will charge you the same price for just one game on disc.

Ian Quenby

Sound:	.....	7
Graphics:	.....	8
Presentation:	.....	7
Value for money:	.....	9
Overall:	.....	8

Program: Tank Commander
Price: £13.95 (also)
Supplier: Amsoft, Victoria
House, PO Box 10, Spen-
trance, SRI 3P, Tel:
0263 873388

AMSOFT has improved its range of software on the Amstrad with the advent of Amsoft Gold. Tank Commander continues this trend.

The program arrives on disc and uses it to access the screens. The loading screen displays a battle tank and commander in beautiful colour and detail. In fact it's a shame to leave the screen to play the game.

The object is to rescue your agents from the enemy inter-

ted combat zone using the four modes of play.

First comes the map mode in which the battle map is displayed with the positions of the agents, your tank and the enemy forces.

You then progress to the tactical mode in which you manoeuvre your tank through the various screens to rescue the agent.

If you are intercepted by, or come too close to the enemy you automatically enter the battle mode where you fight it out with whatever enemy vehicles are present.

Finally comes the pause/

status mode which allows you to have a look at the state of the game and see how you are doing.

The graphics, as with the screen loader, are colourful and exceptionally well detailed, with good sound effects.

There are a variety of enemy vehicles to negotiate from the dreadnought through to the scout car, each taking a different number of hits to destroy it and each with varying fire power.

The game is sufficiently different from many other war games on the market and is



quite enjoyable.

My only complaints are the long loading time from disc and the fact that the battle sections offer little variation.

Jonathan Stone

Sound:	.....	7
Graphics:	.....	8
Presentation:	.....	8
Value for money:	.....	8
Overall:	.....	8

Program: Sir Darcy!
Price: £2.95 (also),
£14.95 (also)
Supplier: P&L, 482 Jersey
Street, Abingdon, Oxford
OX9 3DQ. Tel: 0203
887888

THE year is 2812 and war is raging on Earth. If the central plastic computer is destroyed the satellite colonies, which the computer controls, will also be obliterated.

Darcy, an android expert in dangerous missions, has been sent by the colonists' elders to rescue the computer's memory banks and transport them to safety.

He is aided by Scooter, a small, cute polycephalus with a head like ET's. You can whistle to Scooter to come

and help you. For example, if you whistle while you are jumping he will run up beneath you, you come down on his head and then jump again to get the extra height to reach a desired object.

Eight satellites each possess one digit of the code number needed to get into the computer room. You must search for them in the research centre and get them to give you the numbers. Sadium peroxide might come in handy here!

Hindering you are punks and robots who sap your energy if you bump into them. You can replenish your energy

supply but I will leave it up to you to find out how.

The game display is in 3D with superbly detailed and colourful graphics. All the objects do something. You can either push, pull, slam, pick up or drop depending on the object.

There are many crafty puzzles for you to get your teeth into. If you push a table to the wall in the hospital, slam on it, and push the painting to one side, a secret passage will be revealed.

The attention to detail is very impressive. If you don't have the correct code sequence an enormous piece



of furniture will crash down on you. Also, if you jump up to the fan hanging from the ceiling you will be decapitated!

This is an excellent game which I can heartily recommend.

Ian Quenby

Sound:	.....	5
Graphics:	.....	10
Presentation:	.....	8
Value for money:	.....	10
Overall:	.....	10

A way to faster fingers

Program: Touch 'N Go
Price: £24.95
Supplier: Caxton Software,
 10-14 Bedford Street,
 London WC2E 8AE.

WHEN it comes to typing you either learned properly or you didn't. The self-taught are huff'n'puffers, arm-wagging pokers and two-fingered show-offs, with many variations in between.

I favoured the "real instructor" style — all 10 fingers and thumbs landing wisely up and down in a flurry of excitement but only two strokes teaching the keys.

But since getting Touch 'N Go by Caxton for review my life has changed. Well, that's perhaps overstating it a bit — but my typing has certainly improved.

Apparently typing teacher

Stan Hancock became disillusioned with traditional teaching methods based on meaningless hieroglyphic drills and resolved to do better.

Twenty odd years later the Hancock keyboard mastery method was ready and so Bob had become a computer engineer, so a computer treatment seemed inevitable.

You are guided slowly around the keyboard, shown the correct fingers for particular keys, then given a number of exercises aimed at "fixing" what you've learned so far.

You must achieve a minimum speed and accuracy rating before going on to the next exercise. The program keeps a record of your progress for you to examine later.

By the end of the course

you should be typing 40 words a minute with a minimum 95 per cent accuracy. Caxton claims you can do this in 24 hours with a bit of effort.

Two other indifferent typists also tried out the program. One restarted after we discovered she thought her thumb was her first finger. By the time she had reached lesson 4 for the second time she had forgotten which was the proper fingers as detailed in lesson 1.

Please take note of this, Caxton — and the fact that your cover notes on the substitute keys for Esc in the program have overlooked the possibility that the CPC486 can have disc drives "Control and left square bracket" in the 484 answer.

None of us found Touch 'N Go boring and all felt our typing had improved and that



the course was worth carrying.

My only reservation was that being taught to use the numeric pad instead of the top line might confuse graduates should they need to use a typewriter.

Nevertheless, amateur adults could do worse than try this if they want faster fingers.

Doreen Cox

Search	.....	9/10
Graphics	.....	8
Ease of use	.....	8
Value for money	.....	8
Overall	.....	8

Better than most, but...

Program: Laser Compiler
Price: £18.95 (recommended),
 £24.95 (full)
Supplier: Caxton, 8 Canal
 Street, Manchester M2
 5NS. Tel: 061-832 8533

AS many of you already know, the 286 microprocessor is the heart of your Amated only understands machine code and cannot make head nor tail of a Basic program.

So when you enter and run a Basic program the upper ROM gets each line and converts it into machine code which the 286 can execute. The upper Basic ROM is an interpreter and Basic is known as an interpreted language.

The process of interpreting each line of Basic is time consuming.

It would be much quicker if the program could be interpreted and the resultant code stored somewhere in memory. Then the program can simply be run directly without needing to be interpreted with a

consequent improvement in performance.

If you wanted to explain something to a Frenchman it would obviously be quicker to tell him in French rather than tell an interpreter in English who converts it to French and who then tells the Frenchman.

A Basic compiler is designed to take a Basic program and convert it to pure machine code.

This converted program will then run several times faster than the original since there's no need for it to be interpreted.

Well that's the theory, but how does it work in practice? I've yet to see a decent Basic compiler on any micro. There are usually so many restrictions that they really aren't worth bothering with.

Laser Compiler is probably better than most, but it's still not good enough.

It can't cope with floating point arithmetic, restricting you to integer only, and some 32 Basic commands cannot

be used. There are also restrictions as to how the rest can be used, some of them documented but more seriously, some not.

I tried compiling some of the simpler programs from past issues of Computing with the Amated. It failed or nearly all of them, and that's after making the modifications described in the manual.

A couple of programs worked perfectly, although they were so simple they didn't benefit from being compiled.

One compiled perfectly but crashed whenever it was run and Robin Nixon's Ortelio quite spectacularly crashes the compiler.

If you observe all the restrictions and write in a manner acceptable to the Laser Compiler it will compile programs written in Lectro-verse Basic or Laser Basic, with or without Laser Basic commands present.

The resultant code can be



run with quite a significant increase in speed.

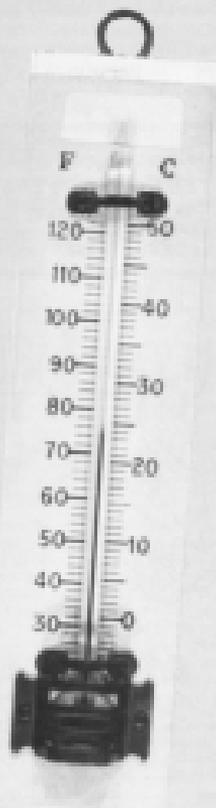
There are just too many restrictions and exceptions for my liking. I'm afraid Laser Compiler gets the thumbs down from me. It's just not flexible enough.

Richard Watkinson

Search	.....	9/10
Graphics	.....	9/10
Ease of use	.....	10
Value for money	.....	7
Overall	.....	7

THE warmer weather is with us and temperatures are rising. The trouble is that nowadays they've given us Celsius degrees — Centigrade to those who prefer the old pre-EEC style — not the more familiar Fahrenheit. This program shows how to get your Amstrad to convert between the two. And although it refers to Centigrade it works just fine in Celsius.

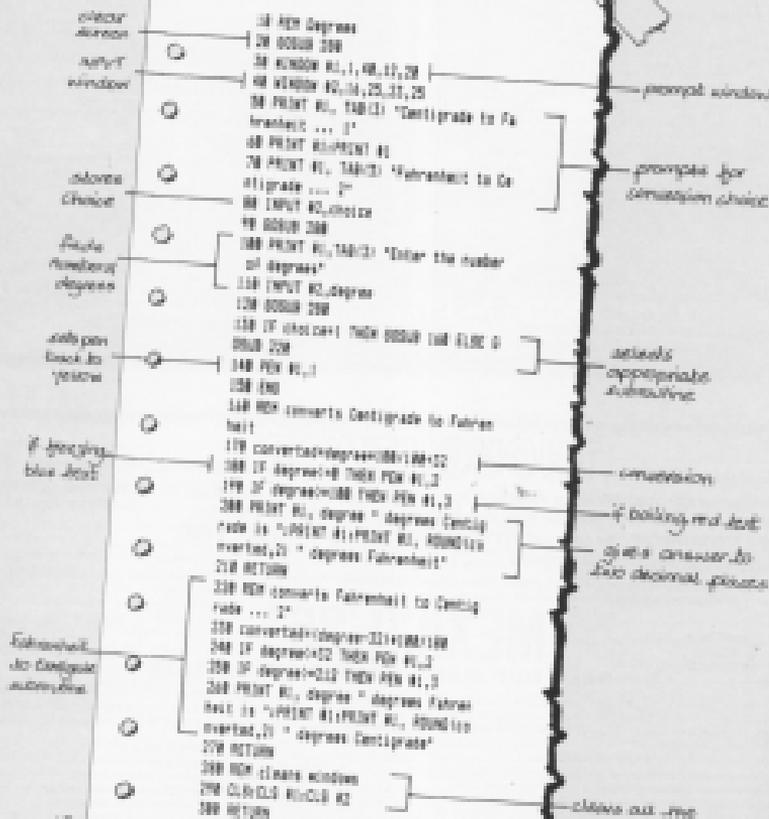
DON'T GET HEATED OVER CELSIUS — GET CONVERTED



- | | | |
|-------|--|---------|
| 10 | Just a label which the Amstrad ignores. | |
| 20 | Calls the subroutine at line 200, clearing the screen. | 140 |
| 30 | Sets up a text window, numbered 1, in the middle of the Mode 1 screen. This window is used for the program's prompts to the user. | 150 |
| 40 | Another window, number 2, is established. It shows the user's inputs to the program. | 160-210 |
| 50-60 | These lines ask the user which conversion is wanted. | 160 |
| 60 | The message is sent to window number 1, showing which number to pick for the Celsius to Fahrenheit conversion. | 170 |
| 60 | Two blank lines are printed in the prompt window. | 180 |
| 70 | The second message appears. | 180 |
| 80 | The user now enters the number of his choice, 1 or 2 which is stored in choice. It also appears on screen, in window number 2. Notice that the input isn't highlighted, the program happily accepting 23 or -7. Can you remedy this? | 190 |
| 90 | Again, the window clearing subroutine is called. | 200 |
| 100 | Now that the micro knows which conversion it is to perform the prompt window is used to ask for the number of degrees. | 210 |
| 110 | The reply is stored in degree. | 220-270 |
| 120 | More window clearing. | |
| 130 | The program uses the value of choice to choose between the two subroutines that handle the conversion. | 280-300 |
| | Resets the foreground colour in window 1 to yellow. This takes up after the subroutines. | |
| | Stops the program crashing into the subroutine definitions. Try leaving it out and see what happens. | |
| | Forms the subroutine that converts from Celsius to Fahrenheit. | |
| | Names the subroutine, giving a hint of its purpose. | |
| | The conversion calculation is performed upon degree and the result stored in converted. | |
| | If the temperature is below freezing then approximately blue text is selected for the first message in window 1. | |
| | If the temperature is boiling point or above red text is chosen. | |
| | Displays the result of the conversion, rounded to two decimal places. | |
| | Sends the program back to the line following the one that called the subroutine. | |
| | Handles the Fahrenheit to Celsius conversion. Again the final message is given an appropriate colour and the result is rounded to 2 decimal places. | |
| | Clears all three text windows in use. At times this is overkill, but it's easier to have all three in one subroutine than lots of CLSs dotted around the program. | |

Amstrad Analysis

by Trevor Roberts



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What it offers the Amstrad user...

Electronic mail is much cheaper than the post

Sending mailbox messages to other subscribers, whose numbers are rapidly growing, is the cheapest form of communication possible. You can send a message of any length to another mailbox for less than the cost of a first class stamp. And it doesn't cost a penny more to send the same message to 500 different mailboxes! Even a message sent to a mailbox on the other side of the world only costs 30p.

The biggest bulletin board of them all

The number of bulletin boards is growing rapidly. The only snag is that the vast majority are single-user boards - which means lots of other people are also trying to make contact and all too often all you get is the engaged tone. But with the MicroLink bulletin board there is no limit to the number of people using it at the same time. And no limit to the number of categories that can be displayed on the board.

Give your micro mainframe power

With MicroLink your micro becomes a terminal linked directly to the Telecom Gold mainframe computer, and able to tap its tremendous power and versatility. Right away you'll be able to use point number searching programs that can only run on a mainframe.

The mailbox that is always open

MicroLink is in operation 24 hours day, every day. That means you can access your mailbox whenever you want, and from wherever you are... home, office, airport... even a hotel bedroom or golf club! No one needs to know where you are when you send your message.

We're only a local phone call away

The majority of MicroLink subscribers are connected to our mainframe computer in London by making a local phone call. This is possible because they use British Telecom's P50 system, which has access points all over Britain. A local phone call is all you need, too, the direct access via MicroLink to all the other countries belonging to the international Dialcom system.

Telemessages - at a third off!

The modern equivalent of the telegram is the telemessage. Send it before 10pm and delivery is guaranteed by first post the following day (except Sunday). The service was intended for people phoning their message to the operator, which costs £3.50 for 90 words. But you can now use it via MicroLink, for only £1.25 for up to 200 words! For an extra 80p your message can be delivered in an attractive postage card.

Go teleshopping on your micro

With MicroLink you can shop the British Rail timetable - and then buy your ticket in advance. You can book theatre tickets - and even order a bouquet of flowers. It's all part of the tele-shopping revolution!

Send and receive telex messages

With MicroLink you can run your micro to telex, telex machines, and can send and receive telex messages of any length. You will be able to communicate directly to 90,000 telex subscribers in the UK, 15 million worldwide - and even with ships at sea via the telex satellite network. Maritime people can now send and receive telexes after office hours, from home or when travelling.

What does it all cost?

Considering all the services you have on tap, MicroLink is remarkably inexpensive. You pay a once-only registration fee of £5, and then a standing charge of just £3 a month. On-line costs are 35p a minute between 9pm and 5am or 11p a minute during office hours. There is an additional 25p a minute P50 charge if you are calling from outside the UK. London call area. Charges for telex, telemessages and storage of files are given on the next page.

How much it costs to use MicroLink

Initial registration fee: £5.

Standing charge: £2 per calendar month or part.

Connect charge: 30p per minute or part - charge rate: 11p per minute or part - standard rate.

Applicable for duration of connection to the British Telecom charge 1 minute.

Charge rate is from 9pm to 5am Monday to Friday, all day Saturday and Sunday and public holidays. Standard rate is from 5am to 9pm Monday to Friday, including public holidays.

Filing charge: 20p per unit of 2000 characters per month.

Applicable for storage of information such as text, short notes and mail files. The number of characters or storage calculated by reference to a daily average.

Information Database: Various charges. Any charges that may be applicable are shown to you before you obtain access to the database.

MicroLink FTS carrier: 2.5p per minute or part (1000 baud), 3p per minute or part (1200/75 baud). This applies to connections to the London network.

Telex registration: £20.

Outgoing telex: 5.5p per 100 characters (UK), 11p per 100 (Europe), 18p per 100 (p), America) £3.20 per 400 (flat of month), £2.75 per 400 (flats) or part.

Referral charges and on the night service are subject to a 30% per cent discount.

Incoming telex: 50p for each correctly addressed telex delivered to your mailbox. Obtaining a mailbox reference from the reader incurs a further charge of 50p.

If it is not possible to deliver a telex without a mailbox reference, if a telex is returned without a mailbox reference the reader will be advised of non-delivery and asked to provide a mailbox address.

Each telex validated for telex and using the facility will incur a charge of 4 pence per telex month. Further storage charges could be incurred depending on the amount of telex storage and the use made of short code and message file facilities.

Telemessages: £1.25 for up to 200 words. Telemessages can be sent with an illustrated printing card to 50p extra.

Reddialing: No charge.

If you have a BT Modem you can be paged automatically whenever a message is waiting in your mailbox.

International Mail: For the first 2,000 characters - 20p to Germany and Denmark, 30p to USA, Australia, Canada, Singapore, Hong Kong and Israel. For additional 2,000 characters - 10p, 70p.

These charges relate to the transmission of information by the Telecom service to other Telecom services within the UK and the use of this. Multiple systems outside the UK are subject to an only one transmission charge.

Billing and Payments: All charges quoted are inclusive of VAT. Commercially billed accounts monthly.

Software over the telephone

MicroLink is setting up a central store of software programs which you'll be able to download directly into your main. The range will include games, utilities, educational and business programs, and will cover all the most popular ranges of micro.

Talk to the world - by satellite

MicroLink is part of the international Telecom network. In the USA, Australia and a growing number of other countries there are many thousands of users with electronic mailboxes just like yours. You can contact them just as easily as you do users in Britain - the only difference is that the messages from your keyboard go speeding around the world via satellite.

What you need to access MicroLink

You must have three things in order to use MicroLink: a computer (it can be any make of micro, hard-lead device or even an electronic typewriter provided it has communications facilities), a modem (it can be a simple Personal type using 1200/75 baud, or a more sophisticated one operating at 2400/300 or 1200/1200 baud), and appropriate communications software.

MicroLink

in association with

TELECOM GOLD

Application Form

I/We hereby apply to join MicroLink.

I enclose my cheque for £5 payable to British Telecommunications in respect of fee to MicroLink.

I (we) wish to use Telex. I authorize you to charge an additional £20 to my retail bill for validation.

I confirm that I am over 18 years of age.

I confirm that I accept the terms and conditions for the new being in force, a copy of which are available on request.

Signature _____

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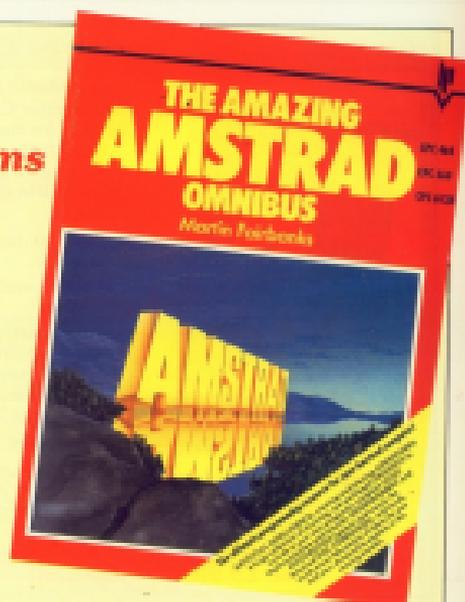
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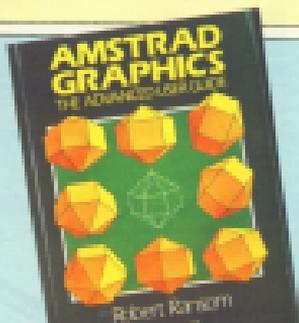
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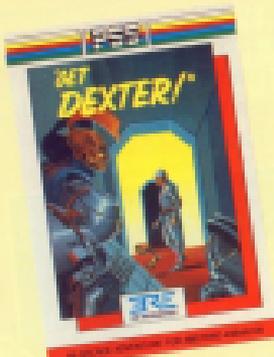
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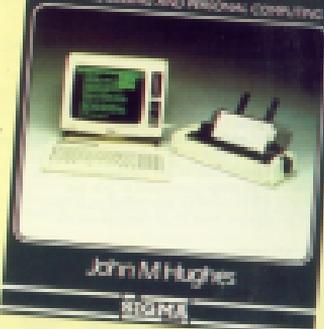
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HERE is a summary of the commands that allow us to manipulate and interrogate the Amstrad's three sound channels.

Amstrad Quick Reference Chart No. 12

COMBINATIONS OF CHANNELS

Used by themselves the channel parameters 1, 2 and 4 refer to channels A, B and C respectively. However, they can be added together to produce differing combinations of channels.

channel parameter	channel		
	A	B	C
1	0	1	0
2	1	0	0
3	0	1	0
4	1	1	0
5	0	0	1
6	1	0	1
7	0	1	1

0 channel used
1 channel silent

Channel parameter combinations

AN ESCAPE ROUTE

When you're messing around with the sound parameters it's a good idea to set up the small Enter key with:

KEY 128,"0000 128,A,I,P=000123

When it's pressed the small Enter will clear all the channels.

KEEPING TRACK OF THE CHANNELS

EQ is used to gather information about the state of a channel. It tells if a note is playing, how many free places there are in the queue and if the note at the front of the queue has been held or retriggered with another note. The bit significant pattern is obtained with:

PRINT EQN100(channel),B

where channel is the channel number, 1, 2 or 4.

number	bit	if set it shows
1	0	space in queue
2	1	space in queue
4	2	space in queue
8	3	rendezvous with B
16	4	rendezvous with B
32	5	rendezvous with C
64	6	first note held
128	7	channel playing

Bit significant values of EQ

THE WHOLE STORY

The last two parameters are used to hold a note (until it's RELEASED) and to flush a channel of all notes.

number	bit set	result
1	0	uses channel A
2	1	uses channel B
4	2	uses channel C
8	3	rendezvous with A
16	4	rendezvous with B
32	5	rendezvous with C
64	6	hold until RELEASED
128	7	flush the channel

Channel parameter values and actions

RENDEZVOUS

Two channels can be made to rendezvous by the addition of the following parameters:

Action	Rendezvous with
8	Channel A
16	Channel B
32	Channel C

Rendezvous factors

A toolkit to make programming much easier

TOOLKIT for the CPC series marks a successful transition for Beebugsoft from the BBC Micro to the Amstrad. It comes on tape or disc and has most of the facilities that you would expect from a toolkit, plus some you may not have thought of but which prove to be extremely useful.

For the uninitiated a toolkit is a set of routines designed to make programming easier, and Beebugsoft's version does just that.

If you take a look at Table 1 you will see all the new commands Toolkit provides. They can be placed into general groups - disc accessing, printing, basic program manipulation and memory inspection and editing.

A menu of all the following commands can be displayed by typing **ITOGGLE**. This menu enables you to select any of the utilities at a single key press. If you are unsure of how to use a particular utility **HELP**

Command	Syntax	Command	Syntax
IHELP	help	IPROM	iprom [start address] [end address] [ROM number]
ITOGGLE	toggle	IPROM	iprom
ITOGGLEOFF	toggleoff	IPROFF	iproff
IBMOVE	ibmove [address]	IRENUM	irenum [new start line] [old start line] [new increment] [old end line]
IDUMPA	idumpa	IREPLACE	ireplace [search string] [replace string] [start line] [end line]
IDUMPF	idumpf	IRESET	ireset
IRMEM	irmem [address] [rom number]	IRROM	irrom [ROM number]
IFORMAT	iformat	IRSK	irsk
IFREE	ifree	IRSEARCH	irsearch [search string] [start line] [end line] [start address]
IRON	iron	ITROR	itror [start line] [end line] [x coordinate] [y coordinate]
ITROFF	itroff	ITROFF	itroff
ITRY	try [first key] [test key]	ITRIP	trip
IRYDEF	rydef [first key] [test key]		
ILIST	list [filename] [start line no.] [end line no.]		
ILCOPY	icopy [start line] [end line] [new start line]		
ILMOVE	ilmove [start line] [end line] [new start line]		
IPACK	ipack		
IPARTSAVE	ipartsave [filename] [start line] [end line]		

Parameters in single brackets must be typed. Those in double brackets are optional.

displays a general help page giving the proper syntax and usage for each command. **TDOLSOFF**, as you might expect, turns the toolkit off and removes it from memory.

ICOM turns on Toolkit's address-ated keyword entry feature. This gives you the facility to type P. for PRINT, F. for FOR or N. for NEXT and so on. Table II shows a list of Basic's keywords and their abbreviations. This utility can be cancelled with **ICOFF**.

IMOVE comes in very handy when reaching the final stages of program development when most of the code has been written, but, as a result of de-bugging, you have several lines and subroutines in odd places. This command allows you to move lines around quickly and simply to more logical places, producing a more polished program.

To go with **IMOVE** you also get **ICOPY**, **IBMOVE** and **IBSTART**. **ICOPY** will copy a set of Basic lines to a new position, **IBMOVE** moves a Basic program from one part of memory to another and **IBSTART** allows you to alter the start address of a Basic program in memory.

Quite often when testing a program you'll want to stop it running to edit a line. If the **PEN** and **PAPER** colours have been changed, when Escape is pressed you usually have to go through the laborious task of resetting them. Often you'll need to remove any character definitions as the screen has become impossible to read – usually due to the background and foreground colours being the same.

IRESET makes this an easy matter. When you enter it the Amstrad's default colours and standard character set are restored and you are presented with the familiar yellow text on a blue background Mode 1 screen with your program still intact.

If you are not sure whether or not you've used a particular variable name, using **ISEARCH** enables you to check through a listing to see if that variable already exists. In fact you can use **ISEARCH** to search for any string in a Basic program – including keywords which will have been translated by the Basic interpreter.

IREPLACE works in the same way as **ISEARCH** with the exception that, if found, occurrences of the search string can be replaced with a new string. This is extremely useful for substituting the meaningful variable names that have been used during software development with shorter single character variable names to increase a program's running speed and cut its length.

ITRAN is very useful for following the flow of Basic programs during debugging. This is an enhanced trace

By ROBIN NIXON

utility which allows you to state the start and end line between which the trace will function and choose where on the screen you wish output to appear.

There are four printer commands, **IPRON**, **IDUMPA**, **IDUMPE** and **IPMEM**. The first switches the printer on so that all text will be output to the printer, and **IPROFF** turns it off again.

IDUMPA and **IDUMPE** will respectively give a 16 colour dump to an Amstrad or Epson printer. **IPMEM** will dump a block of memory to a printer.

To save having to go into CP/M, disc users can format their discs with **IFORMAT**, and both disc and cassette users can list a program directly from tape or disc without loading it using **IUST**. You can also save part of a program to tape or disc using **IPARTSAVE**.

Should you find yourself running out of memory **IPACK** will pack your program down to the smallest possible length by removing unnecessary spaces, REMs and program lines. There is also a sophisticated reminder facility which will remember any part of a Basic program. This is called into action by typing **IREMIND**.

A very useful utility for noting about in your Amstrad's manuals is **ITEMEM** which will display any area of memory and allow you to change it.

Finally there are six commands which will inform you of your Amstrad's status. **KEYEY** lists the function key definitions in a form in

which they can be edited and **KEYDEF** lists whatever codes any key, or group of keys, has been set to.

IRCM and **IRXC** respectively give details on all the ROMs and resident software extensions (RESOs) present in the machine.

IFREE tells you how much memory has been taken up by a Basic program and how much is still available for use. **IRFEP** provides extensive information about any of, or all, the variables in a program.

Beabagsoft has written an impressive set of utilities which seem to take care of every eventuality. Since I received a copy for review I have found myself relying more and more on its utilities, and would now be hard put to manage without them.

So if you are looking for a toolkit – or even if you are not – Beabagsoft's Toolkit is well worth considering.

A.	AUTO
B.	BORDER
C.	CHRS
CL	CLEAR
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DEL.	DELETE
E.	EDIT
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H.	HIDE
HI.	HIMEM
I.	INPUT
IN.	INDEX
K.	KEY
L.	LIST
L.O.	LOAD
LOC.	LOCATE
M.	MODE
MO.	MOVE
N.	NEXT
P.	PLOT
PA.	PAPER
R.	RETURN
RE.	RENUM
S.	STEP
SA.	SAVE
SO.	SOULD
T.	THEN
W.	WINDOW

Table II: Accepted abbreviations

Dramatic News for Amstrad Users.

Pocket WordStar for under £50

Pocket WordStar is the specially tailored version of the world's best known word processing package, WordStar. Its popular success means that it is now obtainable at the unbeatable price of £49.94 inc VAT and available for Amstrad users on the 6128, PCW 8256 and 8512.

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CPU Memory: 56K of RAM is required
Pocket WordStar can operate with one disk
drive containing at least 120K.

Utilising potential of the PCW8256

I^W have recently bought the Amstrad PCW8256 and am thrilled with its word processing capacity, but the reason for buying the PCW was that we wanted both a word processor and a useful domestic computer, so on the computer side of things we are a little disappointed.

It is obvious that there is great potential there - but how to get at it and what to do with it?

Our teenage children are also frustrated seeing numerous games and language programs for sale, and they wonder why we can't use them.

Why is there an Amstrad software available for the PCW? It also seems to us that the accompanying instruction book on basic seems to spend pages saying very little.

I am not a complete beginner to computing, having used a mainframe Vax system at college for the last two years, but having spent literally hours and hours pouring over the book I feel that I have learned little that is of any practical use.

It doesn't really tell you how to construct a program or even suggest any useful programs, and it also assumes a more than basic understanding of computing.

Nothing daunted, I set off to the library to borrow books with similar programs in them written for Amstrad computers - but not the PCW 8256.

Is the Mallard Basic different from the Basic used by other Amstrad computers, and if so how do you alter programs?

We were delighted to find

your magazine and were impressed by its presentation and style but again we have to ask, how relevant will it be to PCW users?

I did try typing in the Easter string program and to my joy found that it worked, but I hesitated to type in either of the games for fear that after all that work I might get the same results as with the Amstrad games books.

If your published programs do work on the PCW then of course it would be ideal for us to buy your monthly disc.

I'm sorry if this all sounds rather complaining, but we really are desperate to get on to some real computing. We would value any advice you can offer about available books and software - **Max Lesley B. Wells, Lewes.**

■ Not being new to computing but having spent two years on a Vax is probably a positive disadvantage. Most of my life is spent sitting in front of a Vax terminal, so I speak from experience when I say that you have to get used to being frustrated by the limited power of microcs when compared even to the small 11/730, let alone the MicroVax II or 8000 series.

Having said that, I take your point about the lack of games software for the PCW. It was, of course, designed as a business machine and there's an enormous amount of CRM business software available,

so it's not really surprising that games software houses don't see it as an enormous potential market.

I don't see this situation changing much in the future. Look at the gigantic software base for the IBM PC, then look at the games available for it - far more than on the PCW, admittedly, but only a tiny proportion of the total.

I agree about the Basic manual, but again Basic was included as a sort of POW extra. Mallard Basic on the PCW does differ in certain respects from other dialects, even from its brothers on other Amstrad machines.

Look carefully at things like screen coordinates and escape sequences which drive the screen.

Gabriel Jacobs

Safety first

I DO not advise adapting John Hughes' list regarding using Drive M on the PCW8256 to create and edit files.

Admittedly it is marginally faster, but you only need the fat to dip over the main lead at some guy in the power station to spill his coffee on the wrong switch, and the momentary loss of juice is going to destroy all your work.

Also you do not have that much memory in M, and I've

also created large documents you could find yourself in the predicament I did.

When I attempted to save I found the Disc Full message and minutes to transfer anything - if only I had formatted that spare disc.

The only safe way is to use Drive A - or B should you be so lucky - and Save and Continue every three or four pages. - **Brian B. Mansford, Shilley, Southampton.**

■ Fair comment, the point is covered in Gabriel Jacobs' *LearnScript* book (No. 4) in the May issue of *Business Computing* with the Amstrad.

Acc reviewer

FOLK choice of Keith Park as reviewer for *PSE Battle of Britain* in your April edition was most apt.

Park, Sir Keith Rodney (1892-1972) commanded the 17th Fighter Group of the RAF under Hugh Dowding in 1940 and bore the brand of the Battle of Britain.

Who's going to review *Spitfire 40?* Do you by any chance have a Douglas Bader or Johnny Johnson? - **Mike Bywater, Wakefield.**

New interest

I THOUGHT I would write to thank you for a nice interest that you brought into our lives. We are two retired people and everyone was telling us that we ought to take up an interest.

We tried a few things, then someone said try a computer. Up till then I thought computers were for the young bulge boys. Anyway we thought about it and decided

MORE HIDDEN OP-CODES

MY thanks to Martin Rafter for describing the 280's hidden op-codes in the April issue of *Computing with the Amstrad*.

I am currently writing my own assembler which takes advantage of some of the features of the Morris memory bank I recently installed and shall be adding these op-codes

to it. You may like to know of the following unpublished op-codes which relate to RST 7:

DUND RST 7	10 FF
RST A2, 7	20 FF
RST 2, 7	28 FF
RST AC, 7	30 FF
RST C, 7	38 FF

These are created by using a relative jump with a displacement of -1 (8FF). This

causes the 280 to execute the displacement as an op-code.

Usually this situation would be allowed but 8FF happens to be the code for RST 7.

All this may be of limited value on the CPC range of computers as RST 7 is used for the operating system for interrupt handling. - **A.A. Huntington, Bromley.**

From Page 69

and Amstrad CPC484. These are one of the best ideas we ever had.

Now our lives are filled with adventures and games. We have learned to play chess and programming in a small way.

So I think a computer is a great therapist for GAs.

One question — how do you get past the glowing rock in *Forest at World's End*? — L.A. Parker, Telford.

■ By now you should have found the solution to your adventure problems in our *Forest at World's End* special in the May issue. Just in case you've missed it TOUCH ROCK and go EAST.

French viewpoint

A WORD from across the Channel to tell you I discovered your magazine recently, and that I intend to read it quite thoroughly from now on.

There's nothing quite like it in France now, especially about the PC1602/30.

I'm very interested in the CYM Plus trainer you mention on page 10 of the April 1985 issue (*Words on CYM Plus*), but I can't seem to find the details of *MicroCal* anywhere in the magazine. Could you please give them in a further issue? — Yves Granger, Cléry.

■ *MicroCal* can be found at 95 High Street, Slough, Berkshire SL1 1DH. Tel: 0753 75891.

A soft answer

I WOULD like to express my appreciation for the wonderful programming that has gone into the answering machine at Amstrad Customer Service Department.

I had spent telephone again and again in fear in that marvellously little voice "Your order has been processed and you should be receiving it in a few days".

The breadth of imagination behind this response drives

Computing with the Best AMSTRAD Postbag

We welcome letters from readers — about your experiences using the Amstrad, about tips you would like to pass on to other users... and about what you would like to see in future issues.

The address to write to is:

Postbag Editor
Computing with the Amstrad
Europe House
66 Chester Road
Hazel Grove
Stockport SK7 5NY

me gasping in admiration. Unfortunately the language parser cannot cope with the sentence "You told me the same thing last month".

It goes into a loop and spins away in a series of orbits. My only criticism is that it is too difficult to get past the first stages of the game and my telephone bill is sky high already.

Is there any truth in the rumour that a disc version is to be published under the title *Infinity*? — Michael R. Lane, Stockbridge, Hants.

TextEd on 6128

CAN you please tell me if it is possible to get Roland Maddox's Text Editor program (February 1985) to run on the CPC 6128?

I have tried relocating the machine code subroutine to BASIC also to BASIC, in each case I have altered all the call statements correctly and allocated the value of 10 in the *PRO*.

I hope you can help me with what has now become a source of frustration. — Denis Dalton, Bedford.

■ Here are a few notes on how to alter TextEd so that it will run with the disc drive. They first appeared in the May 1985 edition of *Computing with the Amstrad*.

The machine code must be loaded lower down in the memory for the program to run properly. The code should be OK at about \$A000, so go

through the program carefully and change all CALL BASIC, to CALL \$A000.

Change the following lines:

```
$44 change POKE $A000 TO  
POKE $A000  
$88 change last line to,  
from 00 to 00  
$98 change last line to,  
from 00 to 00  
$B0 change Pch line to, from  
00 to 0?  
$C8 change last + 40928 -  
length  
$D8 change to ($PCH)  
read + " "  
$E8 change to ($PCH read  
+ " "
```

DMS 80 manual

IN answer to the letter from Robert Lewis, Simon Shirk and Matthew Graham of *Med-Clin Productions* in the May *Computing with the Amstrad*, we agree that, in common with many other products, our manual leaves much to be desired.

However, if asked for help we answer it as best we can and send out updates covering the operations which users find difficult to understand.

We have never stopped writing in CYM and have now reorganised a "dms" program just to put on the Amstrad PCW. We make full use of the M- drive. We correctly re-define the keys and have fully implemented the reversal pro-

grams on these excellent machines.

Besides this, we are constantly updating our manual and are in the middle of a complete re-write. Before the Amstrad, DMS80 was running on Xenix and the manual was written for professional users.

With DMS80 we offer 14 days free support. After that we offer a software contract. DMS80 is probably the most powerful database on the market for Amstrad machines and the writer of this letter, as new to computers, are new to computers.

We have not received one single telephone call for help from them. They have not taken out a software support contract. We also offer a professional Amstrad user club covering the PCW machines and software which they have not taken out.

We pride ourselves on the support we give. We have been in nearly 12 years of operation, never received a complaint of any kind in this connection.

If you feel *Amstrad* is helping us for help they would almost certainly have received an invitation to come to our offices where we would have analysed their problem and set up the database structure for them.

This is quite normal and this help is very often given free of charge, in spite of the very low profit we make when dealing with Amstrad.

They complain about the Superwriter 1128-82-874 instructions for making hard copies of the stored information.

There are no such instructions. Superwriter is a word processor which is linked to DMS80 and is used for formatting DMS80 data using the field names as variables.

We even say in the Superwriter section of the manual, page 26, "If you want to be a computer user rather than a 'programmer' then call Optronics on 01-892 8458".

Finally thank you for what we assume are meant to be compliments, but you can hardly call a 32,000 record 30 field database a "Carole system". — R.W. Nicholls, Optronics.

Contact needed

I'm a 17-year-old German and own an Amstrad CPC464. I'm still going to school and I read your magazine.

I would like to get in contact with some British users of the Amstrad, not only to exchange information about the computer, but also to improve my English. — Ingo Steinmann, Wackhoff 21, D-2017 Westorf.

I WOULD like to write to any Amstrad CPC464 owners. I will reply to everyone who writes to me. — Christian Smith, 70 New Hill Villas, Southwick, Dyfed, S. Wales SA44 8DT.

Continental prices

WITH reference to your news item *Search for Amstrad* in the March issue there is a simple explanation for the full shelves of Amstrad in certain European countries while the French cannot get enough — price.

Prices of Amstrad in France are not a lot higher than in the UK. Here in Switzerland would-be customers look at the prices. Buy Commodore and leave the Amstrad on the shelves.

In Geneva the Schneider Amstrad 864 costs about 1254 and the 6128 1806. Also all the markings are in German, which doesn't help sales in a French-speaking area.

I would have bought my 6128 just over the border in France but the dealer would not be sure he could get me a copy of the instructions in English.

As it was I bought it while in the UK. I duly sent in the user's registration card but have heard nothing about the Amstrad users' club.

It is not only Amstrad France that has the cavalier attitude you mention. If the registration card was marked

Mode 2 screen dump

I RECENTLY bought Robert Barrett's Amstrad Graphics — The Advanced User's Guide which is both a good read and an excellent introduction to many of the basic algorithms used in the computer graphics field.

In the course of my work I have to do a lot of programming on a PDP11 as a Vax mini-computer and I plan to use

many of the algorithms I am learning in my Amstrad at work.

One problem I soon came across was the need for a screen dump program. I had little success with the things available to me, so I wrote my own program to dump a screen in Mode 2. I have a 6128 and a 6845-2000 printer.

TDUMPF2 does the dump and TDISMP2 illustrates how it can be used. The subroutine calls 200 routines to run. — Jonathan Seymour, Northam-on-Sea.

■ We've slightly modified the demonstration program TDISMP2 so that it will run on the 464 by replacing a 6128 command GRAPHICS with PLOT.

```

30 REM (dump).bas - screen
  rates dump3.bas
30 MODE 2
30 LW 0,0,0W 1,20
40 PER (PLOT (-1,-1))
50 FOR (I=0 TO 100 STEP 10
60 MODE (I,10,000 410-11,1
  GORUN 627-10,777-10,000 (
  0,777-10,000 (I,10
  70 NEXT
80 TAB MOVE 200,200,PRINT *
  While reader"Y)TABDPV
90 GOTO 20000
1000 END
2000 REM dump3.bas screen
  dump for code 3
2010 REM (M 1 (M Black, 1
  M 1 is white
2020 REM print 7 releases
  at a time with 7 pins
2030M (M 0 (100)
2040M (M 0 (0)
2050M FOR (I= 1 TO 7
2060M pin(111)+0*(17-11)
2070M NEXT
2080M (M 0 (0) 255
2090M FOR (I=1 TO 92
2100M PRINT 60,000+(I*
2110M FOR (I=1 TO 4
2120M FOR (I=1 TO 20,up(11)
  I)=0,0,0,1
2130M FOR (I=1 TO 1-
2140M (I=447-7+(1-11)
2150M IF (I=1 THEN 2120
2160M FOR (I=1) TO 50
2170M (I=001-000+0-240)
2180M (M 0 (100) 1,1,1
2190M IF (M 0 (100) 1,1,1
2200M (M 0 (100) 1,1,1
2210M (M 0 (100) 1,1,1
2220M (M 0 (100) 1,1,1
2230M (M 0 (100) 1,1,1
2240M (M 0 (100) 1,1,1
2250M (M 0 (100) 1,1,1
2260M (M 0 (100) 1,1,1
2270M (M 0 (100) 1,1,1
2280M (M 0 (100) 1,1,1
2290M (M 0 (100) 1,1,1
2300M (M 0 (100) 1,1,1
2310M (M 0 (100) 1,1,1
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2950M (M 0 (100) 1,1,1
2960M (M 0 (100) 1,1,1
2970M (M 0 (100) 1,1,1
2980M (M 0 (100) 1,1,1
2990M (M 0 (100) 1,1,1
3000M (M 0 (100) 1,1,1

```

not valid outside the UK I could have given an address in the UK, but now it's too late. — Peter Brantzen, Switzerland.

Placing pokes

I SPENT a couple of hours typing in Galtwick's readers and after copying out a few typing errors it worked fine.

However being ambitious I amended line 230 as per your "Useful pokes" section. Nothing happened — no extra readers, no extra chips, nothing!

So I deleted lines 270, 860, 860, 870 and 880 and great — the pokes work — much more fun.

So I saved the game again over the original. Had news I

ran the game later and upon pressing a key to start it crashed. Upon loading and hitting the game (Vera 680-4230) have vanished, although as the game still loads it seems likely they must be hiding somewhere.

Re-typing in the lines I deleted just results in a "Disc exhausted in 200" message and when the data lines are checked lines 680-4230 are still hiding.

So to avoid re-typing the program I've written a explanation that I'm loading line into a computer without have you any ideas?

One last query — How can your "Useful pokes" be inserted into the program? — Peter Mostford, Reading, Bucks.

■ As stated in the article, it is essential that you save the program before running it. This is because parts of the

program are overwritten by the machine code.

To use the useful pokes insert them in the program between lines 270 and 280. For example:

```

271 POKE 66624,7:REM No. of
  lines
272 POKE 66625,100:REM 100
  lines
273 POKE 66100,1:REM Allow
  1 speed
274 POKE 66200,1
275 POKE 66203,1:REM Turn a
  page
276 POKE 66602,00
277 POKE 66142,00
278 POKE 66602,00:REM No. of
  1 lines

```

And don't forget, after poking save the program before you run it.

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AFTER taking the business world by storm with the PCW8256 and PCW8812 Amstrad is poised to expand its foothold in this section of the market by breaking out dramatically on two fronts.

Businessmen are clamouring for the recently launched Amstrad Network marketed by Northern Computers which enables all existing Amstrad computers to work with IBM PCs, Apricons, BBC and Apple II Micros.

And the soon-to-be-announced IBM compatible Amstrad with a likely price tag of under £500 will hammer home the company's ability to succeed in this highly competitive segment of the market. All the signs point to Amstrad's ambitions in the business sector being fully realised.

Northern Computers sales manager Gareth Little says his firm is being swamped with orders from businessmen for the token-passing, multi-user ring network which can extend to three km and handle up to 120 stations. With its 20 mbYTE Amstrad hard disc and ring system supporting modems, telecommunications and mini or mainframe links the package can provide a network of half a dozen Amstrads for the price of one IBM PC.

"We can barely cope with the demand", Little said. "After advertising the network system in just a couple of issues of *Computing with the Amstrad* we had a response

AND NOW FOR BIG BLUE, APPLE AND ALL...

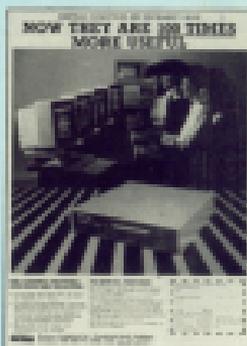
which is heading for four figures already.

"Although we are best known as a supplier to educational establishments inquiries from that sector have been dwarfed by a response from business that has taken us by surprise. However I can see the cause of it. Apart from offering a powerful system at a comparatively low price our product has other spin-offs for the businessman. He can run his existing IBM or other personal computers on our system, with multi-user software on the same discs as the Amstrad and it supports MS/DOS and PC/DOS".

Demand for the Amstrad Network is stretching the resources of Northern Computers to the limit said Little. "We have reached the stage where we just can't cope with personal contact with end users or

requests for demos from individual clients.

"We are urgently setting up a national dealer network to handle the consumer end of the business and



The advertisement that started the rush

Cleaning up with Amstrad

SYSTEMS and turnkey house Beamjoy has developed a suite of programs which run on Amstrad machines with double disc drives especially for use by contract cleaning businesses.

Beamjoy says the system is suitable for use in office, window or general cleaning operations of all sizes and is available under concurrent CRM and PC/DOS operating systems, with an MS/DOS version soon to be released.

The system records contract and job details, including work speci-

fications and site addresses, plus contract charge and cost information. It handles automatic printing of job tickets for subsequent use by cleaning staff and signature by clients, and automatic generation and printing of invoices, with summary information showing income, cost and profitability.

The system, which costs £100, can also be linked to Beamjoy's business software which provides automatic update of client sales accounts and full sales analysis.

will be appointing 60 dealerships - about one fifth of all Amstrad dealers - to sell the network. These will have a big advantage over their competitors.

"Although they would all like to have the business 60 is about all we can keep supplied comfortably under our present production set-up with 20 to 30 day delivery assured. We have just held our first dealer seminar attended by 30 retailers, all of whom

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From Page 3

are likely to carry the network in stock. In fact we sold several networks on the spot to dealers who couldn't wait to get them on their shelves.

"The other 30 places in our dealer network will be filled on a first come, first served basis by the pick of the country's Amstrad retailers", promised Ulmer.

If networking and the success of the PCW machines provides the current interest for businessmen in the Amstrad stable Alan Sugar's next move could really shake up the market.

An Amstrad IBM clone has been rumored for several months and while the company itself is understandably reluctant to talk observers reckon its appearance is not far off.

The IBM compatible is expected to have two 5 1/4 drives and is likely to have 640k of memory.

There will be at least one IBM slot to facilitate networking and early specifications are believed to include a monochrome monitor and keyboard.

Despite Amstrad's involvement with Microsoft and MS/DOS the new machine's built-in graphics interface is understood to be Digital Research's Gem.

It is expected to cost around £499 and some pundits are forecasting that one version will also include a printer for a total price of £599.

However until Alan Sugar gives the word the veil of secrecy will remain drawn across the backroom at Brentwood.

Grants for courses

A SERIES of courses for new Amstrad PCW 8098 users is being launched by Professional Computer Training. They could attract government grants for businessmen.

Each five day course is usually run on the basis of one day a week for five weeks to ensure trainees are not away from work too long.

If a company takes the minimum

five days, does not employ more than 200 people and has not owned its computer for more than six months it will be eligible to claim a government grant of £125 a week towards the £350 cost.

After an initial basic introduction on computers emphasis is placed on practical sessions, including: word processing, accounting, spreadsheets, databases and stock control.

The courses will be available in Edinburgh, Glasgow, Manchester, Leeds, Leicester, Birmingham, Bristol, Cheltenham, Oxford, Reading, Maidstone, Bournemouth and Exeter.

A PCT spokesman said: "This is a real opportunity for bosses to train employees on the computer with government aid".

Filing system

MAGIC Filer, Seagsoft's new high speed filing and retrieval system for the Amstrad PCW8256 has sold over 800 units in the first three weeks following its launch at the Amstrad Computer Show in Manchester.

Magic Filer is designed for businessmen, scientists, researchers and teachers who need a management information system they can

use in their own way, rather than having to grapple with restrictive formats.

From pints to print

HUGH Duff's Amstrad PCW8256 has a new job. It has switched from ordering pints to keeping the news flowing. His computer helped run the Cavalier pub in Manchester for four months before Hugh, 53, finally left the business to become a newsgazer.

"My Amstrad was very useful in the pub with all the necessary stocktaking, but now it is quickly learning a new trade", said Hugh.

He and his wife Irene are still experimenting with the six-months-old computer and have invested in the Mosaicplus Supernews program from Bubble Bus Software. "We are still new to the newsgazer's business side so we are a little limited about what we can feed in to the machine.

"But already it has organised our newspaper delivery rounds for 300 homes which entails details for three youngsters each morning with five working each night and on Sundays", said Hugh. "Working out which paper goes to each customer on what round just takes a few seconds on the Amstrad. It has been most helpful".



Mr and Mrs Duff and daughter Iris Helen Wynne, who help operate the Amstrad consider all the paperwork that has now become redundant.

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Total Price.... £247.50

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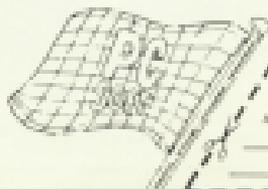
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For complete details of the full F.C. Soft £207.50 package, and other modules including PAYROLL and JOB COSTING-50 in the original size on Telephone 0222 780000/780001.

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 Address _____

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ONCE again this column is based on a conversation with one of my clients. Where it differs from previous articles is that it is devoted to only one topic — communications and the Amstrad.

Electronic mail, telex facilities and the vast amount of information available on Protel were an immediate attraction to my client, but these services have been well reported elsewhere and I shall not repeat their features.

The parts of the discussion I wish to share with other businessmen are all concerned with showing that even the greatest technical anti-talent will find this potentially highly cost effective facility exceptionally easy to install.

My client, like many other potential communicators, had heard the many "war stories", or not too many "experts" who had filled his head with technical mumbo-jumbo. What follows should therefore be regarded as:

- An outline of the key points of our meeting.
- An indication that the computer professionals need not blind people with science.
- A series of operating notes for a typical comma session.
- Proof positive that comma is exceptionally straightforward.

It did not take more than a couple of minutes for the penny fellow to spot the first paradox. He commented slyly: "Since a green screen 6128 costs only £269, and you say it is easy, then the price of comma equipment seems like a rip-off".

The reason why the kit costs about £120 was easy to explain, but much harder to justify, particularly as I had no desire to get technical. Furthermore, he had expressed what for years has been top of my Hate Parade. Maybe I am unreasonable, but I cannot accept that connecting up one piece of computer equipment to another has to be such a pain.

The subject is incredibly simple in principle. Nevertheless, the practical problems have steadily worsened as the following scenario is constantly repeated.

A computer manufacturer wishing to supply a particular add-on, discovers there is more profit in buying a suitable unit from a third party and re-badging it than in

Who says communicators need jargon?

making it himself. Naturally the firm buys the item and resells it as its own. An obvious example was the DMP1 — a Sokosha with a new name.

There is nothing wrong in this whatsoever since when this practice works everyone gains. Entrepreneurs make money and users get cheaper kit.

What makes me wild, since it causes virtually all of our headaches, is suppliers insisting on supplying the re-badged gear with odd-ball sockets or wired up in some unique fashion. Ask manufacturers about this, and you are given some technical baloney

By JO STORK

about improving the spec when in fact the purpose is locking you in. This actually means, making buying elsewhere as difficult as possible.

This has continued for so long that I recently saw a catalogue advertising 500 different computer plugs. Even when you hold what appears to be a suitable cable, Scott's Law states that if the wire in your hand has a male plug the wire you require needs a female socket.

Look at two typical micros. The 6128 has six sockets, all of them different. A couple are female while the others are male. Meanwhile a BBC Micro with 13 sockets of nine different types has only two which are common to the Amstrad.

First cousin to this cable confusion is the infinitely greater inconvenience of incompatible software.

Comma is a classic illustration of my pet hate, since it requires at least four connections and considerable software. However the businessman wishing to dial up another computer

is interested in the service available. They have little desire to consider terms such as stop bits, V25, asynchronous, parity, protocol and the like.

Threaded your way through this minefield of legislation, mutually exclusive formats, marketing and historical residue is the reason for most of the price. Only the final £20 is for additional useful, but non-essential facilities such as serial, multi transmission rates, automatic line set-up and the like.

After explaining this to my client, his attitude was unimproved. I had considerable sympathy when he complained: "If I buy a London-Glasgow airline ticket I am not expected to know about air traffic control". He was naturally delighted when I was able to demonstrate that the average businessman has no need to negotiate this maze in order to achieve a satisfactory connection.

I showed him two possible solutions, a typical all-in-one system, of which the number on the market is growing weekly, and various compatible bits and pieces from different suppliers which brings the price down by £30 to £20.

However before starting, there was one further subject to explain. My fingers are having a good day if they type at two characters a second. By the time I have read back my work and made any corrections this reduces to one cps for short messages and even less for lengthy texts. Typing on-line is therefore kept to a minimum. An extra 10 minutes of connect-time, even a couple of times per week, adds many pounds to the quarterly bill.

Since my client was likely to connect several times each day, the

From Page 7

software was vital. If he spent more time than absolutely necessary on-line the £10 he might save on the purchase price of a comma package would be spent within days on increased telephone and database charges.

The key to minimising connect time is having an efficient and reliable speaker or buffer. The concept is simple even though it is the standard by which any comma software must be judged.

I prepare all I need to transmit off-line using a word processor before dialling up the computer. When the text is ready I load it into the buffer, phone up, sign on and send it from the buffer up the line. This transmission is done at 7, 30 or even 100 cps, compared to my 1 cps typing. The savings are therefore considerable.

Similarly I make no attempt to read messages while on-line. I receive them into the buffer, break the connection, transfer the text to disc and then read it at leisure after logging it off with the word processor. The transfer to the buffer is at a faster rate than I can read.

Using the buffer I can transmit a couple of short memos and receive a report in only three minutes connect time. Total cost if I do this at the cheapest rate is currently less than using second class post and I know that messages are instantly available to the recipient.

My all-in-one package uses the Modern House system. This employs an Autodial Voyager 7 modem with a Skywave software ROM built into the RS232C interface. The lengthiest task in setting up the system was fighting my way through the packaging in which everything required is supplied. Thereafter it required just the following easy tasks before the 6128 was accessing my Mailbox on MicroLink/Telecom Gold.

- Push a connector into the Amstrad's expansion port.
- Push the RS232C interface on to this connector.
- Push one end of the modern cable on to the interface.
- Push the other end of this cable on to the modem.
- Set the modem selector dial to 1200 originate - the Gold requirement.
- Plug the modem into the mains.

‘Downloading free software from Amstrad is utterly reliable with this package’

- Switch on the 6128.
- Type SKYWAVE
- Load the phone numbers of the computers with which I communicate into the system, and save them on disc for future use.
- Autodial the number of the local node to Gold.

The whole operation is so easy I was on-line within 40 minutes of installing the system. On the criteria of making comma connections a simple task, an all-in-one system such as this has to gain full marks. There is no need for anyone to know the technicalities in order to set up the system.

The Skywave ROM software offers all the essential facilities of speed handling, printing and so on. Since it can also automatically set the connection to the MicroLink or Prestel protocol specifications, you do not need to become involved with these technical requirements either. You can over-ride these parameters if you wish to connect to a works computer or private bulletin board with different specifications.

My client has no need for it, but downloading free software from Amstrad is utterly reliable with this package.

The system is not perfect though, as it lacked several desirable features. These are probably specific to our needs or matters of personal preference.

The buffer holds 32k, which is enough for most people, but this could be increased if proper banking of the 6128's extra memory were used. 66k users will normally find 32k more than adequate.

A form of Prestel colour correction is required when used with a green screen. Some pages are virtually unreadable due to the lack of contrast when no colour monitor is available. Spoofing is obviously a way round this problem.

My client accepted that nothing

vital was missing and that he would have no difficulty using the system. It would prove admirable for his needs.

At £180 this package is currently about the most expensive offering I know of in the Amstrad market. If he objects to paying this sort of money, and I suspect most hobby as distinct from business users will find the cost steep, there are alternatives. We scanned a recent copy of Computing with the Amstrad and found several cheaper all-in-one solutions advertised. Since I have not 'driven' any of them, I make no comment on whether they offer as many facilities or are as user-friendly.

Since it is as important for consultants to point out the weaknesses as well as the merits, I somewhat dampened my friend's excitement by pointing out one big drawback. I pass it on to those considering this or similar ROM-based combinations.

I delete moving connections once they are made. Consequently I initially left the Skywave unit in place until I discovered several problems were appearing.

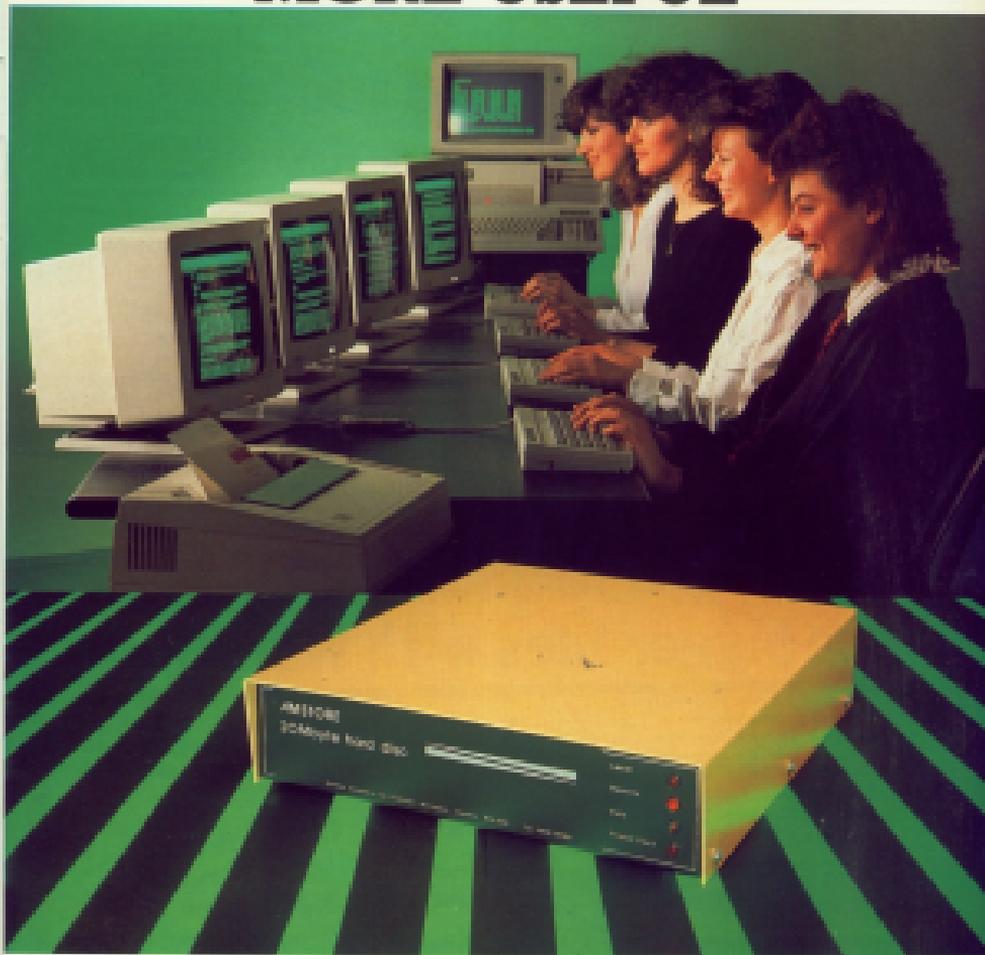
ROMs are not supposed to be noticed when non-operational, but the Skywave unit must grab some memory locations at all times. Normally this is not apparent, but I found several machine code programs either failing to run at all or suffering curious, minor functional changes. In consequence the records saved by having a ROM can either be wasted in other application areas, or you have to disconnect the unit when it is not needed.

This phenomenon may not be unique to the Skywave, therefore I strongly urge readers to check the memory usage of any ROM-based system they may be considering.

The second manner of getting connected that I was able to



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Other professional applications

From Page 10

- in order to access the message passing service (Mail) and enter the recipient's mailbox.
- 13: Press **F7**. This transmits a file. After replying 'Accl' to the prompt you can see the data passing through the bottom window as it is sent up the line to the recipient.
 - 14: Press **F8**. This returns you to the menu.
 - 15: Select **Buffer options**.
 - 16: Select **Write buffer**.
 - 17: Toggle **Buffer type/size**. This will return the buffer type to the disc.
 - 18: Select **Commitments**. You will still be connected to MicroLink, but a few more words will need typing in order to switch from sending to receiving messages which are waiting to be read.
 - 19: Press **F2** after replying 'Accl'.
 - 20: Enter filename **FROMGOLD.DAT**. When the message file transmitted is received you can break the line, since the message is now waiting in FROMGOLD

.DAT.

- 21: Press **KJ**.
- 22: Select **Communications menu**.
- 23: Select **Mini Office II menu**.

With Mini Office II you even have the word processor ready for studying FROMGOLD.DAT at leisure.

This may make Commes appear complex, since it involved 23 steps. In fact nothing could be further from the truth.

Steps 1, 2 and 21 to 23 were to get into and out of the command portion of Mini Office II, while steps 14 to 17 were to switch the buffer type, since I did not know if the file I received might overflow the memory buffer.

I was proved right, since FROMGOLD.DAT contained 27090 characters. Even so, the set-up, sign-on, transmission of TOGOLD.BA1 and receipt of FROMGOLD.DAT took a total of eight minutes. This represents a lot of information or a fair sized program.

While I cannot use local dialling, since there is no local Telecom Gold node from my part of the country, the whole demonstration cost less than

£1. As messages of this length are most unusual my demonstration was probably the most expensive single session I have ever had.

As a regular user of commes I am exceptionally impressed with the facilities of Mini Office II. The session above barely scratches the surface of the facilities available.

Comparing it to the Modern House system is the proof. It is as easy to use, offers as many if not more facilities and is equally reliable. You can also select any of the Amstrad RS232C 'Bar' commands while on-line. The only differences likely to be noticed are if the modern you choose is significantly inferior or superior to the Voyage 3.

This has been the first time I have devoted a column of this length to a single subject. I trust it has served you as well as did the time with my friend. He left me, knowing what to look for and intending to ring round the suppliers advertising in Computing with the Amstrad. For the time you read this he should be in touch with me again - via my mailbox.

Use bigger files with WordStar

HERE'S a little known technique, not included in the Pocket WordStar documentation, for increasing maximum file size safely.

Normally a WordStar file cannot be bigger than about a third of available disc space because it also requires a third for its working temp (LSD) file, and a third for its back-up (LAK) file. The figures depend to some extent on the amount of RAM available, but a third is not usually far out.

If you run out of disc space while editing, WordStar will delete the old back-up file before writing its new one, but this is obviously dangerous. Should something go wrong at that moment you'd have no back-up file, perhaps no file at all if there's been a main's spike or the computer has been powered down for some reason.

However if you have two drives - either two physical drives, or one

physical drive and a RAM disc as on the PC/DOS16 - available disc space, and therefore safe maximum file size, can be increased by swinging from drive to drive with each save. The method allows WordStar to create its back-up file on a drive not being used for the file itself.

Suppose you've opened a file on drive A. The idea is to create the back-up file on drive B at the first save (with **Ctrl + KSL**) to write the file itself to drive B at the next save with the back-up now on drive A, and so on, backwards and forwards until a **Ctrl + KJ, KK** or **KQ** is issued.

The net result will be that you can have files which are two-thirds the size of the free disc space, rather than only a third.

You achieve this by including the second drivename after the name of the document to be edited when you take the **G** or **H** options at the opening menu. Put a space between the

filename and the second drivename, like this:

A:MYDOC.TXT B:

It will be displayed on the status line which, when the main file is being written to drive B, will read:

B:MYDOC.TXT A:

so you know precisely where you're up to.

Unless you have an 8012 or an 8026 with double physical drives, and therefore in effect three drives, this method assumes that the file size is not greater than the amount of space left on the system disc, where the Pocket WordStar command and overlay files are held.

In any case, always open the file initially on the drive with the most room available, so that the temp file will be created there.

Gabriel Jacobs

Your Amstrad can handle interactive presentation quality graphics. So here they are.

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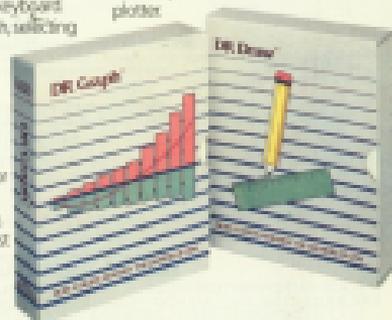
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DIGITAL RESEARCH
The creators of CP/M

THE PCW8256 manuals are by no means prime examples of bad documentation. But certain sections are relatively hostile, and others poorly structured.

The manual writers may have begun with good step-by-step intentions, yet somehow they have got lost in sidetracks and backtracks, and occasionally appear unable to distinguish between what is important from the user's angle and what they believe to be the cleverest features of the product.

I know of intelligent people who are still grappling with the *LocoScript* instructions after weeks of patient study.

Therefore much of *Mastering the PCW* is rightly given over to rewriting the documentation on *LocoScript* and *CRIM*. Content-wise there's little in the book that you couldn't find in Volume 1 of the *User Guide*, but the organisation of the material is superior — plainly the result of time having been spent actually using the machine in a variety of everyday circumstances, including using it to write the book itself.

The reworking of the original documentation is obvious almost from the start. After a few introductory remarks, containing the obligatory outline of what computers do and the usual good advice about taking care of discs and so on, the section on *LocoScript* — which forms the major part of the book — starts with the direct printing mode using the PCW as a memory typewriter.

This may seem an odd approach until you remember that direct printing involves no disc access. It is therefore a good way of learning to use the printer with its quirks, and the keyboard with its dedicated word processing keys and alternative character sets, without having to bear in mind disc management at the same time.

Working with disc files is then treated in fairly digestible chunks arranged in increasing order of difficulty, and culminating in detailed but brief chapters on the complicated subjects of page layout and stored format files.

A final chapter in the *LocoScript* section provides a confidence booster by dealing with less daunting topics such as saved phrases, disc-group

Help for the struggling tyro

names, and handling long documents.

I have only one criticism of the *LocoScript* section. The author says he has been working with a pre-release version 1.3 of the program, but assumes that most people will possess the original version 1.0. How has an inherent problem with writing books on recently released computers in order to capitalise on a new niche in the market.

All the excellent advice the author gives about getting round the bugs and limitations of version 1.0 has been made redundant in one fell swoop since Amstrad began to distribute version 1.2, and announced a free update to those who had bought earlier versions.

Whereas the chapters on *LocoScript* represent an expansion of the *User Guide*, this is not true of those devoted to *CRIM*. The official *CRIM* documentation and the free-structured help facility on side 4 of the system disc supplied with the PCW deal with built-in commands and external utilities in greater detail than does *Mastering the PCW*. Again, however, the new book is more coherent than the former.

This is no great achievement when you remember that parts of the official documentation seem to have been written with the aim of keeping *CRIM* information secret from the masses, and perpetuating the idea that computer scientists live on a higher plane than Joe Bloggs who doesn't have a PhD in the subject.

But there again, it's not that easy a task to explain in simple language some of the niceties of *CRIM*, and it's at least as well done in *Mastering the PCW* as in the many other books



available on the same topic.

The last part of the book concentrates on commercially available applications software, using as detailed examples *SuperCalc 2* and *Cardbase* — not everybody's cup of tea in the way of spreadsheets or databases, but typical enough to illustrate what can be done with the PCW once you get beyond *LocoScript*.

The last chapter gives an overview of two accounting packages — *SageSoft Popular Accounts* and *Camsoft Payroll* — and one alternative word processing program, *New Word*.

The book is written in an easy, jargon-free style, and is peppered with imaginative and apt expressions. Being told that editing a template is not unlike peeling an onion, or that watching a long document being saved is about as exciting as watching paint dry, lives up what could be a dry subject, and neatly encapsulates the experiences of those who know *LocoScript*.

If you're an expert coming to the PCW you won't need a book like this. In fact much of the fun of using a new machine or a new piece of software lies in the haphazard discovery of hidden features, and the satisfaction gained from finally understanding the documentation.

If you're not a computer buff, and particularly if you've been struggling with the first volume of the *PCW User Guide*, *Mastering the PCW* will be £9 well invested.

Gabriel Jacobs

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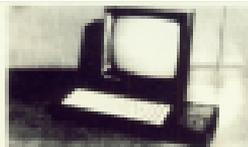
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A LOT of money is wasted in the NHS on sophisticated computer projects, where designers and users are unable to understand each other. I feel that the experience of my hospital department illustrates the problem and also shows that what I understand to be the Amstrad philosophy for small businesses — the play around with hardware and software at sensible prices and do the job yourself approach — is equally applicable in specialised fields.

My department is responsible for providing care for all the elderly patients in Herefordshire who become muddled and infirm. In particular we aim to provide support for the many families who look after their elderly relatives at home.

We have a team of 14 community nurses working out from the hospital. On a rota basis they cover 24 hours a day, every day of the year. Every nurse carries a file on every patient, so that in an emergency any nurse can go to any patient and have all the necessary information to hand. Keeping these information sheets updated is a never-ending job for our secretarial staff.

We also offer regular short admissions to hospital to many of our patients to give families a break. This means one bed is shared by two, three or four patients, on the basis of two weeks at a time.

We aim to give families dates up to three months in advance, and this requires more work than running a hotel. For example, we have to book transport — ambulance, hospital car and so on, cancel and re-arrange other support services, such as Home Help — things that do not concern an hotel.

All of this seemed to us ripe for computerisation, but none of us had any experience. We tried to get help through official channels and various advisers came, looked at what we were doing, said yes it was ideal for computerisation — and went away

How the Amstrad philosophy fits into the NHS

By
Dr D.M.D. WHITE

again. Featuring from us eventually produced estimates of around £25,000 for hardware and an unknown sum for specially written software. Of course this was totally beyond our resources.

It was later suggested that a BBC Micro could do all we wanted, and one was bought for us. It couldn't — or at least if it could no one could program it for us to do what we required. Such success as was achieved was at a speed far inferior to our old manual methods, and not nearly so reliable.

Eventually we gave up and the thing stood gathering dust for nearly a year. We felt disillusioned. Computer experts could not understand our needs, while we, being ignorant of the abilities and limitations of hard and software, did not know what compromises were possible or necessary.

Then not long before Christmas I saw an Amstrad PCW8256 in a local shop. I had a good look at it and at first I was convinced that a I had dropped off the price ticket — I was sure it must be £1,399, not £399. But once I was persuaded the price was correct we set about selling our BBC Micro to another department, and using the money to buy three PCW8256s.

Our intention had been to use the machines purely as word processors, though just what scope that would give us we did not know. When we studied the Locoscript manual all sorts of possibilities seemed to be

Local records on	Days	Cost
40 10 1987 10:00 10:00	Week 1	0
40 10 1987 10:00 10:00	Week 2	0
40 10 1987 10:00 10:00	Week 3	0
40 10 1987 10:00 10:00	Week 4	0
40 10 1987 10:00 10:00	Week 5	0
40 10 1987 10:00 10:00	Week 6	0
40 10 1987 10:00 10:00	Week 7	0
40 10 1987 10:00 10:00	Week 8	0
40 10 1987 10:00 10:00	Week 9	0
40 10 1987 10:00 10:00	Week 10	0
40 10 1987 10:00 10:00	Week 11	0
40 10 1987 10:00 10:00	Week 12	0
40 10 1987 10:00 10:00	Week 13	0
40 10 1987 10:00 10:00	Week 14	0
40 10 1987 10:00 10:00	Week 15	0
40 10 1987 10:00 10:00	Week 16	0
40 10 1987 10:00 10:00	Week 17	0
40 10 1987 10:00 10:00	Week 18	0
40 10 1987 10:00 10:00	Week 19	0
40 10 1987 10:00 10:00	Week 20	0
40 10 1987 10:00 10:00	Week 21	0
40 10 1987 10:00 10:00	Week 22	0
40 10 1987 10:00 10:00	Week 23	0
40 10 1987 10:00 10:00	Week 24	0
40 10 1987 10:00 10:00	Week 25	0
40 10 1987 10:00 10:00	Week 26	0
40 10 1987 10:00 10:00	Week 27	0
40 10 1987 10:00 10:00	Week 28	0
40 10 1987 10:00 10:00	Week 29	0
40 10 1987 10:00 10:00	Week 30	0
40 10 1987 10:00 10:00	Week 31	0
40 10 1987 10:00 10:00	Week 32	0
40 10 1987 10:00 10:00	Week 33	0
40 10 1987 10:00 10:00	Week 34	0
40 10 1987 10:00 10:00	Week 35	0
40 10 1987 10:00 10:00	Week 36	0
40 10 1987 10:00 10:00	Week 37	0
40 10 1987 10:00 10:00	Week 38	0
40 10 1987 10:00 10:00	Week 39	0
40 10 1987 10:00 10:00	Week 40	0

The price set gives occupancy of each bed a week (4). The program can also print any one bed over a period of weeks, or print a sheet of each bed over six weeks on one A4 sheet.

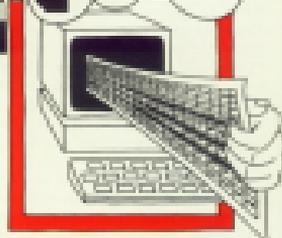
available to us. We found that by using a suitable template we had designed we could score on a couple of discs the basic records for the use of our nurses. It was of course very easy to update these whenever necessary and to provide fresh printouts.

As a despite the absence of bootstrapping with Locoscript we found many of our routine letters to families and doctors giving dates could be produced quickly and easily. We were delighted because we had been able to understand the

* Dr D.M.D. White is consultant at the General Hospital, Hereford.



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At a recent exhibition we met several unhappy spreadsheet users. They had visited their local Amstrad dealer and requested a copy of ScratchPad Plus. Whereupon they were told that "one spreadsheet is much the same as another" and by coincidence, the one the dealer happened to have in stock would be "just what they required".

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From Page 22

handbook and we had done it ourselves.

Flushed with success we wondered if we could do something with our bed bookings by using a commercial database. After some shopping around I chose the Carbase database, partly because it seemed specifically matched to the PCARD360 and also, more importantly, because a quick look at the instruction manual did not leave me – as some books did – with the firm conviction it was written in a foreign language.

Another important point was the availability of a dealer demonstration disc, which enabled us to play around and make some assessment of the product before buying.

As an aside it does seem to us that the marketing of much software leaves a lot to be desired. It is next to impossible to find out whether a particular product will answer a particular need, even if you write to the manufacturer or distributor. If small businesses and organisations are to be served successfully this is something manufacturers should consider seriously.

After a little practice with our Carbase and a lot of thought we were able to produce a satisfactory system which could give us the state of all beds in a given week or the state of a particular bed over a period of weeks. This would pull out vacancies for us and prevent us trying to book two people into one bed at the same time – unlike travel agents we



A complete screen containing a book opened – name, date of birth, date of referral and date seen. If P is entered is discharged? I empty? Dead? A date apart comes up. A weekly print out gives names, dates referred and dates seen.

cannot get away with double booking.

By using the label print facility we were able to print out in clean form, with up to six weeks of bookings for 24 beds on one A4 sheet of paper.

Following that we went on to devise ways of keeping track of weekly admissions and discharges, ambulance and hospital car bookings, automatically putting in dates for the next admission and when necessary printing any of these items out in a suitable format.

We have now added a regular review system, and are also keeping all our statistics in a much more accessible form than we could hope to do manually. We keep finding new

ways of using our equipment, and are also thinking about extra software – such as for the graphic presentation of statistics, though as I mentioned above we are hampered by the absence of useful software information.

Expansion apart, at the moment for less than £1,500 we have a system which we designed, where compromises and limitations we understand and so can work around, and which does what we want in a way that we find effective. Because of communication problems this was something that could be not done for us by experts. Yet we have managed, despite remaining totally ignorant about computers as such.

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***** (Blossom) see Dr's Letter - Potentially deceased man - wife looks after his remarkably well in her own, DSA in Dec 86 complicated by DVT & pulmonary embolus - patient still got occasional brachial: attacks and remains in atrial fibrillation.

Using LaserScript templates to prepare BASIC community-notes notes



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- FORMAT** Create or re-size a format BIFF screen
- REORG** Reorganize the structure of a database, active data items

Information Input and Update

- APPEND** Append records to new database or another
- EMPTY** Eliminate all data in a database
- ENTER** Insert new data into a database
- POST** Update entries in one database with those from another
- UPDATE** Change entries in a database meeting user-defined conditions

Information Processing and Report Writing

- COMPARE** Compare entries in two databases for exact matching conditions and create a BIFF/BI database of complete entries in a database
- INDEX** Create database records in sequential order
- PRINT** Print database records in sequential order
- PRINTFR** Print output sorted and tabulating
- SELECT** Select database records meeting specified conditions, creating a BIFF/BI database
- SORT** Sort database records by criteria
- STAT** Show or print statistics of entries
- TABLIFE** Summarize qualified entries. Print or save the result
- TITLE** Print report headings

Operator Aids

- HELP** Assist operator in selecting procedures
- INSTALL** Save SET and PROTECT options
- RESTART** Continue processing
- STOP** Save report commands
- USER** Process and manage a command procedure with optional command modification

Advanced

- READ** Transfer records from an ASCII file to an existing database
- WRITE** Transfer records from a database to an ASCII sequential file

Utilities

- COPY** Copy a database or file
- SAVE** Save an entry file
- DEL** Manoeuvre in the data dictionary
- DIR** Show the list utilities in the data directory
- LOADDIR** Log a file into the data dictionary
- RENAME** Change the name of a database or file
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- SYSTEM**
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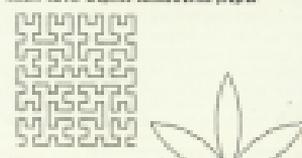
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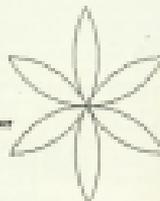
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NEWSLETTER

MICROLINK TRANSFERS SPACE PROBE DATA

MICROLINK has been chosen to provide vital transatlantic communications for a project that will eventually push back the frontiers of space even further.

An organisation called Apsis - Association in Scotland To Research into Applications - is experimenting with the design of a spacecraft that could travel millions of miles helping from planet to planet and still survive a close encounter with the sun.

It is based on a concept known as Wavefinder, originated 30 years ago at Glasgow University by Professor Terence Southwell, where the vehicle

flies at hypersonic speeds on the shock waves produced by its leading edges.

The project has attracted the attention of the Jet Propulsion Laboratory at the University of California which is working with NASA on Starprobe, a mission to fly within two miles of the sun.

The Americans see Wavefinder as the most serious contender for the role of Starprobe's transporter of Starprobe's transmitter of Starprobe's transmitter of Starprobe's transmitter because it can travel from one planet to another, harnessing the gravitational force of each in the manner of a slingshot.

A leading member of the Starprobe team, James Randolph, has been in Scotland

to see the work in progress. "Wavefinder is an ideal solution, perhaps the only one, to the problem of finding a vehicle with a high lift-to-drag ratio", he said after his inspection.

Microlink's role in the project is to act as a fast and efficient medium for transmitting information from Apsis in Scotland to the Jet Propulsion Laboratory in California.

"Mixed tunnel test data and other data are constantly being assimilated and have to be passed on to JPL, as soon as possible. Therefore we have turned to Microlink as a cost-effective and rapid means of data transfer", said a spokesman.

Airlines guide goes on-line

AIRLINE travellers with a subscription to MicroLink have entered an era of trouble-free and more economical flight arrangements.

The reason is that MicroLink now provides instant round-the-clock information from the pipe of global networks, the International Airline Guide.

Known as GAG, it offers the very latest data from more than 750 airlines worldwide, with details of 25 million flights.

Microlink subscribers can be connected within seconds via satellite to the GAG computer in Oak Brook, Illinois, which monitors the 20,000 changes in fares which take place daily, and the 20,000 weekly schedule revisions.

And GAG is a real money-saver because all the fares for each airline on any given route are available from the lowest to the highest.

The service also boasts an elapsed time feature which calculates the average time between any two cities during flights, thus enabling the passenger to select the journey with the shortest possible duration.

The GAG service is easy to use. It will accept full spelling or airline codes of destinations, and the user can select information either by single line entries or by using prompts on the screen.

Menu for a good night out

ALL the world's a stage, and nowhere more so than London where theatregoers have a choice of over 40 glittering shows.

Now, in association with renowned booking agency Edwards & Edwards, MicroLink can reserve your seat in the stalls at any of them.

TheatreLink is a new service from MicroLink incorporating every play, musical, thriller, comedy and opera - plus major reviews and cabarets - being presented in the capital.

This compendium of entertainment ranges from the megawatt The Mousetrap, through old and new favour-

ites like Billie Spirit, Cats and Run For Your Wife, to the new musical Tim.

To help you make your choice, the menu not only gives a full alphabetical list of every show currently running in London but also breaks it down into categories such as musicals, plays, comedies, thrillers and so on.

And as well as performance times and seat prices, each individual show listing contains the names of the stars appearing and a helpful description of its theme.

Bookings on TheatreLink can be made 24 hours a day, seven days a week up to the day before the performance you wish to attend. Seats for

Friday and Saturday performances must be booked at least two days in advance.

Reservations will be confirmed on your mailfax within an hour if you book between 10am and 4.30pm, Monday to Friday.

Tickets will be charged to your credit card and either posted to you on the same day or held at the box office of the appropriate theatre.

TheatreLink is menu driven for maximum user-friendliness and also incorporates a section giving all the latest show news and a breakdown of which theatres still have seats available for performances during the current week.

Osborne to Amstrad

WELL done, Amstrad, you have made my life much easier. As a novice user I find *WordScript* files easily to the Amstrad. Gabriel Jacobs awards it five extra marks for absence of disc space for back-up which should go to *WordStar* though I (Business Computing with the Amstrad, April 1985).

I have tried to use *Mail232* to transfer a program from an Osborne computer running CP/M 3.2 loaded with the bus dump via the recommended real modem cable (page 26 of the CPS8236 manual) and with various other configurations using a transfer monitor in the past.

Walter using the *Asa* or *Ascl* option of the CP manual could I persuade the Amstrad to accept the incoming information.

The *Reserve* function was entered into the directory of the disc in use, but it was always empty. No screen echo and no printer during start transfer. No error messages were displayed and there was no sleep.

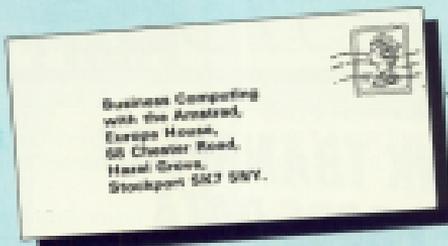
My interface has subsequently been checked by my helpful dealer, Software City, who told me that *Mail* doesn't work for these sites.

Has anyone else had problems - has anyone got *Mail* to work for file transfer or anything else? Is there an alternative file transfer program available?

Kernit is available on the Osborne for this but doesn't run on the Amstrad. Was anyone adapted it for the Amstrad yet?

Lastly, please recommend a comprehensive guide for Database II which I believe will shortly be available for the PC/W. — **Richard Bates, London E46E.**

■ My title is right. Absence of disk space is a plus point for *WordScript*. (Inclusing disk space is not used for back-ups.



whereas in *WordStar* it is.

I assume that you have set up the serial port on the Osborne to conform with the FI menu in *Mail232*. If not, that's the first thing to put right.

Since you have been using a transfer monitor in your cable it's unlikely that there's any problem with pin connections. In any case the standard real modem cable (pins 2 and 3 crossed over) should work fine.

The way to test the pin connections is to transfer, not a hex file but a straight *Ascl* file using the default *Ascl* option in *Mail232*. If you try to send a hex file in *Ascl* mode it will not echo to the screen because the program simply won't be accepting it.

If you can't get a straight *Ascl* file across either way there's almost certainly something wrong with the software at the Osborne end, because *Mail232* works fine.

And that, I think, is your problem. I have not been able to get the latest hex dump to work either.

I spent an hour or so typing it in to my Epson FAX, and a couple more experimenting with it to no avail. In the end I gave up and used PIP, which is far better anyway.

Now all is sweetness and light - I transfer programs all the time and get that feeling of pleasure in the pit of my stomach each time it works.

And I use *Mail232* regularly for file transfer, electronic mail, modems and line drivers - never once had any problems with it.

If you use PIP, set the [c] switch when transferring as *Ascl* to knock off any possible high bits containing control

codes, and the [o] switch when originating a transfer as hex under CP/M 3.2.

You can, if you wish, receive at the PCW and using PIP too, but there's no need to complicate life unnecessarily when *Mail232* will do the job without fuss.

The Osborne manual will tell you all about PIP under CP/M 3.2, and the PCW manual about PIP under CP/M Plus.

Kernit has not yet been specifically configured for the Amstrad. You could try sending your *Kernit* program, using PIP [c], to the PCW and see if it runs.

It might, you never know, especially if you have *Kernit 88* which is designed to run with little modification on both 8 bit and 16 bit machines. If it does work, then having *Kernit* at both ends will simplify life enormously.

For the uninitiated, *Kernit* - named after the letter 'r' - is a series of file transfer and terminal emulation protocols, originally developed in California a few years back, for connecting a wide range of micro to other micros and to mainframes.

The fan of micros on which *Kernit* will run is very long indeed, but it hasn't been tested for about six months now, and the PCW doesn't appear on it.

If PCs are to be used as terminal emulators in colleges and universities somebody will eventually do the necessary work because *Kernit* is free to educational establishments and can be collected from Lancaster University via the Joint Academic Network (JANet) with the appropriate authorisation.

You get a source code file and a little Basic program to compile it.

I haven't heard of Database II, but assuming you are referring to *Class II* from Ashton-Tate I would recommend Evanston's Database Primer featuring *Class II* by Robert A. Byers.

Tony Shaw's *Class II* - Developing Applications is also a useful addition to the advanced user's library.

Gabriel Jacobs

Stored lines

FOR two months running Gabriel Jacobs has reported the failure that *WordStar* cannot store ruler lines. But...

... *Ctrl-PM* creates a line feed without a carriage return and sets the cursor on the next line.

You can then create any length of ruler line using *^J* and *^M*, remembering to set a suitably long right margin with *Ctrl-DR* - any arbitrarily high number up to 255 will do.

Place the line with a normal carriage return. You can then place the cursor on the ruler line and *Ctrl-DR* will create the same ruler line at the head of the screen.

My files are stored with such ruler lines which I read each time I move to the next page of a complicated document.

The most common area set up on files in their own right on my master copy files is that I can recall them using *Ctrl-ER* and insert them in a new document without having to reconfigure the layout of text. — **J. Hudson, Middlesbrough.**

■ The phrase *Stored Ruler Line* is perhaps misleading, but what most people mean by it these days is one taken into account by a relational command.

You will know that in *WordStar* the only way of being sure all your insertions and deletions have been formatted correctly is to send a *Ctrl-Q* through the file when you have finished editing.

But non-printing ruler lines embedded in your WordStar text are ignored when you do such a global reformat.

You have to reformat every paragraph separately, each time setting the appropriate ruler line with **Ctrl + QP** — a pain to say the least.

The same is true of the WordStar indent Paragraph command (**Ctrl + QJ**) which sets the default ruler line to indent at a tab stop, but which remains active only while the cursor is still in the indented zone up to a Carriage Return.

Once it is moved out the ruler line returns to its default state. So a reformat command ignores the original indentation.

In NewWord and in the latest expensive upgrade of WordStar you can embed genuine stored ruler lines in a document, which are recognized during a reformat operation — a considerably improvement on the "fakery" of standard WordStar's re-printers.

Gabriel Jacobs

Unfair to LocoScript?

AMSTRAD read your April 1988 issue. I feel a need to make a comment or two about the article by Gabriel Jacobs entitled *LocoScript v WordStar*.

Firstly, in Table 1 there appeared to be irregularities in the scoring of points between LocoScript and WordStar.

In my opinion it was inconsistent and unfair, especially when LocoScript scored as its highest score 15 and WordStar received 28 for an average.

This may be due to the fact that there was no criteria laid down for the scoring, if there had been I think that PCW owners would have accepted a defeat by WordStar because we know what we have in LocoScript.

The second point I would like to make concerns the **Ctrl** key which Gabriel Jacobs forgot to mention. I realize that

the high-flying event a word processor that will do anything at a single command, but at someone once paid "you pay your money..."

I would like to thank Gabriel Jacobs for pointing out the bugs in early versions of LocoScript, something of which I knew nothing. I checked my version and sure enough it was in need of refreshment.

After making a phone call to Amstrad I was told that if I returned my systems disc — also I and II only — they would indeed replace it free of charge and if there done this at a great rate of knots. — **R. Griffiths, Bedford.**

Firstly, my scoring system was based on a personal judgement taking into account my own needs. I said so in the article and pointed out that readers' scores might well be different from mine.

I don't see how such personal judgements can be subjected to a charge of inconsistency.

What criteria can there be for judging two high-quality packages, other than what you yourself feel about them? My criteria were found to be impractical.

Secondly, on the delete-indenting question see the reply to M. Beale.

Thirdly, Amstrad told me that all they required was a letter marked LocoScript. I've checked with them again and they confirm that again.

Gabriel Jacobs

Deleting text

I WOULD your magazine for the *Next Time* because of Gabriel Jacobs' excellent comparison of the Amstrad WP with WordStar — and because I disagreed with two of his criticisms.

I find the **Ctrl** key can delete text very flexibly if used with the **Word**, **Line**, **Doc/Page** and **Para** keys and also with the **First Key** to delete other portions of the text — with the flexibility of viewing and scrolling if necessary the extent of the deletion before confirming

or cancelling the action.

I seldom use the **Del** keys except to correct spelling mistakes as I'm typing in text.

Also, although I agree it would be nice to have a dedicated **Word Key** on the keyboard, with experience I find there is sufficient flexibility in moving the cursor by using the **Line/End** of line key along with **Shift** and **Alt**, or the cursor direction keys along with the **Shift** key, to make good use of the **Word/Char** key.

I'd certainly not like to change the simplicity of the existing **Copy** and **Paste** keys.

As for editing time, I find the speed of response or opening new files while pointing invaluable in preparing standard forms and letters for the coming day's work, and the ability to edit a file while it is being printed is another great timesaver.

Two opening questions I'd like to ask: What is the difference between the **Unit** and the **Doc** keys? (When experimenting they seem to have the same effect on the cursor.)

And how, without switching off and stepping over again, does one stop from a **Print** instruction? Or is this something else which is taken care of in version 1.2?

Incidentally, you and Gabriel Jacobs don't say that the version number is shown on the title page, which is probably the most reliable way of finding out which version you are using.

Also in your copies in floating you mention seeing distributions of various software programs to enable a suitable selection of a program to fit your own requirements, but where can this be done?

Some in Edinburgh say they don't have this facility. I feel I've certainly had my money's worth from this month's magazine and if next month's *Business Computing* is as good you'll have a new subscriber. — **Margaret Beale, Livingston, West Lothian.**

Yes, the **Ctrl** key can be used effectively with a selected range for deletion. Like many

of LocoScript's features, this one was taken from Dec's **WAA/MS EDIT** program. But **EDIT** also has **Delete Line** and **Delete Word** facilities. As I was saying was that it would be useful to have these in LocoScript too.

I agree that **Paste** and **Copy** are two of the strengths of LocoScript. But I still think, from a purely ergonomic point of view, that cursor movements ought as far as possible to be contained in unshifted keystrokes.

It would hardly make **Paste** and **Copy** less simple if they were in shifted position.

There is no difference between the **Unit** and **Doc** keys if you haven't set any markers. LocoScript will try to find a **Unit**, starting from the cursor position to the end of the document.

If no marker has been set it will go to the end of the document while looking for one, thus giving the same effect as the **Doc** key.

To set a marker use the **Del** menu or **UT** (the plus sign on the left of the speaker, of course). To delete it use the **Del** key.

To abort a **Print** instruction, press **Fit** then **IT** for a "clear and re-set". This works on all versions of LocoScript.

The reason why I didn't mention looking at the **Doc** Management screen to see which version of LocoScript you have is that a **Start** of the **Doc** disc, with all the system files copied on it — the one the manual recommends you should use — may not contain a disc-identify label, unless you have added it in yourself.

The most reliable way of telling which version you have is therefore to try out one of the new features of Version 1.2.

Dealers are not all they should be, particularly since High Street stores have started selling mine in a big way. You have to be strong and insist on demo before buying. If everyone did the service we would get would be that much better.

Glad you like *Business Computing* with the Amstrad. We do our best to please.

Gabriel Jacobs

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Name

Company Address

Telephone

Type of Business