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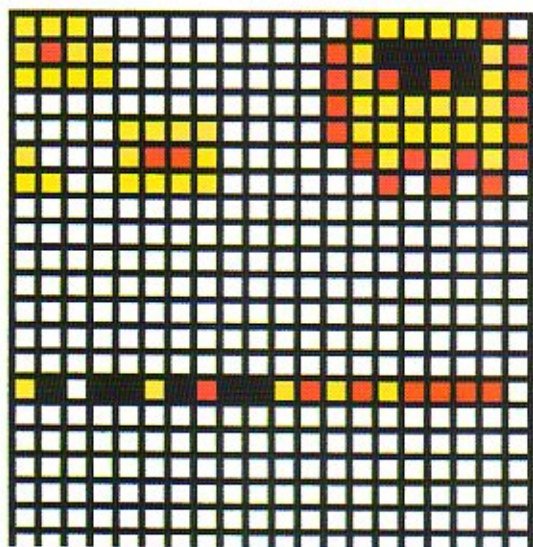
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80 track

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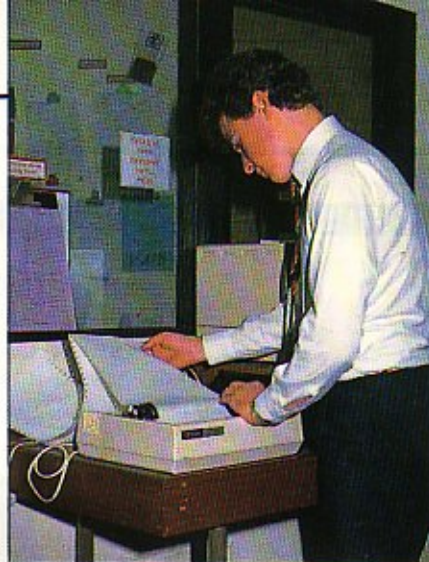
Send your order to Reader Services, 9 Hall Road, Maylands Wood Estate, Hemel Hempstead, Herts HP2 7BH. Visa & Access accepted. ☎ 0442 41221

disk USER

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Editor: Andrew Brown
Software Consultant: Matthew Fifield
Group Editor: Mark Webb
Advertisement Manager:
 Marcus Collingbourne
Advertisement Copy Control:
 Alistair Carnell

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Disk User is supplied on a 40 track disk format and can be run without conversion on a 40 track drive.

If you have 40/80 switchable drives then make sure the drive is switched to the 40 option.

For 80 track only drive owners, a conversion program is provided – see Disk Instructions

All programs, can be copied to and used on ADFS systems

100% Electron Compatible:

Maelstrom
Operation Sea Lion
Graphic Utility
Sprite demo

DISK INSTRUCTIONS

To get the best from your copy of *Disk User*, please carefully read the instructions below. We have made *Disk User* able to run on a very wide range of systems.

All Users

Please make a **Backup copy** and keep the original in a safe place with a Write-Protect tab on. You should use this copy as your working copy, as many of the programs need to write to the disk, and doing this will diminish the usefulness of the original, and may not be possible anyway due to the 31 file limit imposed by many DFSs.

New Users

If you are a new user **Don't Panic!** first find out whether you have 40 or 80 track drive(s) attached to your computer (ask someone knowledgeable if you don't know). Then go to your User guide or Welcome Manual and read the chapter on filing systems. In particular find out how to use the *COPY command. Next re-read the section above **All Users**, and then go to the appropriate section dealing with your particular filing system and follow the instructions listed there.

Advanced Users

You do not need help to run *Disk User*, but do refer to the instructions

for the filing system you are using, and **Don't forget to make a Backup copy.**

40 Track Drive Systems

Disk User is supplied on a 40 track disk so will work on any 40 track BBC Micro system (at least, any that we know of!) straight away. Remember to make a working copy before use.

40/80 Switchable Drives

If you have this sort of drive, you can use *Disk User* straight away with the drive switched to the 40 track setting; don't forget to make a copy for normal use. However, you may wish to copy the disk on to 80 track format, in which case, with a single drive, you should follow the instructions for 80 track systems.

With two switchable drives, or one switchable drive set to 40 track and an 80 track drive (or even a 40 track drive and an 80 track drive), you can easily copy *Disk User* on to 80 tracks; put *Disk User* into drive 0 (40 tracks) and a blank formatted 80 track disk into drive 1 (80 tracks) and type:

COPY 0 1.<RETURN>

Here <RETURN> means hitting the return key. You can set the boot option to drive one by typing:

*DRIVE 1<RETURN>

*OPT 4 3<RETURN>

80 Track Drives

Because *Disk User* is supplied as a 40 track disk, 80 track disk drives have to double-step through the disk. Probably the most convenient thing to do is to copy *Disk User* on to 80 track format. This can be done in two ways.

If your filing system allows double-stepping, we recommend using the system's own command. As a general rule, built-in 40-to-80 track converters should be used where available; the documentation for your filing system or utility ROM will give full instructions, and we give suggestions for some better-known systems further on.

Not all filing systems have facilities for double-stepping; Acorn's DFS is one such system. To overcome this, a program called CHANGE is supplied on the *Disk User* disk in a section which can be accessed by 80 track drives.

Using CHANGE

Insert *Disk User* into an 80-track drive (or 40/80 switched to 80-track) and type:

*CHANGE <RETURN>

The program will prompt you to insert a pre-formatted blank 80 track disk when it is ready to write to it (you will have to swap back and forward between the two disks several times if you are using only one drive).

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Once this is completed, you can use the newly created 80-track version of *Disk User* and keep the original as the back-up.

Our suggestions on how to use *Disk User* on some popular DFSs now follow.

Master 128

This Acorn DFS has a software double stepping mode for a 80 track drive. Set it with the command ***DRIVE 0 40 <RETURN>** and then hit **<BREAK>**

Disk User will then work without any need for conversion. However this may not allow writing to the disk in 40 track mode; in any case, you should make a working copy, so copy to a 80 track disk.

DFS on Master Compact

The DFS is supplied as an image on some versions of the Master Compact Welcome disk (or is available from Acorn on disk) and this may be used in conjunction with a 5¼ inch 40 track disk drive to run Disk User. Please note that we **cannot** at present supply *Disk User* on a 3½ inch disk (if there is sufficient demand, we may be able to in the future).

Opus DDOS/Challenger 3

If you are using the Opus DDOS disk filing system or Challenger 1.0/DDOS then issue the command ***4080 AUTO <RETURN>**

or ***ENABLE 40/80 <RETURN>** and Disk User will work without any need for conversion.

Challenger 3

If you have the later ROM version Challenger 1.1 then issue the command

***OPT 8,1 <RETURN>**

to achieve the same result. Disk User will work effectively from the RAM disk. Use

***COPY 0 4 *.* *CONFIG 4=0**

0=4 *OPT 4 3

to run from RAM disk

Solidisk DFS

With the Solidisk DFS 2.1 and 2.0 you can set a software double stepping mode for a 80 track drive with the command

***ENABLE 80 <RETURN>**

Disk User will then work without any need for conversion.

Watford DFS

The Watford DFSs also have a software double stepping mode for an 80 track drive. Consult your manual for the appropriate FX call or

command. Disk User will then work without any need for conversion.

Disk failure

If for any reason your copy of Disk User will not work on your system then please carefully re-read the instructions given above.

If you still experience problems then:

1. If you are a subscriber, return it to: INFONET LTD, 5 River Park Estate, Berkhamsted, Herts HP4 1HL.

2. If you bought it from a news-agents, return it to:

Disk User Replacements (BBC),

Direct Disk Supplies,

Unit 19,

Teddington Business Park,

Station Road, Teddington,

Middx. TW11 9BQ.

☎ 01 977 9444

Editorial/Technical Enquiries

You can make telephone enquiries about *Disk User* on Wednesday and Thursday afternoons on 0733 53355 (please ask for *Disk User* Editorial). Enquiries in writing to the following address: **Disk User, 6C Belgic Square, Off Padholme Road, Peterborough PE1 1XF.**

ADFS Users

All files on this disk should work with the ADFS. If any problems arise, examine the program listings and remove DFS only operating system commands (e.g. *DRIVE 0) and replace them with the ADFS equivalent.

Note:— Disk User 14 fills a 40 track disk. Any software that may need extra disk space to save information must be copied onto a blank disk. ie Operation Sealion and Quest.

Disk User 14 December '88

Electron Compatible Files:—

Maelstrom

Gameplan

Operation Sea Lion

All change — 40 track to 80 track

convertor. Files:—

CHANGE — Machine code file.

Caution:— This program may corrupt

your disk if misused. To use type

***RUN CHANGE <RETURN>**

New Disk Menu — With new advertising billboard.

Author: Matthew Fifield

Files:—

DUMENU — BASIC program

comp — Machine code file

COMSCR3 — Compacted screen file

All you readers with artistic talent

can send in your masterpieces and if

we have room on the disk we may

include your artwork with the disk

menu.

Maelstrom — Furious arcade action

in deep space!

Author: Matthew Fifield

Files:—

MAEL — BASIC program

MAELSCR — Compressed screen

D.MAELCO — Machine code

D.MAELSP — Data file

D.MAELWA — Data file

Sprite Demo — Peter Scott reveals

how sprites can be used.

Author: Peter Scott

Files:—

D.SPRITES — BASIC program

D.TABLE — Data file

Colour Interrupt — Double the colours

allowed on screen.

Author: Peter Scott

Files:—

D.COLINTR — BASIC program

Quest — A tough adventure for heroes

only.

Author: Alan Blundell

Files:—

QUEST — BASIC program

QUEST1 — BASIC program

QUEST2 — Data file

QUEST3 — Data file

Animation — Improved menu with the latest animation.

Author: Abbas/J.C. Kenney

Files:—

ALFABET — BASIC program

I.MENU — Data file

O.ALPHA — Data file

Operation Sealion — Strategy is called for in this battle simulation.

Author: Matthew Atkinson

Files:—

LION1 — BASIC program

LION2 — Machine code

LION3 — Machine code

Rumble — Heavy duty destruction rules in this four player game.

Author: M Crompton

Files:—

GAME — Machine code

CHARS — Data file

RUMBLE — Machine code

LOADER — Machine code

Graphic Utility — A handy screen designing tool.

Author: Peter Scott

Files:—

D.GRAPHIC — Machine code

SLoMotion — Put the brakes on your computer's processor.

Author: Tim Campen

Files:—

SLOMO — BASIC program

DEMO — BASIC program

Periodic Table — Those interested in chemistry will find this invaluable.

Author: A. V. Balmford

Files:—

I.PERIOD — Tracer file

NEWS DAY

Disk User visited a local school taking part in the Times Network System Newsday event

It's mid morning and by now at the Disk User offices we'd be on our tenth cup of coffee. But today is Newsday and we are visiting Bretton Woods School in Peterborough. We enter the urgent buzz of a computer room turned newspaper office for the day. The work has been going on since 9am and will continue non-stop until after 4pm.

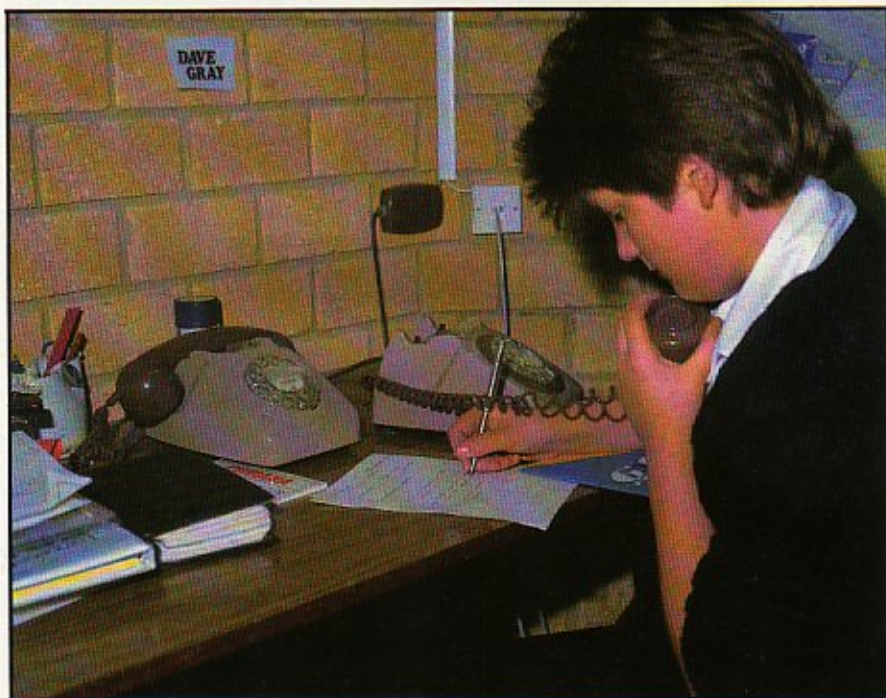
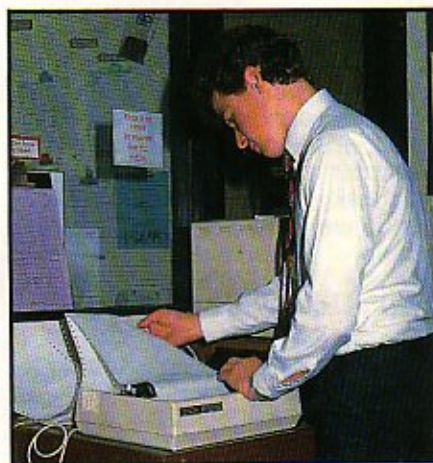
Students obtain permission from their teachers to join the team throughout the day. Some stories have been prepared in advance. "No newspaper is made in a day", says David Gray, head of Information Technology and editor in chief - by popular vote. For instance, there's the feature on Glen Hoddle. An

ardent fan had a great time interviewing the star footballer by telephone after a training session at his French club Monaco.

News stories connected with the school are featured: a short item on a 13 year old caught smoking; a fascinating interview with a teacher's son who, despite being partially sighted, is off to Cambridge University to read history - Bretton Woods is also a centre for blind children; an ex-pupil is competing at the Seoul Olympics.

Olympian efforts

It's the second week of the Olympics and the drugs story is still simmering.



Later in the morning the Daley Thompson result comes through from the TTNS newsroom: he's got a bronze medal. Moans from the assembled journalists and straight back to work. But the newsroom has got it wrong, probably prompted by the television commentators, and a second newsflash confirms a fourth place. More moans but someone shouts a headline: "how about Daley inches short of bronze". Thinking newspapers all the time!

Winners

Bretton Woods won the Newsday competition in its first year. Last year many of its star journalists were employed by the TTNS news service and the paper came second. This year Tandon, the sponsors of the competition, are giving a first prize of PC and laser printer. David Gray agrees they'd go nicely in the computer room, next to the AIV Domesday system, and would make a big difference to their paper next year!

GAMEPLAN

Graphics: Sprites, colours and scrolling

With graphics being such a major factor in any game, they demand a lot of attention from the games programmer. Now, I'll look at sprites, colour interrupts and scrolling.

1. Sprites

On this month's disk, there is a complete sprite routine. Last month, I discussed how to get around a few common sprite problems. This sprite routine goes one further than I suggested last month, assuming your sprite passes in front of a background that you want to preserve. Needless to say, all commercial games poke directly to the screen from machine code. This is unavoidable due to speed problems.

The dilemma comes when sprites have to move in front or behind anything. Just POKEing the data directly to the screen would leave a big black outline around the sprite. To get around this, operations are done on the data before storing it on the screen. EOR is popular and common, as the same routine can be used to both print and erase the sprite, and the background doesn't need to be stored. For example:

```
LDY#0.loop
LDA(graphics),Y \ get graphics
data
EOR(background),Y \ exclusive-
or it with the
STA(background),Y \ background
and store it
INY \ until the desired
CPYwidth \ "width" of sprite is
BNEloop \ printed.
```

The problem with this is that when the sprite passes in front of anything, its colours change. In Mode 2, this isn't too apparent if you choose colours carefully, and redefine the flashing colours to be certain stationary ones. However, in Mode 4 or 5 as in most games nowadays, this really is insufficient with complex backdrops. The ORA operation can be used instead of EOR, but the background must be stored first, otherwise it is lost. If you use, for example, just colour 3 in screen Mode 5, then your sprite will always appear over the background. However, single colours are limiting and if your backgrounds contain colour



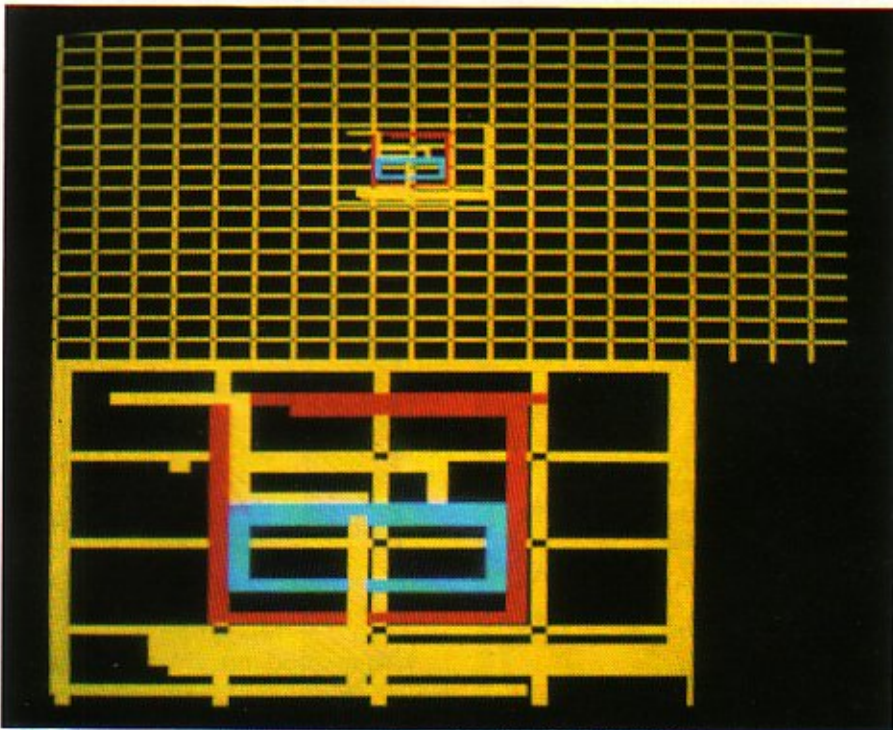
Peter's sprite system.

3, then your sprite will merge into them.

There are two ways around these problems. The first involves holding a separate mask for every sprite -

very wasteful of memory. The second I've used in *Thunderstruck II* and in this month's program, involves a table of 256 mask bytes.

A mask is an outline which goes



The graphic screen designer.



Now, all that needs to be done is to store all the background before printing the sprite and the routine on this month's disk is done. In practice, you'll need to cater for different sprite widths and depths, but that is a fairly simple modification. This routine also only works on character sized jumps on the vertical plane, but that can be worked around by designing your sprites carefully so each frame of vertically moving sprites is four pixels above the other, creating smoother movement. Horizontally, the sprites move in four pixel jumps. Anything else is impractical in Mode 5, and this again can be worked around by designing each frame of animation a couple of pixels ahead of the last.

Mode 5, but can be used in any Mode with minor modifications. The Advanced User Guide explains all the theory, but I'll try and dilute it to what is relevant. The Advanced User Guide is a necessity to any serious programmer of the BBC, and if you don't own one, you should!

To allow more colours to be available in a Mode, you simply change the palette when the raster scan that builds the picture up is somewhat down the screen. If this is done every fiftieth of a second, via interrupts, the screen will have more than the number of colours that are supposedly available.

More than one change of palette can be used to create even more colourful effects, but this example is easier to follow and sufficient for most games. The program (CHAIN "D.COLINTR" to run) contains plenty of comments to illustrate what is going on, but this also disguises the basic simplicity of what you'll need to incorporate into your own programs. The table below is the table set up in the program:

Logical colour Values

0	0,16,64,80
1	32,48,96,112
2	128,144,192,208
3	160,176,224,240

In Mode 5, you must define each logical colour four times, once with each value from the table. To the table value, you add the physical colour you want, EORred with 7. So to redefine colour 3 to be blue (number added on = blue EOR 7 = 4 EOR 7 = 3), you'd store 160+3, 176+3, 224+3 and 240+3 over &FE21 at the right time (as in the program supplied). Most of the complex-looking BASIC simply works out these numbers and stores them in the right place, ready for the interrupt routine to use.

I'd advise that you leave at least one of the colours unchanged between the upper and lower sections of the screen, and a gap of a few pixel lines of this colour, to stop the slight juddering of the interrupt. It may only seem practical to use this type of method for a differently coloured status display on the screen, but this isn't so. By using frequent changes of one colour, making sure the controllable character doesn't contain that colour and the characters that do don't cross the interrupt, you can have many colours in your game. Page 3.

around the design of your sprite. Games such as Knight Lore and SpyCat use this type of effect to allow a cartoon-like black outline around everything. The problem is obviously the amount of memory used - doubling every sprite's allocation unless many sprites share the same general outline.

The mask is held as a rectangular block with a hole in it, and the sprite fits inside it (like a key fits in a keyhole; the keyhole being the mask).

By making the mask colour 3 in Mode 5, the background is simply ANDed with it, leaving a hole where the main sprite is EORed on, with no colour corruption. There is a way to get almost all of the advantages of this effect without using a mask for every sprite.

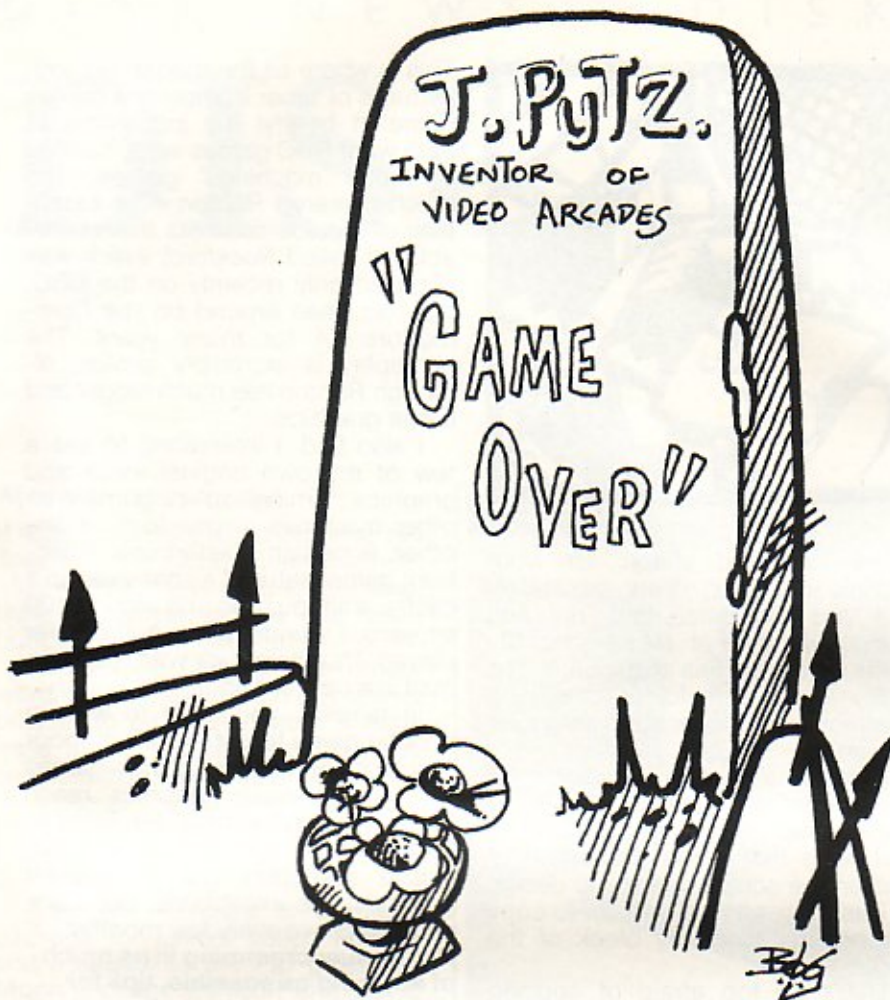
Yes, you use another table, just like using a reverse table! The only limit this places on your sprite is that it must be in one less than the number of colours available in the Mode, meaning proper masks must really be used in Mode 4. My sprite routine on the disk (CHAIN "SPRITE") uses Mode 5. It allows you three colours for your sprite, and I suggest you use one of them as an outline. The demo program defines a sprite with a black outline. The sprite passes in front of anything without corruption. The method used is described below:

```
LDY#0 .loop
LDA(graphics),Y \ load sprite
TAX \ transfer it
LDA(background),Y \ load the
background AND
masktable,X \ AND it with
the mask table
ORA(graphics),Y \ OR it with the
background
STA(background),Y \ store it on
the screen
INY \ repeat until
CPY width \ at the right sprite
width
BNE loop
```



3. Scrolling

This is one of the hardest parts of



any BBC Micro game to get right. In theory, the BBC has excellent hardware scrolling facilities. In practice, they are none too easy to use without flicker, judder and generally poor screen displays. Hardware scrolling allows movement by character increments up and down, and by eight byte *chunks* left and right. In the two colour Modes, this is one character. In Modes 1 and 5, this is half a character, and in Mode 2, this is a quarter of a character (two pixels). This makes smoothness difficult, and the absolute nature of the feature means sprites have to be erased and reprinted, causing flicker in many cases.

There are exceptions to the poor scrolling rule. *Codename Droid* has probably the best *normal* all-way scrolling on any BBC game, reasonably smooth and, more importantly, fitting in with the game perfectly. And, if I may say so, my own *Ransack* was rather fast and smooth, especially considering it used a software scroll, described later on.

Of all BBC games, *Firetrack* stands out. Its scrolling would be good on a Commodore 64, and disgraces most Atari ST games. It is done very cleverly. When you change the screen's vertical position (using

VDU23;7 or *TV) you may have noticed how the screen wobbles up and down for an instant. By controlling that, using black colour interrupts at the screen edges (which will remain stationary during the *wobble*) and a hardware scroll every so often, and timing the whole thing very carefully, pixel-by-pixel scrolling is possible.

The timing is crucial, and the whole thing is very difficult to program, which is why it took someone like Orlando (writer of *Zalaga* and *Frak*) to exploit it first.

Here we come across the biggest problem with hardware scrolling: the Electron. The Electron can only hardware scroll by 64 byte blocks, not the eight bytes the BBC can. This makes sideways scrolling impractical, although games like my old friend Gary Partis' *Synchron* exploit the fact that up/down scrolling can be done easily enough. In fact, Electron *Synchron* scrolls faster than the BBC one!

On the other hand, software scrolling works on both machines, if somewhat slower on the Electron (see *Psycastris* on both machines for an illustration of software versus hardware).

Virtually all software scrolling

games only move parts of the screen, be they windows with fancy panels on the sides or just parts of the actual play area. In my list of games with excellent hardware scrolling, you may be surprised by the omission of Superior's *Bonecruncher*. This is because it uses software scrolling, plus another technique: using two screens.

This involves holding two copies of the screen, and software scrolling the second copy, rubbing out all the sprites and moving them. This happens out of view, and once all movement is completed, the address of the start of the screen is altered to the newly scrolled one. This gives very smooth scrolling. It may be a little slower than the *Repton* games, but much improved with no flicker or judder. It can also be used with little modifications on the Electron.

The cost in memory is huge though, doubling the amount of memory taken up by the screen. A 20 line Mode 5 screen takes up 12.5K and a similar Mode 1 or 2 screen would take up 25K! This makes this technique only applicable if your game takes up little memory. Any sprite routine in a scrolling game has to take account of what is being scrolled and where. You'll find it very difficult to move more than three or four sprites without flickering if you use hardware scrolling. *Ransack* had somewhat blurred, if not flickery, sprites due to trying to do too much each iteration.

General graphics information

So, you have a pretty screen, complete with colour interrupts, a sprite routine to move things around with and a scrolling routine to make a landscape go by. How do you go about designing impressive looking graphics to go with them? First of all,



try and have a definite theme. It could be futuristic or medieval, a house or a castle, pipes and tubes or trees and grass. A simple theme for your graphics to conform to. For variety's sake, try and have several themes for different parts of a game.

In a shoot'em up, the first level could be in space, the second could be on the outside of a huge spaceship and the third inside it. In an arcade adventure such as *Thunderstruck II*, there were several areas such as inside a futuristic complex, under it in caverns, outside it with a lunar landscape, power areas full of pipes and tubes, computer areas full of monitors and flashing lights and so on. Try and get some idea of light and shadow. *Uridium* is very effective because of its metallic look (creating a host of imitators using this effect).

It is very simple to create metallic (or *bas-relief*) graphics. Draw a shape in a medium colour (like cyan, green or magenta), use a bright colour for the top and right edges (yellow or white) and a dark colour for the bottom and left edges (blue, red or black). All *sticking out* parts should have a bright top and right while all recessed parts should reverse the edge colours. Playing around with metallic graphics leads to a futuristic looking, hi-tech atmosphere.

Having some idea where the light is coming from helps in all graphic design. Shadows create depth and atmosphere, and being simple black shapes, they are easy to design, not demanding too many colours, just a little care. For more complex structures, sketch on paper what you want first. You needn't be a great artist, just get the right general



dimensions and shape. On your graphic designer, draw an outline that you can erase later on, and design within that framework. My sprite designer has a grid function built in which is useful for transferring graphics from paper to a computer screen.

If you've a photograph, picture or sketch that you want to transfer to your game, draw a grid around it, and have that same proportion of grid on the screen when you design it. This makes it much easier to copy the picture, block by block of the grid.

Don't be too afraid of copying graphics from other games. As long as you don't copy whole chunks of a game, changing slightly what you copy (improving it hopefully), you shouldn't get into any deep trouble.

Obviously, being original is better, but there is nothing wrong in getting your inspiration from other people's work. If you must copy graphics from other games, copy from machines other than the BBC and Electron.

This is where all the magazines with pictures of other computer's games come in handy! It's interesting to note what BBC games were *inspired* by other machines' games. The much revered *Repton* is an extension of *Boulderdash* (its main character is called *Rockford*) which was released only recently on the BBC, but has been around on the Commodore 64 for many years. The gameplay is incredibly similar, although *Repton* has much bigger and better graphics.

I also find it interesting to see a few of my own original ideas and graphics turning up in games on other machines in one form or another. A certain Mastertronic Spectrum game featured a spaceman in a castle, a lift, puzzles and around 100 screens. I wonder if the author ever played *Thunderstruck* with a spaceman in a castle, a lift.....

In general, you need to write a corking game to get away with poor graphics. Nowadays, fewer games with unimpressive graphics reach the market. Something like *Tetris* or *Impact*, both with simple and addictive gameplay but fairly poor graphics, are exceptions, but standards improve every few months.

Next issue: cramming in as much of anything as possible, tips for different types of games.

EDITOR'S NOTE:

Although this is the final issue of *Disk User*, we hope to continue the *Gameplan* Series in our new disk mag. See the coupon in this issue.

Graphic Screen Designer

Load and run with *GRAPHIC.

You basically design half a mode 5 screen.

The large yellow block is the main cursor.

Main Controls

Z/X - left/right

*/? - up/down

G - draws character grid (G again to get rid of it)

L - load in data (see S - save data later)

SPACE - zoom in

The zoom in feature will allow you to design the area covered by the cursor in more detail in the bottom half of the screen.

Zoomed In

Z/X - left/right

*/? - up/down

G - character grid

RETURN - 'colour in' pixel

0/1/2/3 - set colour to this logical colour

SPACE - zoom out again You can load in screens larger than the window you design them on, and save them again.

L : LOAD - This asks you for a start address in hex : the default is

the top of a mode 5 screen (&5800). You can load in before (but must be above &4000) or below this address : just enter the number.

S : SAVE - To save a screen, you must enter the length first in hex : enter '1400' for the default screen size. If you've loaded in data before &5800, you should obviously add to this. Then you'll be asked where you want the data to download to (again in hex). &5800 is the usual address for a screen. The program is a BASIC file with a piece of machine code tacked onto the start to run it. Set PAGE to &1900, and *LOAD it to see the BASIC. This will allow you to change the default colours, key repeat rates etc.

DISK NEWS

More Crosswords!

It would appear that crosswords are flavour of the month. Even Northern Micromedia have produced something for all you across and down buffs out there in Beebland.

Crossword Call-up is a crossword generating program that allows puzzles to be created from a database of clues which are linked to subjects and levels. It is pitched at the schools market, and is available on the BBC B and the Master for £9.00. Compact and Arc disks are selling for £14.00.

Also just released is a maths package for juniors called **Funfair** and a sequel to the **Pip goes the Moon** package entitled **Pip's Island Adventure**. This will cost the Beeb and Master owner £15.00 whereas Compact owners can purchase it for £17.00.

Northern Micromedia, Resources Centre, Coach Lane Campus, Coach Lane, Newcastle upon Tyne NE7 7XA ☎ (091) 270 0424.

Topologika Goes 3½

Good news for Compact owners who are into text adventures. Topologika are now marketing *Philosophers Quest*, *Acheton*, *Kingdom of Hamil*, *Giant Killer*, *Countdown to Doom* and *Return to Doom* are now all available on 3½" Format.

If you'd like a free catalogue then send an SAE to **Topologika FREE-POST (no stamp required), PO Box 39, Stilton, Peterborough PE7 3RL**

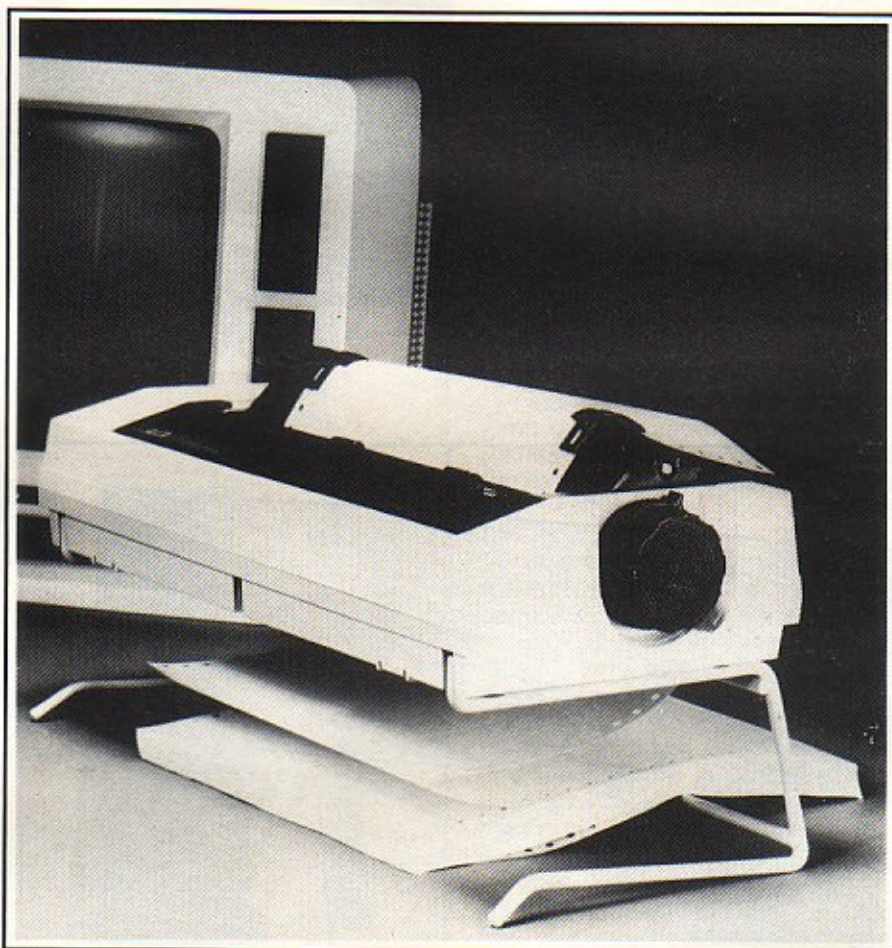
AMS Mouse

If you intend buying an AMX mouse in the near future, you could end up with more than you bargained for.

Advanced Memory Systems have organised a celebration for the lucky 100,000th purchaser of the mechanical rodent.

Yes, you could be the lucky recipient of a Fortnum & Mason hamper. Just the thing for referring to at boring cocktail parties.

Sales had just passed the 90,000 mark back in September and MD



Nick Pearson estimates that it should take about 2-3 months to reach that magic figure.

**Advanced Memory Systems Ltd,
166-170 Wilderspool Causeway,
Warrington WA4 6QA
☎ 0925 58039**

Junior Choice

Hybrid Technology have just launched a more economical music composition system based around Music 5000 technology.

The *Music 5000 synthesiser Junior* is a cut down version of its more expensive counterpart, but will retain the music editor, mixing desk, sound

designer and QWERTY music entry. The system costs just £99 and can be upgraded to full 5000 spec with the additional purchase of the AMPLE ROM. This gives you probably the most cost-effective entry into the world of professional computer music.

**Hybrid Technology Unit 3 Robert Davies Court, Nuffield Road, Cambridge CB4 1TP
☎ 0223 316910**

Free ROM from ESM

ESM are offering a free Screenprint ROM when you buy a set of four at a price of £99.00.

GNOME RANGER



This will not only be useful to educationalists, but also people in computer clubs where four people can get together in order to get a cheap screendump ROM which, along with 4-Mation's *Snatch* is one of the best printer utilities available.

If you want to take advantage of this offer call Clifford McCullough on ☎ (0223) 65445.

On-line Health Help

One great use of the comms media came to our attention this month.

Healthdata is an on-line health information database which can now be accessed on Beebs, Masters, Arcs and also across Econet.

The database covers a wide range of topics from vitamins to Heroin addiction and will no doubt be an invaluable source of coursework data for Human Biology GCSE students.

BBC B,B+, and Master versions of the software cost £12.95, Compact and Arc versions cost £14.95 whilst the Econet version will set you back 24.95p.

Healthdata operates 24 hours a day at 1200/75 baud on ☎ 01-986 4360.

**Healthdata, 21 Vicars Close,
London E9 7HT.**

Master Genlock

Interactive Media have just launched a genlock and near broadcast quality PAL encoder for the BBC Master.

The GL2000P will cost around £700 ex VAT including the small modifications required to run the unit.

For those of you who just want PAL encoding IMR also produce the *Datavid(M)*, also for the Master, retailing for £250 ex VAT.

**Interactive Media Ltd, 8 North
Street, Wolverhampton, West
Midlands WV1 1RD ☎ 0902 25444.**

A Big Fast One

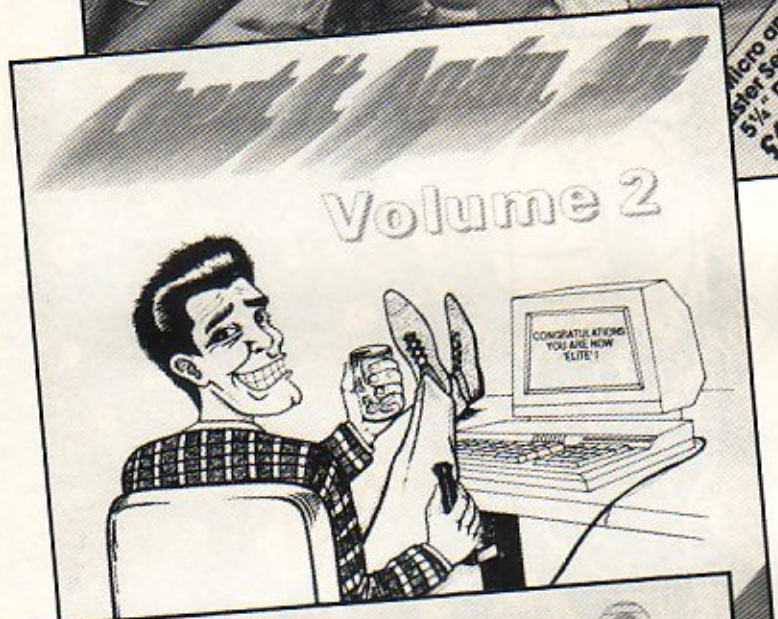
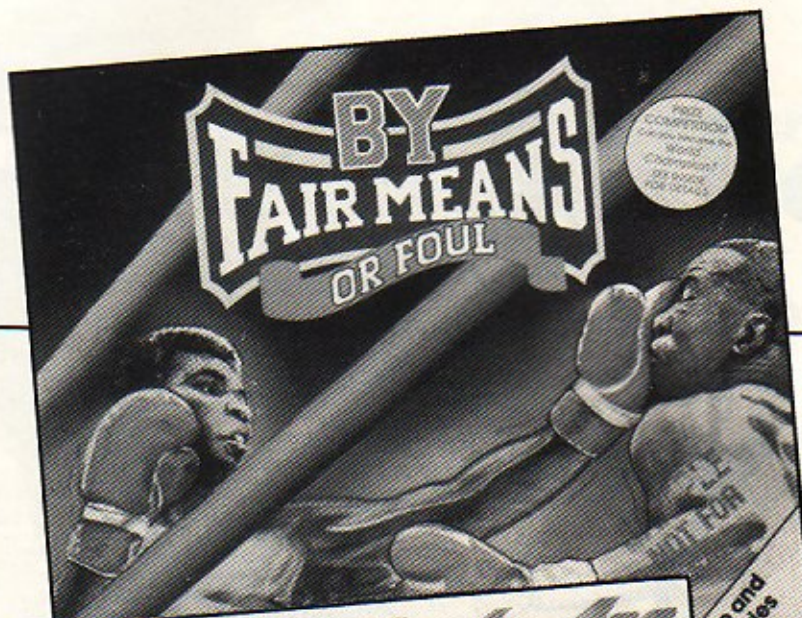
We don't normally carry items from the Non-Acorn world of computers, but when this particular item came into the office, we just couldn't resist.

Imprimis, who are a subsidiary of Control Data corporation have just introduced what they claim to be the world's fastest 1 Gigabyte drive. The two head parallel drive is claimed to have a Data transfer rate of **six megabytes per second**, the equivalent of 192 BEEB's per second. The drive is available to OEM, computer manufacturers to you and me at a price of \$7040 dollars. This may seem a lot, but only ten years ago this was the equivalent price of a CPM system with 64k of memory and twin eight inch floppy disk drives.

The big question is? will it work on my BBC? The straight answer must be no, but you never know what BBC owners will fit to their machines next.

Level 9

BBC Master, B+ and expanded Model B
80-TRACK DISC
FULL GRAPHICS



Acorn Financial Results

Acorn can now see the light at the end of a long dark tunnel, thanks to some encouraging financial results for the first half of the year.

Turnover was up on the corresponding period last year, giving a small profit. Interest however remains a heavy burden on this small company, a legacy of imprudent financial policy in the past.

Costs were down, mainly due to the closure of their custom systems division in late 1987. This highlights the strong performance of the rest of the company to compensate for the loss of revenue.

Financial analysts are unlikely to jump over the moon at these set of results however, as compared with the rest of the computer sector they look what they are; poor. No interim dividend is proposed and earnings per share at 1.1p are not going to make anybody rich. Compare Acorn's results with those of Amstrad, who have just posted record profits (again), and whose earnings per share figure is 18.99p.

As far as investment prospects go Acorn might be a tempting morsel (if you can afford to lose the money that is) With an upturn just around the corner now might be the time to go for shares.

Acorn MD Harvey Coleman was bullish about the results and apart from pushing the Archimedes series machines he had this to say about their Master series machines. "The Master series of computers continues to sell in good numbers, because the merits of it's comprehensive specification are widely recognised, and the machines are also seen as putting their users on the 'path to the future'."

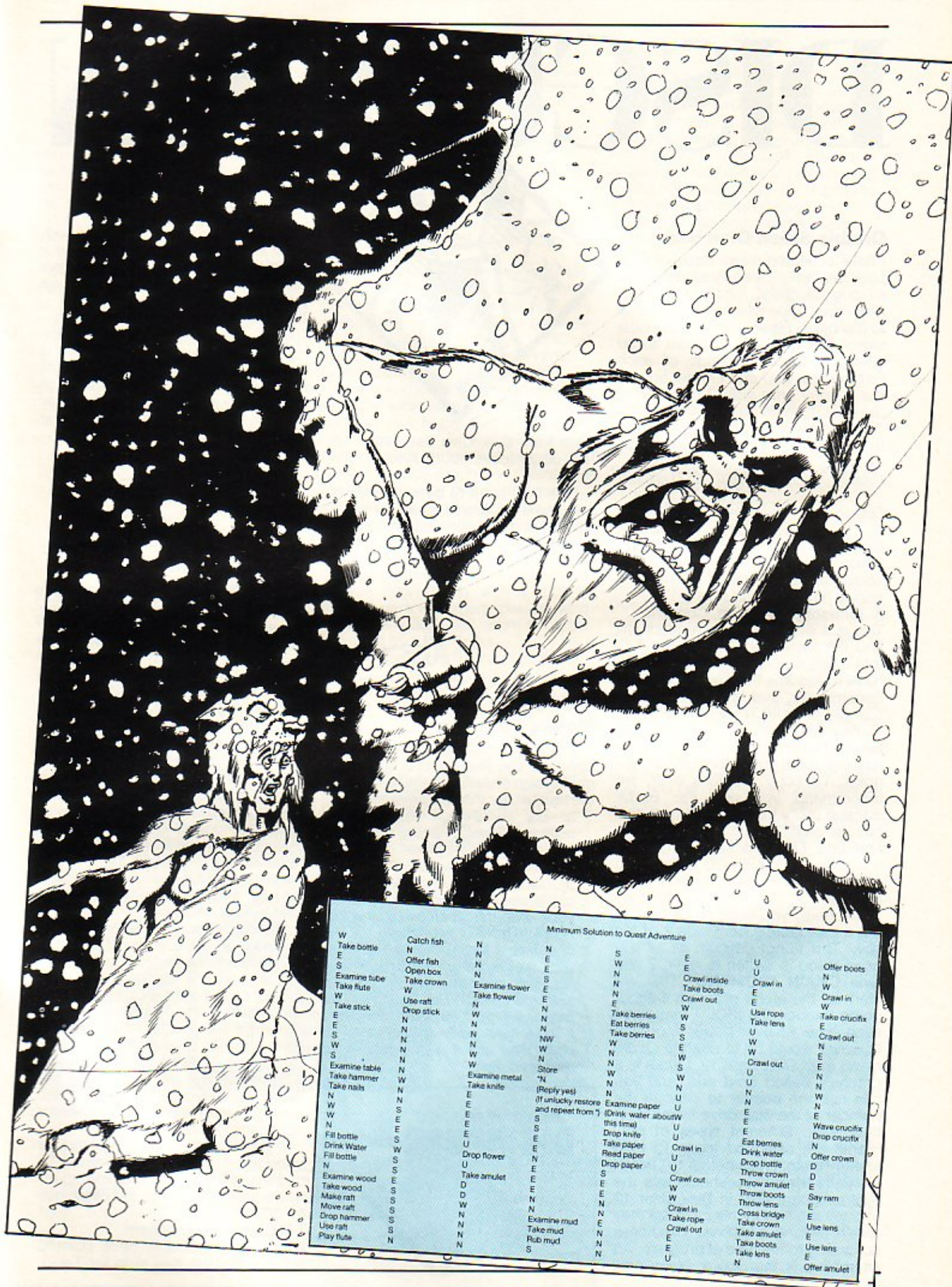
New Acorn chairman Elserino Piol was however somewhat more cautious "The successes that we have enjoyed, encouraging as they are, are merely the first steps towards our target of a consistently profitable future."

THE QUEST

You, the chosen one must drive away the dark forces of evil in the world of Adventure



The Quest is a fully featured adventure game with over 240 locations. Written in assembler it uses text compression techniques to include a wide range of response prompt and hint messages. The player has a vocabulary of over a hundred words (slightly more than some journalists I knew. Ed) He or She will need them to deal with the puzzles and other characters involved in the game, particularly the YETI. Frequently used commands can be abbreviated to a single letter, and for the convenience of players a RAM save/load facility is included.



Minimum Solution to Quest Adventure

W	Catch fish	N	N	S	E	U	Offer boots
Take bottle	N	N	N	W	E	U	N
E	Offer fish	N	E	N	E	U	W
S	Open box	N	E	N	N	U	Crawl in
Examine tube	Take crown	N	S	N	N	Crawl inside	N
Take flute	W	Examine flower	E	N	E	Take boots	W
W	Use raft	Take flower	E	E	E	Crawl out	Crawl in
Take stick	N	N	N	W	W	Use rope	W
E	Drop stick	N	N	Take berries	W	Take lens	Take crucifix
E	N	N	N	Est berries	S	U	E
S	N	N	N	Take berries	S	W	Crawl out
W	N	N	NW	W	W	W	N
S	N	N	W	N	E	W	E
Examine table	N	N	W	N	W	Crawl out	N
Take hammer	N	W	N	N	N	U	E
Take nails	N	Examine metal	W	Store	W	U	N
N	N	Take knife	N	"N"	N	U	N
W	N	E	N	(Reply yes)	N	N	W
N	N	E	N	(If unlucky restore	N	N	N
W	N	E	N	and repeat from ")	U	N	N
N	N	E	N	Examine paper	U	E	E
N	N	E	N	(Drink water about	U	E	W
Fill bottle	N	E	N	this time)	U	E	Wave crucifix
Drink Water	N	E	N	Drop knife	U	E	Drop crucifix
Fill bottle	N	E	N	Take paper	U	E	N
N	N	E	N	Read paper	U	E	Offer crown
Examine wood	N	E	N	Drop paper	U	E	D
Take wood	N	E	N	U	U	E	D
Make raft	N	E	N	Crawl out	U	E	Throw amulet
Move raft	N	E	N	W	U	E	Throw boots
Drop hammer	N	E	N	W	U	E	Throw lens
Use raft	N	E	N	Crawl in	U	E	Cross bridge
Play flute	N	E	N	Take rope	U	E	Take crown
		E	N	Take mud	U	E	Take amulet
		N	N	Take mud	U	E	Take boots
		N	N	Rub mud	U	E	Take boots
		N	N	S	U	E	Take lens
		N	N		U	N	Offer amulet

DISCUSSION

Double Sided Disk User

I have collected every issue of Disk User and have carefully stored away all original disks. I have a backup disk every issue which I use on a day to day basis. However I have a double sided disk drive, but I seem to be wasting the second side of each backup disk as I don't know how to put a copy onto side 2 because of the !BOOT file on Disk User.

I would wish to keep all my backup Disk User issues together, for example:

Disk 1	side 0	D.U issue 1
	side 2	D.U issue 2
Disk 2	side 0	D.U issue 3
	side 2	D.U issue 4

Could you produce a menu program which would allow me to do the above, as at present all my working copies have to go on side 0.

K Johnson, Ulverston, Cumbria

This is a situation many readers will find themselves in, due to the fact that when we produce Disk User we have to assume the lowest common denominator, that is everybody has a single sided 40 Track disk drive.

Your problem can be split into two parts, copying the files over, and running them from the menu program. To copy the files over, we recommend you use the Better Backup utility from issue 12, as this has several advantages over the standard DFS Backup command, including the ability to copy from side 0 of one disk to side 2 of another.

Secondly you need to be able to run the programs from side 2 of the disk. This is not difficult, as all you need to do is switch to drive 2 and type **CHAIN "DUMENU"** This will start up the menu program without going through the !BOOT sequence every time. An even better approach however would be to use the Quare menu from Disk User 13. Quare is a graphics based front end, and you can use the pointer to change the number of the disk drive from 0 to 2 and back. Different types of programs are assigned icons to help identify them, and whether to CHAIN or *RUN them. You should use the Ape program, also in Disk User 13 to copy the files in this case, as they require placing in different directories according to the type of program. An alternative is the Spock Menu pro-



gram from Disk User five, page 30. This does access both sides of the disk.

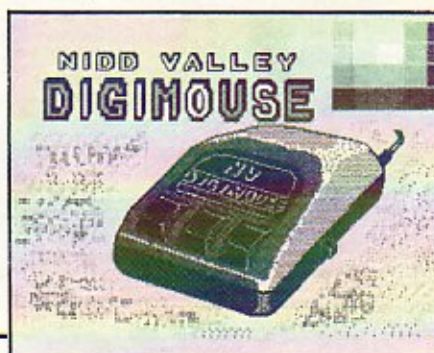
One final point to bear in mind, is that some programs need to be in drive 0, and will not work in drive 2. Tracer from Disk User eight is a good example.



Nidd Valley Mouse Accolade

It is indeed a pity that Nidd Valley did not send you their mouse, as it is in my opinion superior to any others on the market, for three main reasons.

- The linear lock is extremely useful, as it removes the necessity for 'pulling' a line when all that is required is a line across the page.
- It has a tail. This means that the cable does not get caught up in your papers. Instead it hangs neatly in front of your desk.
- It has a large rounded design with well spaced buttons which fits the the hand and fingers extremely well. This design also makes it very suitable for children. I have two girls aged five and eight who use it with confidence and precision.



The illustrator and paintbox software is indeed powerful, and yet it remains simple in use; my five year old has taken to paintbox as a duck takes to water.

T J Hamilton Dyer, Southampton

Thanks for that mini-review of the Nidd Valley mouse. It is interesting to note that a mouse with a tail works best on a BEEB, contrary to the industry stanadard, but then only a BBC has the connectors at the front of the machine.



Of Missing Files and Overlays

I have been buying your magazine since issue nine, and have been very pleased with it. I bought back issues five to 8 at the Personal Computer Show. There are however a few points I would like to make.

Superlife & Fastlife both have an option that tries to chain a program called 'menu'. This program is not on the disk, and I can find no reference to it in later issues. There is also no sign of the six sample universes promised in issue 8. (I was particularly looking forward to these).

In issue 11 the sample screen for Teled is missing. More importantly, the promised function key overlay is missing, leaving me to wonder what the function keys do!

Spironet (issue 12) I'm pleased to say was all there. I found however that the large number of help screen files left very little catalogue room for control files. To solve this problem, I combined all the help screens into one large file and had the program open the file, move to the correct part (using PTR#) and load the next &400 bytes to the screen. If the 'help' requested is not one of those supplied, the program still looks for a file named Q.helpname.

If you would like details of this for publication, please let me know, it certainly gives more breathing space when there is room in the catalogue for 20 extra files.

T D Clarke, Nottingham

A number of people have pointed out the missing Key strip for Teled.

so for everybody who missed it, here it is at last.

The missing 'menu' file for Fastlife and Superlife was in fact a 20k screen which allowed you to choose between the two options, and as such was not worth putting on the disk. If you are really interested in the sample universes, please send us a formatted disk with return postage and we will put them onto it for you.

We are certainly interested in your mods to SpiroNet, so send them in. As you may have read elsewhere in this issue, this will be the last *Disk User* (shame) because that nasty VAT man (boo) has done for us. However, do not be downcast, we are going to continue the concept of *Disk User*, in a slightly different form, so please keep all those letters, and submissions coming in.



Fly on the Ceiling in Orcrest

As a subscriber I comlament your magazene and soft ware.

But in the October ma9zene you published a Poke for Orcrest (prbably my favrat game!) as follows:

210 energy=&D+99

- This does not work, but will if corected to:

210 energy=&D+98

after you've tride that try:

1280 SBC #20

This helps you out of traps with a fly mode on RETURN (X brings you down to earth!!)

Yours sensearly T. Frogley (Age 13)

Please find enclosed a letter from my son. This note is to tell you that the spelling is a little strange because he is dyslexic. He has a BBC B computer which he uses extensively.

G W Frogley

I have taken the liberty of publishing both the letter and the note accompanying it. I hope that it does not cause offence, or embarrassment, to do so. But in doing so I hope that we can provide a little ray of sunshine for everbody out there with learning difficulties. It is often forgotten how many people find things like writing letters extremely difficult, and how much a computer can help them. For example a dyslexic may have trouble recognising words, but is often a very intelligent person who responds well to the visual stimulus provided by a computer.

We do get many letters here, and

quite a few of them display the kind of errors in spelling, punctuation, and grammar which could indicate a wider spread of readers with this kind of problem. We also modestly like to think that *Disk User* has helped stimulate many people who would otherwise have no reason to write in to a computer magazine.

Anyway, enough of the sermonising, thanks for the poke, it sounds great!



Dynamic Doodles & Pagemaker

First of all congratulations on such a superb magazine. Each issue is better than the last. Isn't the database Tracer wonderful? Well done.

Secondly I'd like to inform you that your theme tune in the last issue of *Disk User* fails to work properly at it's new memory location.

Thirdly, to my main point. *Dynamic Doodles* is brilliant, it creates good graphics in little time, especially with the facility to spool the file to disk. It is very useful for programs as it can be loaded in simply by *EXECing the file.

What I have discovered is that it is compatible with AMX Pagemakers 3D Zicons as long as you spool the file, or RENAME it so that it is in directory S. Once you have done that, you can load Pagemaker, select process, put it in your pages disk, load a blank page and then select the page position indicator. Once you have done this, the goodies menu pops up, select MORE and then choose the 3D Zicon option. Select LOAD, then your spooled file, and up it will pop. Don't worry if the colour changes, it will not affect the final result. Now you can process the page with the doodle on it, as the example printed out in NLQ mode shows.

S EIlmore, Gloucester

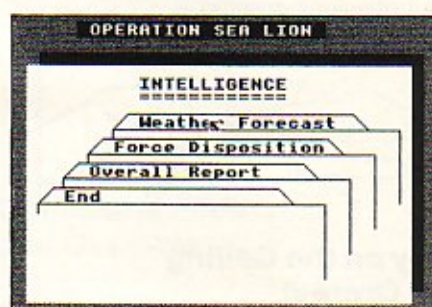
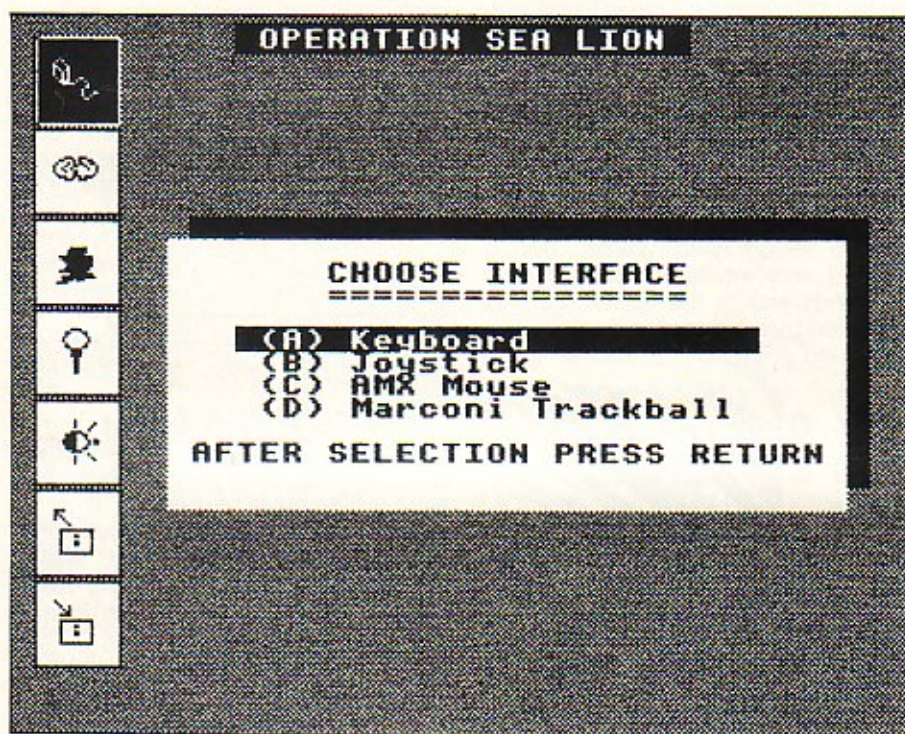
Yes it certainly does, mind you it all seems a bit complicated to me. Wonder what it would look like on the Integrex?



TELED	CTRL	COPY	MARKER #1	MARKER #2	NORMAL HEIGHT	DOUBLE HEIGHT	BLACK BACKGND	NEW BACKGND	CONCEAL	HOLD GRAPHICS	RELEASE GRAPHICS
	SHIFT	CLEAR	G RED	G GREEN	G YELLOW	G BLUE	G MAGENTA	G CYAN	G WHITE	SEPARATED GRAPHICS	CONTIGUOUS GRAPHICS
		HOME	K RED	X GREEN	X YELLOW	X BLUE	K MAGENTA	X CYAN	X WHITE	FLASH	STEADY

OPERATION SEALION

The date is September 15th 1940. The location is Great Britain. The Battle of Britain has gone badly for the British with the Luftwaffe steadily gaining air superiority over southern England. The Royal Navy is under severe pressure in the North Sea. The invasion is due any day now on the south coast. You are in command of the British Forces. You must defeat the enemy or hold out for a negotiated settlement. The fate of the free world is on your shoulders.



2. INTELLIGENCE On selecting intelligence you are presented with four files of information. Place your pointer on the heading and press RETURN.

(i) Weather Forecast The forecast for the next day's weather is presented. In general the worse the weather the worse a division's mobility in that area.

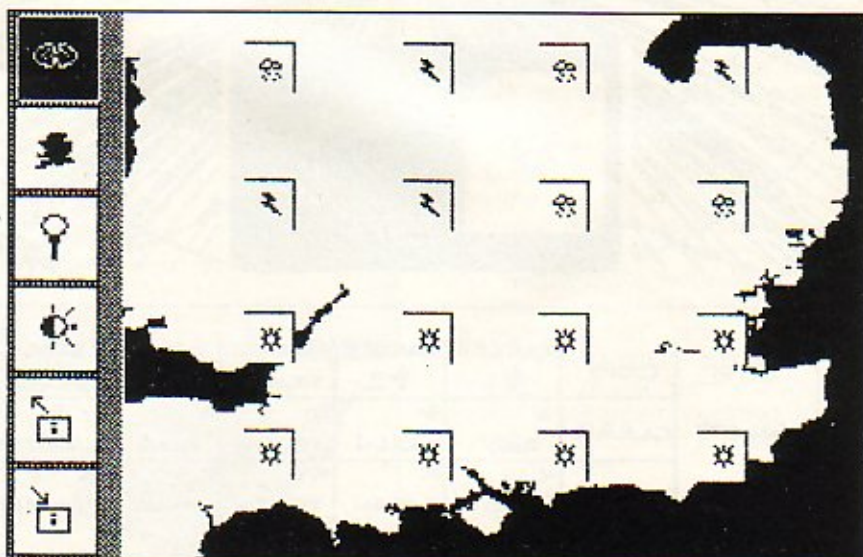
(ii) Force Disposition The disposition of all the forces in the country is dis-

Screen description

Down the left hand side of the screen are seven icons. The entire game is played through these in conjunction with a pointer to select. The rest of the screen is where all information, such as maps, is displayed.

ICONS (from top to bottom)

1. SELECT INTERFACE On loading the program the keyboard is the default interface. You are presented with a choice of peripherals. Select the one desired and press the <RETURN> key. If you select the wrong one press <ESCAPE> to reselect the keyboard. For this description I will assume you are using the keyboard.



played. British divisions are upright map pins while German divisions are inverted map pins.

(iii) **Overall Report** The British Army is taken as a whole and an average produced.

(iv) **End** Return to the main screen.

3. DISPOSITION OF FORCES FOR INSPECTION Displays the disposition of the forces with a window onto them. Move the window with the four keys. When the selected region has been reached press <RETURN>.

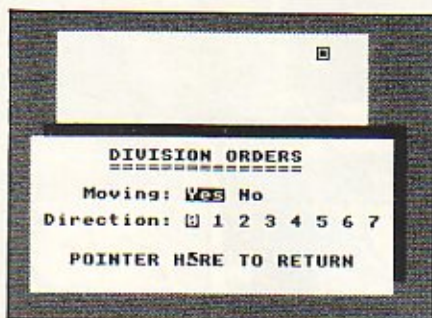
4. CLOSE UP Whatever region selected in section 3 is blown up for inspection. Any British forces present can be inspected. Place the pointer over a division and press <RETURN>. You are presented with a number of files on that division.

(i) **Division Status-mobility etc**

(ii) **Order your division.** You may command the division to stay put or to move (including the direction of movement).

7	0	1
6	+	2
5	4	3

(iii) **Exit from the file.** On full mobility an infantry division can move up to five squares and a tank division up to eight squares.



5. EXECUTE ORDERS When all your orders have been given, and there is no time limit, select this icon. One day passes and the new positions are calculated.

6. LOAD GAME Load a previously saved game position.

7. SAVE GAME Save the current position.

Peripherals

The program supports the following:

(i) **Keyboard** The default interface, use keys Z,X,? and * to move the pointer around and <RETURN> to select.

(ii) **Joystick** Use the joystick in the conventional manner to move the pointer and the fire button to select.

(iii) **AMX Mouse** Move the mouse on a flat area and press any of the three buttons to select. You must have the AMX ROM fitted for it to work.

(iv) **Marconi Trackball RB2** Use the trackball to move the pointer about and any of the three buttons to select.

Strategy and tactics

The following is a list of hints and tips to get the most from your game.

(i) Watch out for low moral; these divisions can desert if subjected to a lot of action.

(ii) Low strength can wipe out a division. Pull it out of the line in order for it to recover.

(iii) One tank division is roughly equal to three infantry divisions.

(iv) Try and destroy the enemy as soon as possible on the beaches.

(v) Divisions in close proximity support each other and increase each others effectiveness. Generally the greater the efficiency the farther apart divisions can be and still give the same support.

(vi) The defense of the London area is paramount. If the city falls it will result in mass desertions. London is the primary target of the invasion.



FREE POSTER

FREE POSTER

In the Christmas issue of A&B Computing a wonderful full colour poster of the smash new game — The Empire Strikes Back

ONLY £1.50



The start of something new?

Dear Reader

As someone who has purchased Disk User, you are a very important person to us.

Unfortunately, this is the last issue of Disk User to be published - but DON'T DESPAIR.

We are currently investigating a direct mail disk-based software service to support all users of the BBC Micro - the Model B, the Master 128 and the Master Compact. This could be your unique opportunity to find out more!

All you need do is fill in your name and address and return it to us free of charge and we'll send you the exciting details.

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2

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MAELSTROM

Can you withstand the horror of the Maelstrom?

Around in every direction it was still as black as pitch, but nearly overhead there burst out all at once a circular rift of clear sky – as clear as I ever saw – and of a deep bright blue – and through it there blazed forth the full moon with a lustre that I never before knew her to wear. She lit up everything about us with the greatest distinctness – but oh God what a scene it was to light up.
Edgar Allan Poe, A Descent Into The Maelstrom

The Scenario

Over many millenia the Galaxy Rangers have kept law and order in the Universe by transporting all violent life forms to a large planet on the edge of the furthest reaches of space. Escape from the planet was impossible as a high influx statis field kept all the offenders imprisoned. The fuel for the field generator was thought to last indefinitely as it came from a nearby star.

What had not been taken into consideration was the fact that every billion years or so a solar eclipse took place. This blocked the passage of solar plasma to the fuel receptors of the field generator. The shield died for long enough to allow the most dangerous creatures in the universe to become free.

The only Galaxy Ranger in the



area is you! After eons of captivity the prisoners will stop at nothing to gain freedom. All their hatred and vengeance will be directed at you. A sickening storm of violence and mayhem faces you. Guts and great determination are the only things that will keep you alive. Are you ready to descend into the MAELSTROM?

Technical data

Maelstrom took me a month to write devoting only my spare time (what little I have) to it. The main tool used in the creation of the game was a

sprite designing package I had written. This enabled me to quickly design the thirty odd aliens and other images that appear in the game (I take my hat off to those who see them all!). Even the logo at the top right of the screen was designed using the system (it is supposed to be lightning and sparks not a map!). We at Disk User thought you might like to use it too.

It is primarily a programmer's tool, but don't let that put you off, you only need a little understanding of BBC BASIC to be able to display sprites in your own programs. Machine code programmers will find it very fast and easy to integrate in their programs. The real power of the system lies in its flexibility. Unlike other packages the area of memory containing the sprite data and control program is totally under your control. The other feature that sets this package way above the others is that you can define sprites for any graphics mode. So if you want a fast and simple method of using sprites in your programs then this is for you. With practice and a little effort you could write games much better than Maelstrom (which isn't difficult to do). *The Sprite System* can be ordered through Software Services. I thoroughly recommend it (but then I would because I wrote it). **See the Advert in this issue for details on how to order.**



WINNERS

Our readers imaginations have run riot in our Textshape competition, to predict the future.....

"MR.Jones? I've come to you about your implantation request.

"I never thought I'd succumb to having one of these Micron computer implantations on the back of my hand. Still, what can you do. Without one, the shops laser readers know you're not a *World Citizen* and not being able to buy food has it's disadvantages!"

"As you know Mr Jones, your application for membership of the world community has been approved and your personal implantation will be done under local anaesthetic. The advantages are enormous. A Micron Digital System means not only access to commodities but monitoring of your health and, of course, if you ever get lost or have an accident, we'll always be able to find you."

The gleeful look in the eye of the World Health Visitor somehow seemed rather evil. He chattered on as the injection began to take effect...

"How strange to think that only twenty years ago, computers were large boxes plugged into the mains



yet today, the very heat of our bodies powers these machines. To think that some religious people still call our implantations the 'Mark of the Beast', what a joke that is!"

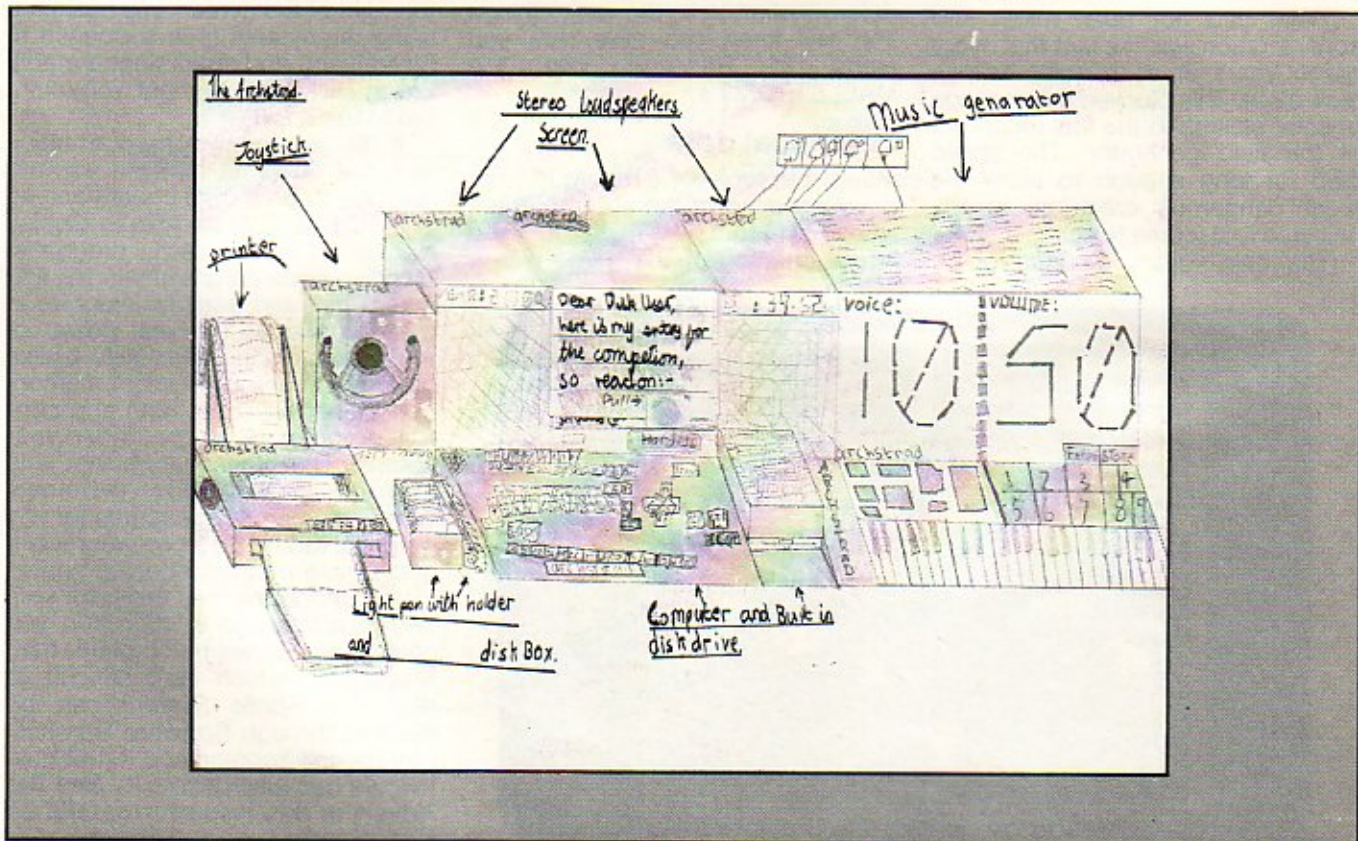
The **Second Prize** winner from Neil Coggan is a chilling thought on what might be if Big Brother really gets on top.

Other readers such as **First prize** winner Jered Bolton, took a more light hearted, indeed whimsical look at the world of computers in the year 2000. An Archstrad indeed, whatever next, perhaps a Commtari maybe?

Helen-Louise Windsor, a most mature twelve year old, judging by her writing, speculated on computers running the household, **and** playing games at the same time. Gwyn Llewellyn, a college lecturer anticipated working from home, preparing learning materials on his computer for use on a network.

Christopher Muncke provided us with an intriguing short story relating God to first contact with aliens, and E A Cook gave us the result of an Election in the year 2000.

Other efforts were strange (H.T Skerrett) Adult only (Edward Moran) or Violent (Paul O'Grady), but all were highly entertaining. Thanks go to everyone who entered the competition, many of whom now use Textshape as their preferred word-processor.



SHOW REPORT

Our esteemed editor braves the biggest computer show of the year and reports back on Acorn . . . and others

Trekking To The South Pole

September 14th, and it's the first day of the re-christened *Personal Computer Show*. We decide to drive down from our rural retreat in deepest Cambridgeshire, as we have material to deliver. Our first mistake. It took us nearly four hours in all, including a disastrous short-cut, and half an hour to get into the car park at Earls Court, which is in fact about a quarter of a mile away from the building, and cost us eight pounds

for the day. Not recommended. Take the train instead, and you can just get off a tube and walk straight in with no bother from the over-zealous 'No you can't park here' security men.

Hype Hype Hooray

Into the show itself, and it soon becomes apparent that the main hall is dominated by three massive stands, Amstrad, Atari, and Commodore. Acorn however are not far behind with a stand that appears to

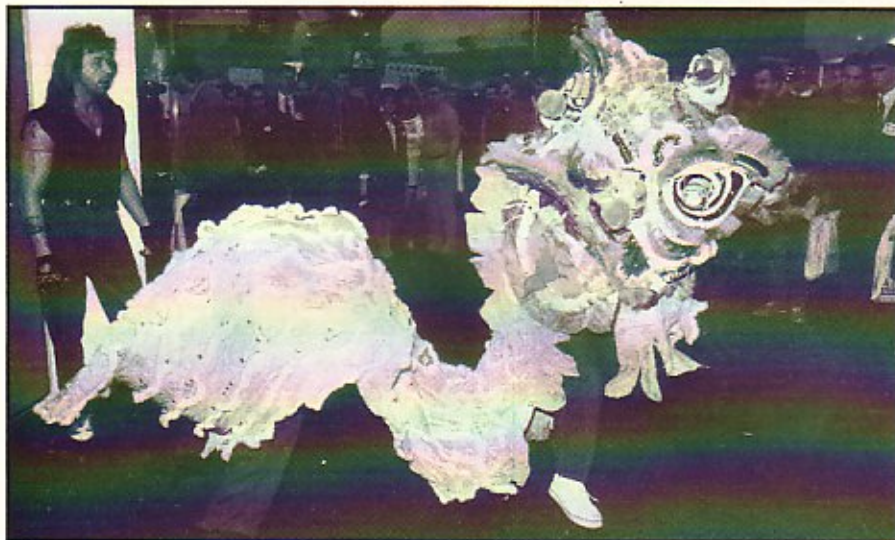
be mainly constructed of fresh air and PR hype, much the same thing really. On the stand are a multitude of grey-suited men. However they have a smile on their faces. Acorn have just pulled out of the red thanks mainly to strong sales of both Archimedes and Master 128 models. Many Archimedes are in evidence, but only two Masters, and the Acorn man I spoke to was not entirely sure what they were there for; "Well it's a business oriented show you understand"? Was the kind of remark proffered in defence. Not good enough Acorn; the user base who are mostly B, and Master owners have a right to expect better support, after all there's probably still plenty of money in it for someone. On show was the new operating system for the Arc, called RISC OS (sounds like something out of a Greek restaurant to me), and the new DTP system. The new OS will not be available until April. Ho-hum. The DTP system requires the new OS. Double Ho-hum. Both look very nice and RISC OS is certainly a great improvement on the Desktop, the previous offering.

Have You Seen S.I.D. Yet?

Of the two Masters one was being manned by *Phillip Colmer* their comms specialist, enthusiastically explaining their S.I.D. on-line database to all and sundry. This looks good and we hope to be getting involved with it quite soon. With the present controversy over price rises by Telemap it was interesting to hear

The only master on display on the Acorn stand.





Miniature Dragon, but no software at Mandarin.

for example that British Telecom presently charge Acorn on-line costs of 8 pence a minute, a cost which must inevitably be passed on to you and me, the consumer. We all moan about the phone system in this country. But let's face it, BT seem to be almost fanatically against cheap usage of **their** vast telephone network. About time the monopolies commission got stuck in I say.

A Three Ring Circus

Wandering around the three halls, I couldn't help feeling that the show had a schizophrenic quality to it, the loud hypnotic music from the leisure section wafting eerily over to the quiet sober-sided business hall. Needless to say that BEEBs were not much in evidence, but I still picked up some interesting tidbits on my travels.

Superior come up with the goods at last.



Commodore, one-time bitter opponents of Acorn in the 8-bit market are still promoting the venerable C64 as we hacks found out on, or rather inside their cavernous stand where they treated us to beer and sandwiches. Two different bundles are going to be available at Christmas, one games orientated, and the other with a musical inclination. The point is, they wouldn't be doing it if there wasn't any money to be made out of it. So why have Acorn seemingly abandoned this cheap and cheerful marketplace for the rarefied, and expensive Arc. It seems daft to me, when there is perfectly good money to be made. Or have they had their hands burnt so badly before, that they are just plain **Frit** as our Prime Minister would say.

Exile on Superior Street

Most exciting of all though was the sighting of not one but **two** new games from *Superior*. On the stand having arrived only the day before was a demo of *Exile* in which you play a space suited figure flying above a lunar landscape. It is notable for its *Zarch*-like flying with exhaust gas streaming out of the nozzle of your back-pack, and complete manoeuvrability of the spaceman. You can fly, walk, run, or do somersaults. Object of the game? at this stage they were understandably cagey, but it looks like a real winner, and it's due for the pre-Christmas market. Also being shown was a new boxing simulation also due for a pre-Christmas release. This game called *By Fair Means or Foul* will be multi-format, and apart from the graphics which look very nice, the main selling point will be the ability to cheat when the Ref's not looking. Head butting, and kicking are allowed for example. I say not really British is it old sport.

Show Update

It's now a couple of weeks after the show, and with the dust settling sober analysis is just about possible.

Most observers seem to agree that the show had an identity crisis, being neither a pure business show, nor a leisure event. With none of the big players announcing new products it all felt a bit pointless. However the main test is, what did you, the general public feel about it? Did you come to the show to look at the latest game, or try out a Sun Workstation? Whichever, did you feel satisfied? Either way, let us know your thoughts.

SECTOR ZERO

Tracer Datafile of the Periodic Table

This month we just have room for another useful Datafile. **I.PERIOD** should be copied to your Tracer Database disk. For those people who don't have Tracer here is a brief recap on the program.

It is a high speed index creation and retrieval program which stores records in a single line Mode 7 format. The data is held in RAM, so access to information is very fast.

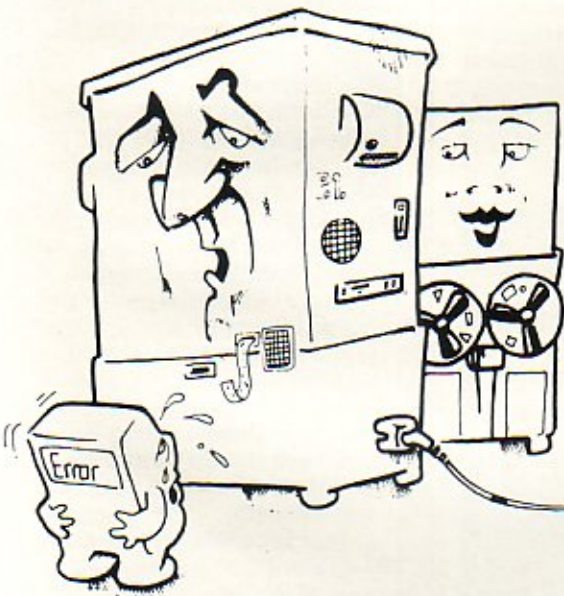
The advantage of Tracer is that you can search a large number of files for the same information. Cross referencing of information is therefore possible.


The Periodic Table

Anybody who has ever studied chemistry at school will have come across the Periodic Table, an invaluable tool and reference work.

It is also of general interest to anybody with a curious nature, and a

study of it will reveal a great deal of information. In this case the first fifty five elements are presented in order of increasing Atomic Number. For those who understand the table a number of other arrangements are possible, such as by group, or number of electrons in the valence shell. Tracer is ideally suited to this sort of application. Other files could reflect different aspects of the table, and then a search across several files could reveal the hidden relationships.





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Listen Son, You may be a 2nd Generation Computer
 but just remember that compared to a
 human you've only got the
 brain-power of a
HADDOCK

RUMBLE

Monster tanks do battle in player-defined terrain

To run the program, select RUMBLE from the menu or type **CHAIN "RUMBLE"** which causes an immediate display of the controls for the four tanks. Pressing the SPACE BAR loads the main program.

The screen now shows the status of the tanks. Pressing a number key between 1 and 4 will toggle the corresponding tank on/off. To continue, press the <Spacebar> or a fire button on your joystick. At least two tanks must first be enabled.

The game setup should now be displayed. To change a parameter press the appropriate function key (as displayed).

The maximum number of trees and ponds will not exceed 30. Rockets will travel in a straight line in the direction of the tank at firing. Missiles will always move in the same direction as the tank and so can be maneuvered.

Pressing the <Spacebar> or a

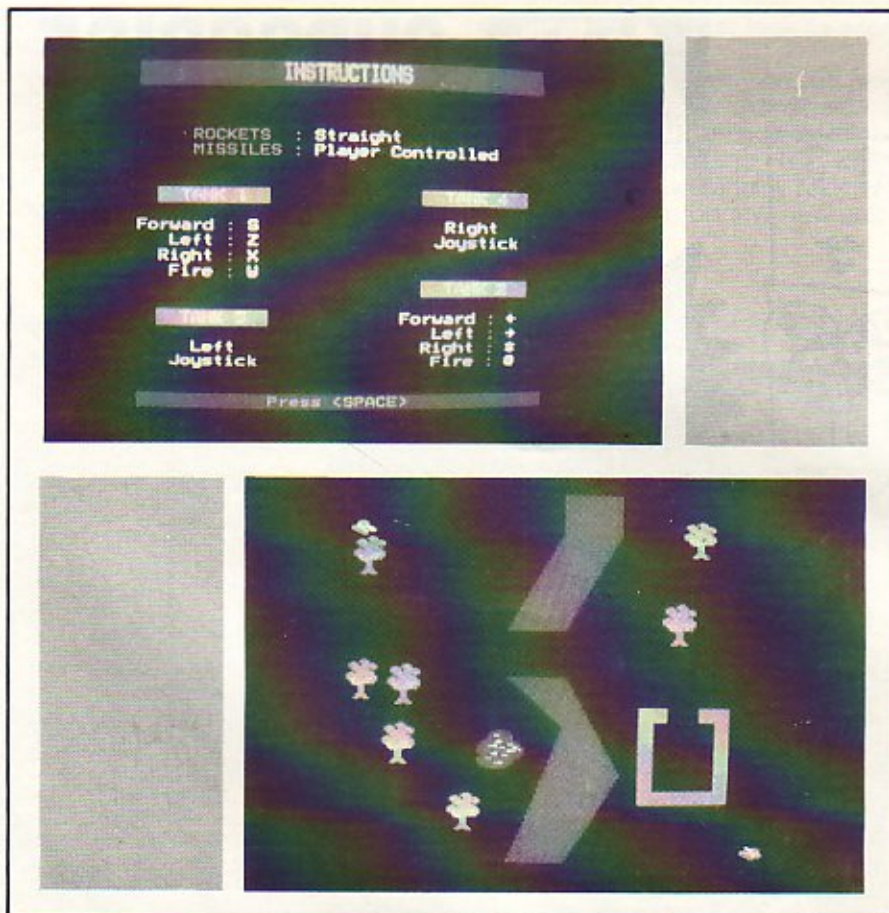


fire button starts the game. Each of the tanks enabled will be in one of the corners of the screen - tank 1 top left, tank 2 bottom right, tank 3 bottom right and tank 4 top left. The tanks may move through the top of the trees but not the trunks, or the hideout.

Once all but one tank is left, the program will automatically revert to the tank status screen, incrementing the winning tanks score.

Zero page location table

Addr	Use
46/9	HUT co-ords.
4A	'EMPTY SPACE' check char. flag
4B/E	HUT co-ords.
4F	Number of tanks alive
50/F	Explosion details:
n	= explosion (0-3)
n-255	Off
n+1	-0 Explosion growing
	1 Explosion shrinking
n+2	-X pos'n
n+3	-Y pos'n
60/F	Shell details:
n	= shell (0-3)
n-0	Off
	1 On
n+1	-X pos'n
n+2	-Y pos'n
n+3	-dir'n
70/7	Misc.
78/A	Current tank details
7B/D	'ADDR' routine
7E/F	Temporary
80/7	Tank pos'ns
88/B	Tank dir'ns
8C	No. trees
8D	No. ponds
8E	Bits 0 & 1 - River
	0 None
	1 Vertical
	2 Horizontal
Bit 3	- Hidout
	0 Off
	1 On
8F	Current tank
90/2	Tank details (clear)
93/5	Tank details (draw)
96	Front of current tank
	0 Clear
	1 Blocked
97	Shell type
	0 Rocket
	1 Missile
98	Ch.1 volume
99	Ch.2 volume
9A	Ch.3 volume
9B	Current shell
9C	Colour beneath shell
9D	Current explosion
9E	Current explosion * 4
9F	No. explosions



DISK DATA



Super screen print utility

Snatch is one of those programs that creeps up on you. 'Oh just another dreary printer dump' I thought wearily when the press release came through, but I asked for a copy anyway. Sure enough a few weeks later it plopped through the postbox in an unimpressive slim envelope, not at all like the massive boxes you get with MS-DOS packages these days.

Opening the envelope revealed a slender, but brightly coloured manual, with a disk tucked into its back pocket. On inserting the disk into the drive and pressing <SHIFT> <BREAK> you are presented with a replica of the manual's front cover, (presumably a 'snatched' screen) and a list of options. These allow you to set up *Snatch* to work with your particular combination of hardware, be it Model B, or Master, DFS or ADFS, and the ROM socket you wish to use. This last item caused no little head scratching, because the system I *wanted* to use it on was a Master 128 which had all the sideways RAM (SWR) sockets apart from one occupied, and every time I tried to specify the correct socket it was writing to the same original one, W. In the end the matter was resolved by correctly selecting a Master 128, and then the socket, but it seems that there were several changes in the SWR addressing between the Model B, and the M128/Compact variations.

Incidentally if you are using one of

the newer 24 pin Epson compatible printers you can specify it with a 'EPS24' command. All these changes will be saved and so only need to be performed once. 4Mation thoughtfully also supply programs that load and save ROM images, although not *Snatch* itself! This is not an insurmountable barrier to copying the software however as I managed to get it successfully copied onto our hard disk where it is now happily invoked at !BOOT up time. I would guess that the protection is aimed mainly at the kind of casual piracy

you might encounter in the classroom.

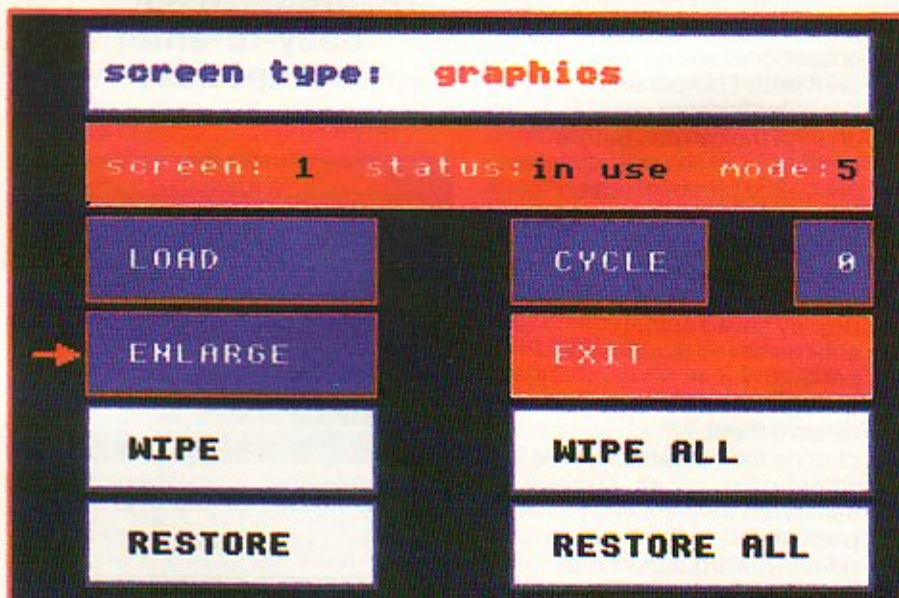
One more thing needs to be done before you go out snatching screens, and that is to prepare a disk to hold saved screens to be printed out later. Just type *SNATCH and follow the on-screen instructions. It is really vital to prepare a disk straight away, because in most situations you will not want to wait the fifteen minutes or so (five for an Epson) for the printer to give you hard copy, and a screens disk offers the ability to manipulate the image in a number of interesting ways.

Simple Snatching

The main joy of using *Snatch* however is that you can call it up at just about any time by pressing three keys together <CTRL> <SHIFT> I for an Integrex printer, or <CTRL> <SHIFT> <E> for an Epson. This causes the computer to make a strange noise, and a rectangle to appear on screen. This is the area to be printed, and the real beauty of it is that you can move it about, or print only a certain area, in fact too many options to list here. Pressing L for large will give you a full scale print in about 13 to 14 minutes, or S for small will give you one in about 3.5 minutes. It's as simple as that!

I was using the Integrex colour printer for this review and the results

```
graphics screens in use: 2 out of 9
teletext screens in use: 8 out of 19
```



as can be seen here were superb using the *double density* mode. I would recommend that you leave it in this mode permanently as the speed degradation was not significant, and the quality so much better, with deep rich colours. The drawback of course is that you never quite get the exact screen colours, a screen shot is much better for that, but you do get colour hardcopy. The same of course applies, only more so to the black and grey shades only (but much faster) Epson printer option.

Saving Screens

when you first get Snatch you tend to go berserk and snatch every screen in sight. This is understandable, but after a while the screech of your printer head, and the mounting cost of ribbons, or ink cartridges will restrain *snatchy* fingers. Of course in the environment Snatch was designed for, the classroom, this is not possible as computer time is very precious indeed. To get round this problem using the <CTRL><SHIFT><X> option will allow the saving of screens to disk for later printing, and or manipulation.

Each screens disk holds a particular combination of graphics screens

and teletext mode screens, in the case of 40 track disks a total of 19 teletext screens, plus 4 graphics screens. This is a real drawback as for example in a class of thirty kids, each saving a screen would require **eight** disks. It is no coincidence that an ADFS disk with its huge capacity is recommended for use with Snatch.

Standalone Snatching

Where Snatch really shines though is in the many things you can do with saved screens. And in that respect it is really a graphics application in its own right. A screen can be enlarged, reduced or cropped, and the colour palette can be altered, or reversed. Interchange with other graphics packages is automatically supported as Snatched screens have no special characteristics. A number of brief routines to aid in this are given in an appendix to the manual.

Also included in the package is a neat little pixel editor for fine detail editing of screens. All in all you may not need another graphics package!

Snatch-backs

The main drawback to using Snatch all the time is; yes you've guessed

the answer. It will **not** work with most games, including Repton, Fire-track, Thunderstruck II, etc,etc. You may have some luck with opening screens, but once the game takes over Snatch is usually locked out.

We also found that sometimes when changing filing systems on the Master 128 a lock-out would occur, which could only be overcome by switching the machine off.

Conclusion

Snatch is an iceberg, with nine tenths of its capabilities lurking just below the surface waiting to be used. The actual screen dump routines, both the black and white and colour versions are powerful and sophisticated, and instantly available. In addition its graphic processing facilities make Snatch a real power user's tool, not just another screen dump routine.

Snatch costs £16.00 for the BBC B+, M128, Compact version, or £29.50 for a Model B version including SWR block. All prices do not include VAT, but do include P&P. 4Mation Educational Resources, Linden Lea, Rock Park, Barnstaple, Devon. EX 32 9AQ. ☎ 0271 45566

COMPETITION

Yes you could walk away with a complete Snatch system including 16K sideways RAM, and offering all these features:

1. print screens from most educational software.
2. print both Teletext and Graphics screens.
3. change the colours before printing.
4. print all or part of a screen.
5. print in two sizes (with some exceptions).
6. save your favourite screens to disc.
7. display saved screens.
8. enlarge saved screens for printing.
9. enlarge saved screens and re-save them.
10. change the colours of saved screens.
11. use saved screens in art packages.
12. print awkward dual-mode screens.

Win this superb memory-resident utility in our easy-to-enter competition



All you have to do is: Write in showing how **you** would make use of *Snatch*. We will award the prize to the most imaginative, and/or most useful suggestion. Example print-outs, or screens on disk would be helpful, but not essential.

Rules

The Editor's decision is final, and no correspondence will be entered into with entrants, other than to confirm a prize. In the event of the competition winner possessing a Master 128, Compact or other computer with Sideways RAM, 4mation will provide a credit of £13.50 towards a purchase from their range of software, in addition to providing a software only Snatch.

Send your entries to:

Snatch Competition, Disk User, 6C Belgic Square, Padholme Road, Peterborough, PE1 5XF.

Entries should arrive not later than 31st December 1988.

SLO motion

Having had success in Sector Zero with his extended editing program, we are happy to give Tim Campen his very own spot for the excellent SLOmotion utility

I have a piece of hardware attached to the Tube called a Slomo. When switched on it will slow down the computer depending on how far the knob on the front panel is turned. My friends thought this was a bit strange since computer companies are trying to make their machines run as fast as possible and here I was slowing it down to a plod.

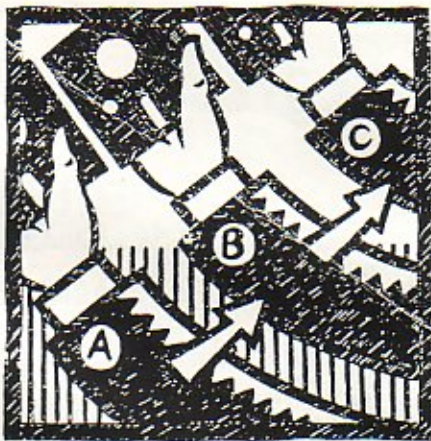
However such a device is very useful. When debugging programs I can pinpoint a graphical error; I can discover how commercial games produce such smooth animation; but probably most useful of all is the slowing down of games.

The SLOmotion utility does a similar job and has some extras too!

Pressing function key 0 (f0) will slow the computer down, f1 will speed it back up, f3 will turn the sound on and f2 will turn all the sound channels off. f4 will pause the game and f5 will resume game play.

How it works

The shell around the program is similar to Extended Editing. When the <BREAK> key is pressed the computer jumps to location *start*, in this case &900. The accumulator and X and Y registers are put onto the stack and location *length* which is &F3 bytes above *start* is reset to 0. Length is set for counting purposes.



The accumulator and X and Y registers are then put back to their original states.

Location *execution* is where the computer repeatedly visits on every start of the TV field pulse (event 4). The registers are preserved, event vectors indirected and function keys 0 to 4 are checked. If any relevant keys are pressed then the computer branches to execute the particular task. If none of the relevant keys are pressed the computer jumps to *time*. Location *first* subtracts 5 from the location *length*, *slow* adds 5.

The computer counts from 0 to length in the Y register. On every count the X register is incremented from 0 to 150 in *loop2*. Therefore the larger the number held in *length*, the

more times the computer has to count from 0 to 150 so the longer the game has to wait before resuming play. Once accomplished the computer jumps to *out* where the accumulator and X and Y registers are put back to their original states and the computer exits back to its original task.

Turning the sound off is done by flushing all sound buffers and turning all channels off with an FX210,1. FX210,0 turns the sound back on. Pause flushes the sound buffer and continuously asks if f5 was pressed. When f5 is pressed it branches to *out*.

Lines 520 onwards preserve the routine after a break or hard reset. If either of these methods are used the computer is directed to *start* and not *execution*. the reason for this is so *length* can be set to 0 ready for loading a program from disk. If location *length* were to be untouched after any break then you would encounter curious results with your disk drive.

SLOmotion will not work if a program – such as a tune playing in the background – is using events since EVENTV will be reindirected to suit the latter's purpose.

However in the vast majority of cases SLOmotion will work successfully in the manner described and I have successfully used SLOmotion on various games and applications.

LOOK OUT FOR THE JANUARY ISSUE OF A&B COMPUTING – FOR ACORN COMPUTERS

DESK TOP PUBLISHING – FOR REAL

● DTP for the Beeb comes to the fore with a roundup of all the most useful packages, and some new innovations as well!

● Win an Archimedes music-station
● All this *plus* our games reviews, previews, hardware and software reviews, industry comment, business computing, programming features and up to the minute Beeb and Archimedes news.

● Also, with the impending release of the Acorn DTP package set to kill the Apple Mac and even professional systems, A&B takes a look at the latest Archimedes software.

A&B looks set to welcome you into Christmas and the new year.



**A&B Computing – On sale
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Ever since we published our *Tracer* database program a steady stream of datafiles has come into the Disk User office. Some of these have been published, others have just been too big to put in Disk User, or we haven't had the time to get them in. Now we can let you have the results. For only £8.00 inclusive of VAT and P&P you get everything as listed above plus a comprehensive manual.

PLUS

For only £2.00 extra you can get a disk with all the STD direct dialling codes, yes that's 4,600 or 180K's

Editing DUSER

111 Records in File: 470 Spaces Left

Program	Type	Mon	Yr	P
STARTING OUT ASSEMBLER	TUTOR	JUL	-88	29
SUPER LIFE	GAME	JUN	-88	9
SUPERFONT	PRINTER	MAY	-88	21
SYSTEM WADGEBURY	GAME	MAY	-88	9
TAZMAN	GAME	OCT	-87	17
TEXT SHAPE	WORDPRO	AUG	-88	17
THRUST CHEAT	GAME-UT	FEB	-88	32
TRACER	DBASE	JUN	-88	17
VIEW SUPERFONT ADJUST	PRINTER	AUG	-88	16
WORDBOX	PUZZLE	AUG	-87	26
WORDPERFECT	DEMO	AUG	-87	13
ZOOM	GRAPHIC	APR	-88	28
3D GRAPHICS	TUTOR	DEC	-87	14
XCLOSE COMMAND	UTILITY	MAY	-88	31
DISC TRY DISK				

RETN→Next Line: TAB→Next field: ESC→Menu
CTRL-A=Insert Line: CTRL-D=Delete Line

worth of them. It's a steal, but what the heck, we like you anyway. Seriously though we reckon that at about 20 hours solid work it would cost you between £50 and £80 to pay a typist to input the numbers. (80 Track only)

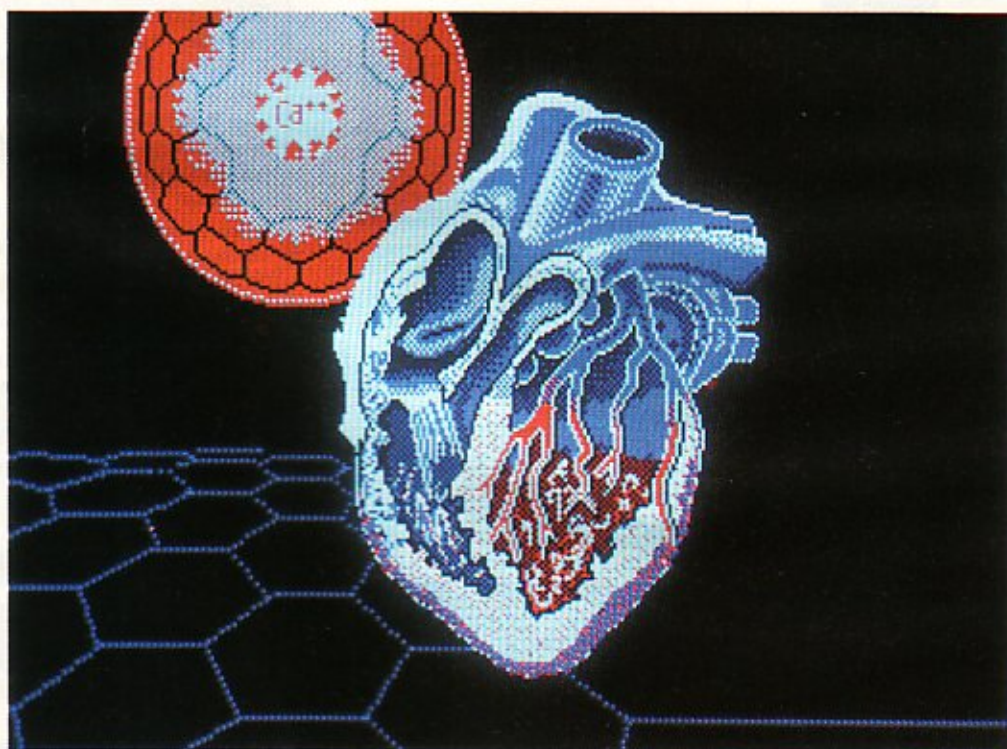
Available for BBC B, B+ and Master 128 on DFS only. Product number DB104 for the TDPC on its own, and DB105 for the TDPC plus STD codes disk (80 Track only). Please turn to our SERVICES page for details on how to order.

COLLECTOR'S ITEMS

Guess what the letter O has in store this month in the Abbas Alpha to Omega of animation. Just press O from the animation menu to find out.



Letters A-N available in Back issues. For instructions on how to use the menu see Issue seven.



Heart, a medical illustration

Still from animation

Client: Lorex

Commissioned by: RJS Advertising

Hardware: BBC model B

Design and computer graphics:

Abbas

42B Thornton Way

Girton

Cambridge CB3 0NJ

SERVICES

DISK USER MAGAZINE BACK ISSUES

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All programs are Model B,B+ and Master compatible unless stated

(e) denotes 100% Electron compatible

Disk User Five:

How your disk drive works
Program transfer
Arkenoid/Thrust cheats
Ravenskull screen maps
Magic Wall puzzle
Save Your Bacon
Disk User theme tune
Disk routine library
Overlay techniques
Spock's logical disk menu
Toolkit character editor



Disk User Six:

Clip Art
Codename Droid Maps
Zoom Lens (e)
Collectors Items
Psychobrot Mandelbrots (e)
Hot Key! - Anytime Anywhere



Pixel Perfect

Blobber (e)
Martian Nim (e)
Schizoscreenia
Graphics from BASIC (e)

Full advertising demo on disk of Brian Clough's Football Fortunes from CDS (e)

Disk User Seven:

System Wedgebury arcade adventure
How to Write a Hit Game - the routines you need (e)
Procedure Library Manager, with range of procedures (e)

Superfont printer driver (e)
Collectors Items Background Print Utility (e)
Specialist disk formatting (e)
*CLOSE command (e)
Pulsating colour (e)
Multimode (e)
Greyscreen (e)



Disk User Eight:

Ecosoft - Life
Easypoke ultimate cheat program. Monster list of extra lives and extended play time
Collectors Items
Disk Editor (e)
Tracer Database (e)
Hyper Driver Demo, NLQ font (e)
AutoBASIC (e)



Disk User Nine:

A.C.E. - sprite editor
Orcrest - Arcade adventure (e)
Starting Out - Assembler
Artificial Intelligence Investigated (e)
Collectors Items
Memory Lister (e)
Multitasking demo (e)
Flash Fonts - screen fonts
Kings and Queens tracerfile (e)



Disk User Ten:

Textshape
Orlonds Meanies
Dynamic Doodles (e)
Starting Out Assembler, Hexfind 2 (e)
Collectors Items

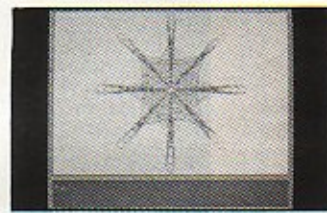


Repton Map Printer Patch (e)
Fastlife
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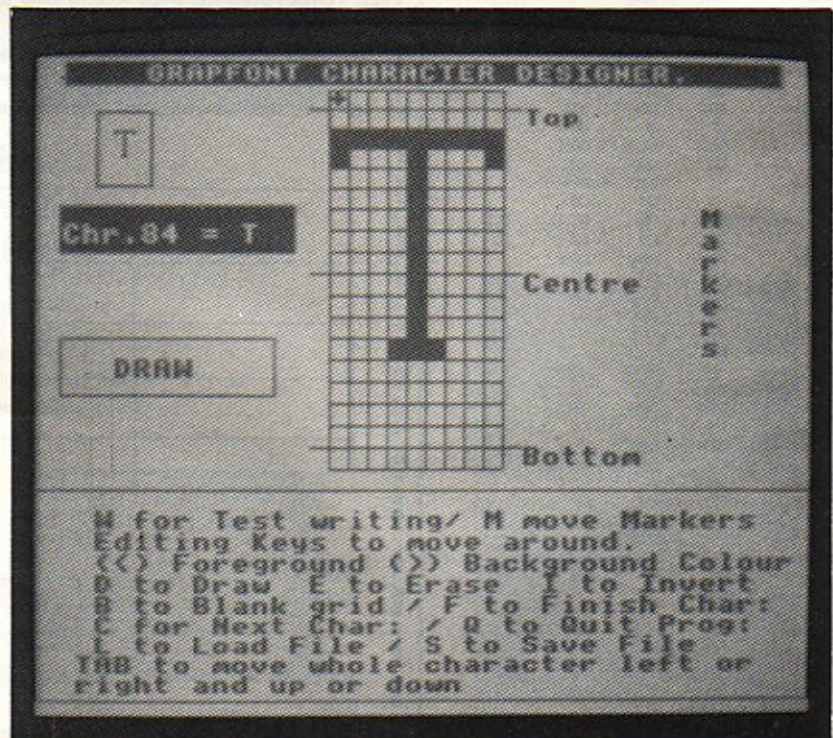
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