

A Database Publication

THE MICRO USER

Volume 5
Number 8
October 1987
£1.25

Top-selling
guide to the
BBC Micro!

ARCHIMEDES

The great software
race is under way

CEEFAQ

Capture all the
news in seconds

GAME

Two-player action
in Space Arena

UTILITY

Analysing loans
on your micro

EDUCATION

Choosing the
right software

REVIEWS

- KXP-1081 printer
- Genie desktop
- SPX colour board



Now - an MOT for discs

CRAZEE RIDER

FREE:
ENHANCED BBC MASTER VERSION
 • Extra Race Circuits
 • Haunting Music
 • Extra Graphics
 • Auto-Demo Mode
 • Extra Game Features



A PROGRAMMING BREAKTHROUGH
 The first Electron motor racing game to faithfully represent the bends and chicanes of major international racetracks.



Setting the Scene



Going round the bend at Misano (BBC MICRO VERSION)



Knocking off an opposing rider (BBC MICRO VERSION)



Clever Electron programming techniques (ACORN ELECTRON VERSION)

If you can't beat them, knock them off!

Howling round the bends at Le Mans at 150 m.p.h. is a daunting experience. You'll need nerves of steel and slick reflexes to finish in the Top 6 and qualify for the next race. If, at first, you can't make the grade you can always let off steam (and gain bonus points) by bumping into the other riders and knocking them off their bikes; listen for the terrified wail as the rider is sent flying to the ground.

Each race has 60 participants — and the further you get, the tougher the competition becomes. Bonus points are awarded for a good finishing position, and your "hit-count" shown at the top of the screen records the number of other riders you have sent tumbling from their steeds.

Seven top international racetracks are featured:-

- Le Mans (France)
- Anderstorp (Sweden)
- Paul Ricard (France)
- Brands Hatch (U.K.)
- Misano (Italy)
- Silverstone (U.K.)
- Nurburgring (W. Germany)



An enhanced version has been specially produced for owners of the BBC Master Series computers. Included free with all BBC Micro cassettes and discs, this version features several extra race circuits, a beautiful 6-minute musical soundtrack, and a host of extra game features — making full use of the Master's extra memory and capabilities.

BBC Micro Cassette £9.95 Acorn Electron Cassette ... £9.95
 BBC Micro 5¼" Disc £11.95 Acorn Electron 3½" Disc. £14.95
 BBC Master Compact 3½" Disc £14.95
 (Compatible with the BBC B, B+ and Master Series computers).

PRIZE COMPETITION
 A superb MZ Simson sports moped (illustrated above) worth £500 is the first prize in our competition.
 To enter the competition, you must finish in qualifying position on the first 21 racetracks, and note down the congratulatory messages you receive.
 Closing Date: 31st March, 1988.



ACORNSOFT

Dept. CR3, Regent House, Skinner Lane, Leeds LS7 1AX. Telephone: 0532 459453

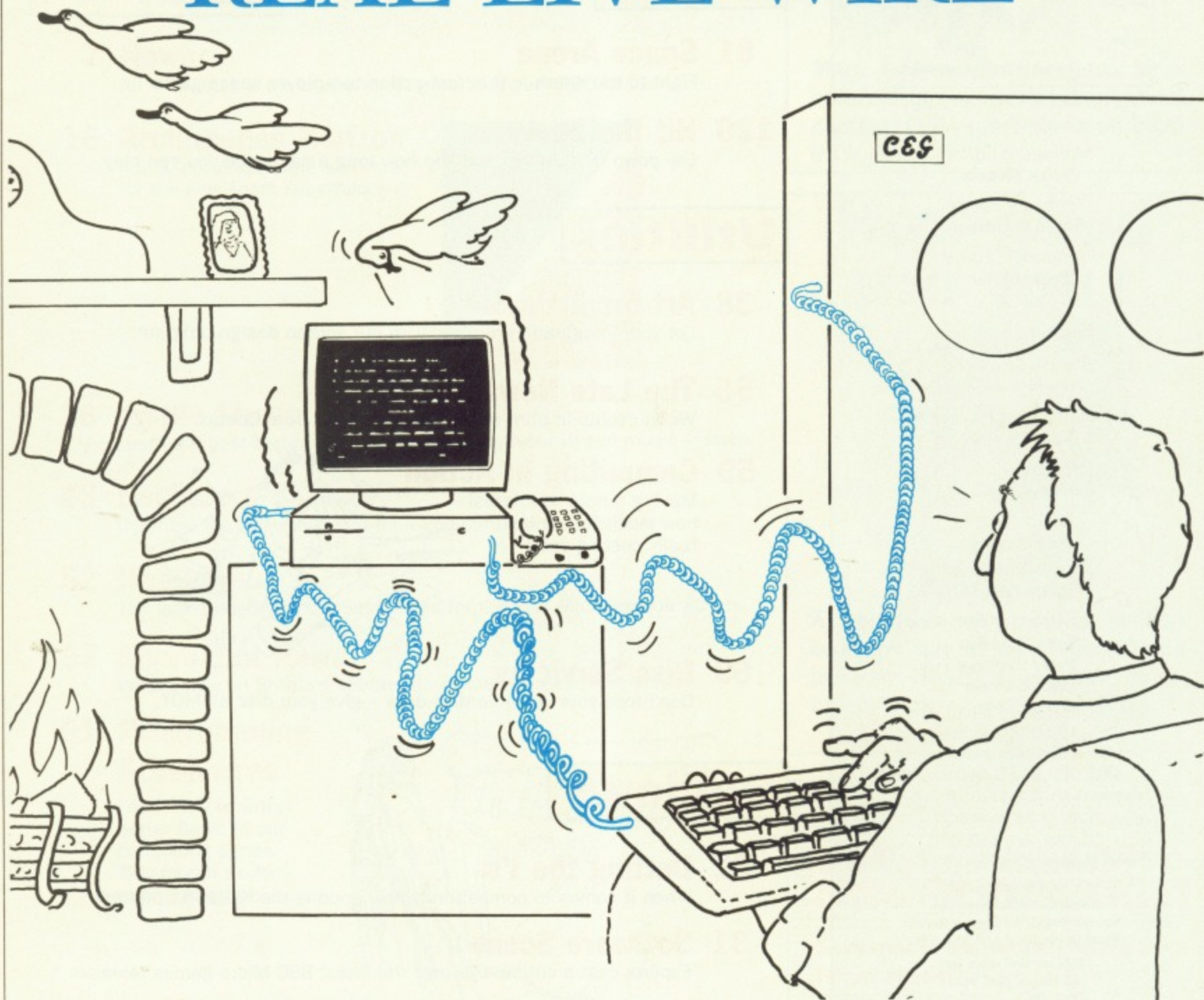
Please make all cheques payable to "Superior Software Ltd".



24 HOUR TELEPHONE ANSWERING SERVICE FOR ORDERS

OUR GUARANTEE
 • All mail orders are despatched within 24 hours by first-class post.
 • Postage and packing is free.
 • Faulty cassettes and discs will be replaced immediately.
 (This does not affect your statutory rights).

COME HOME TO A REAL LIVE WIRE



Inject the power of a mainframe into your micro. MICRONET is the only product that provides you with:-

- Real-time interactive chatlines
- Free and discounted telesoftware
- M.U.G.'s inc the UK's most popular SHADES™
- Daily computer news and reviews
- Free PRESTEL™ electronic mail
- Teleshopping - holidays, hotels etc.
- 70,000 PRESTEL users 56,000 Telecom Gold users
- National and International Telex
- Technical Support and Help Desk

PLUS: Access to PRESTEL and Telecom Gold, and there's much more - all for one low cost subscription. Modem owners call us now for an on-line demonstration.

With your first annual subscription MICRONET will give you a **free** modem. Complete and return the coupon for your MICRONET brochure.

MICRONET

MICRONET, Durrant House, 8 Herbal Hill,
London, EC1R 5EJ. Telephone 01-278 3143
Please send me a free MICRONET brochure.

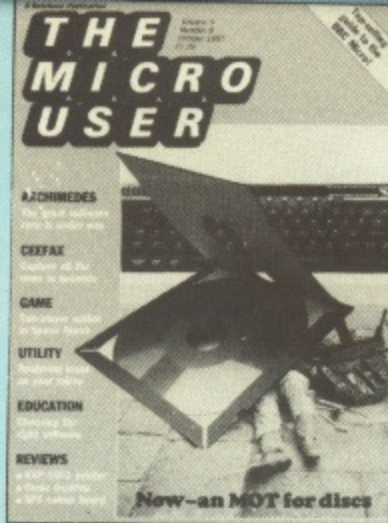
Name _____

Address _____

Tel _____ Age _____

Micro _____

MU/10/87



Vol. 6 No. 8 October 1987

Managing Editor
Derek Meakin

Features Editor
Peter Davidson

Production Editor
Peter Glover

Art Editor
Heather Sheldrick

Associate Editor
Alan McLachlan

Assistant Features Editor
Steve Turnbull

Reviews Editor
Christopher Payne

News Editor
Mike Cowley

Technical Editor
Mike Cook

Advertising Sales
John Snowden
Peter Babbage
Gail Blincow

Tel: 061-456 8835 (Editorial)
061-456 8383 (Admin.)
061-456 8500 (Advertising)
061-480 0171 (Subscriptions)

Telecom Gold: 72:MAG001

Telex: 265871 MONREF G
Quoting Ref. MAG001

Prestel Mailbox: 614568383

Published by:
Database Publications Ltd,
Europa House, 68 Chester Road,
Hazel Grove, Stockport SK7 5NY.

Subscription rates for
12 issues, post free:
£15 - UK
£25 - Europe (incl. Eire)
£31 - Overseas Surface
£42 - Overseas Air

ABC 59,727
Jan-June 1986
ISSN 0265-4040

The Micro User welcomes program listings and articles for publication. Material should be typed or computer-printed, and preferably double-spaced. Program listings should be accompanied by cassette tape or disc. Please enclose a stamped, self-addressed envelope, otherwise the return of material cannot be guaranteed. Contributions accepted for publication will be on an all-rights basis.

© 1987 Database Publications Ltd. No material may be reproduced in whole or in part without written permission. While every care is taken, the publishers cannot be held legally responsible for any errors in articles, listings or advertisements.

The Micro User is an independent publication and neither the BBC nor Acorn Computers Ltd are responsible for any of the articles in this issue or for any of the opinions expressed.

News trade distribution: Diamond Europress Sales & Distribution, Unit 1, Burgess Road, Ivy-house Lane, Hastings, East Sussex TN35 4NR. Tel: 0424 430422.

CONTENTS

Games

81 Space Arena

Fight to the death in this fast-action two-player space game.

129 Hit the beat

Lay down that rhythm and see how long a sequence you can play.

Utilities

38 Art for Art's Sake

Let your imagination run wild with our screen design program.

55 The Late News

World events in print at the speed of light from Ceefax.

59 Computing in Action

Making a note of interest – how much is that loan really costing you?



69 Disc Servicing

Don't lose your valuable disc data – give your disc an MOT.

Reviews

22 Dotting the I's

When it comes to compatibility how good is the KXP1081 printer?

31 Software Scene

Experts cast a critical eye over the latest BBC Micro games releases.

64 A Kind of Magic

Full desktop power at your fingertips with the help of the Genie.

Education

73 News

Up-to-date reports about ways of using the BBC Micro in education.

75 Buyer Beware

Avoid the pitfalls when purchasing educational software for your child.

77 Going Walkabout

We look at a package teaching how to use maps using your BBC Micro.

79 Letters

Another selection from our mailbag on matters educational.

Features

7 News

All the latest in the ever-changing world of your BBC Micro.

16 Archimedes Horizon

Round-up of available software for the new Acorn supermicro.



26 Ample Music

Learn the best techniques for programming your Hybrid music system.

45 Beginners Comms

Untangle the terminology of inter-computer communication.

52 Hac Man

The latest news and the best pokes for the BBC Micro arcade games.

57 MicroLink News

What's new on Britain's nationwide online database for micros.

91 Programming Adventures

Learn how to write better Basic in our continuing series. This month we look at choosing your words.



97 Archimedes Q&A

More of your questions answered about the new Acorn machine.

99 Problem Solved

Expert solutions to those mind-boggling hardware problems.

114 Library

Our readers' high-quality routines brought together for you to use.

118 Adventures

Puppet Man review, tackling Dungeon Adventure, plus great hints.

123 Gallery

Another line-up of colourful masterpieces created on the BBC Micro.

135 Letters

The chance to get your news, views, moans and name into print.

THE MICRO USER
INNOVATION AWARD

More brilliant entries have been received in our much talked-about contest. Full report starts on Page 9.

How good are you?

Extend your programming skill to enhance our superb MicroWorks program. That's all you have to do to win a prize worth over £500. See Page 67

MICRO USER CLASSIFIEDS

Save money on bargain offers from fellow readers — page 133

NEXT MONTH

GAME
Dune Hunter — arcade action
Archimedes
Zarch — the game unveiled

HARDWARE
Master Romboard 4

LANGUAGES
Three Cs compared

THE MICRO USER November issue on sale October 7

WE'RE ABOUT TO CHANGE YOUR VIEW OF WORD PROCESSING

View Professional is the latest addition to the well-known View suite of productivity software.

A highly advanced Word Processor, it also includes spreadsheet and

database facilities to form a single, powerful package.

So for example, you could prepare a price list, add it up, create a second column for V.A.T., write a letter around it and send it to a hundred addresses without even switching programs.



Easy to use, View Professional is suitable for the BBC B, B+, Master 128 and Master Compact and costs £99.95. A version for Archimedes will be available later in the year. View it now at your local Acorn dealer.

ACORNSOFT

V I E W P R O F E S S I O N A L

Acorn Computers Ltd., Technopark, 645 Newmarket Road, Cambridge CB5 8PD. Tel: 0223 214411.
Or contact: Vector Services Limited, 13 Denington Road, Wellingborough NN8 2RL. Tel: 0933 79300.



Michael Meakin: "Huge market"

Archimedes tops the show bill

THE Archimedes will be the top of the bill when the Electron & BBC Micro User Show returns to the New Horticultural Hall in London from November 13 to 15.

It will almost certainly provide the setting for the first public appearance of the as yet to be launched A400 series, the next stage in

development of the world's fastest micro.

And it will be the launching pad for the initial wave of software for both the A300 and A400 series in the Archimedes range.

In fact, visitors will have the first opportunity to get hands-on experience of the Archimedes by playing Zarch, the search and destroy game on a scrolling 3D landscape.

"The show will provide the perfect setting for the new Acorn machines at the height of the last few weeks before Christmas", remarked one observer.

However, though the Archimedes will be very much in the limelight, it certainly won't place the BBC Micro and the Master series in the

back seat. A survey of exhibitors has revealed that at least 20 companies are currently working on major new products to unveil at the show for both these machines.

But, as in the run up to previous events in the series, the firms involved are loath to reveal details in the face of fierce market competition.

Typical of these is Watford Electronics which will be offering a new range of products for both the BBC Micro and the Archimedes.

"All we are prepared to tell you at this stage is that visitors won't go away disappointed", said managing director Nazir Jessa.

A money saving advance ticket order form appears on page 15.

UK SOFTWARE DRIVE IN USA

A NEW transatlantic deal will see a British software house reverse recent trends by establishing a major presence in the United States.

Database Software has reached agreement on a joint venture with ShareData, pioneers of budget packages in the States and a public company valued at \$28 million.

The result is the formation of Database Software Inc, in Phoenix, Arizona.

The new corporation aims to market the best British and European titles through ShareData's 22,000 outlets in North America.

Database Software is part of the Database Group, the UK's leading publisher of computer specific magazines including *The Micro User*.

As a software house, it first sprang to prominence in Britain in October, 1984, with the release of Mini Office - top seller on the BBC Micro.

Database Software is today recognised as one of the fastest growing companies in

its field in the UK. The last 12 months have seen its turnover increase more than five times.

Similarly, ShareData in the States has a track record second to none. It has become the pacesetter for the American industry, recording sales of more than 500,000 units in the last three months.

Michael Meakin, joint managing director of Database, flew to Arizona to complete the British-American deal.

"We have spent a long time looking for a suitable partner in the States to make us a truly international company", he said. "And in ShareData we believe we have found the perfect answer."

"Now the search is on to find the hottest software properties in Europe and Britain to sell in America."

"It is a huge market with an insatiable thirst for good software", said Michael Meakin.

"We intend to satisfy that demand with the help of the wealth of excellent software authors over here".

Target is India

A MIDLANDS firm is hoping to open up a big new market in India with the latest version of its word processor on BBC Micro and Master machines.

R.S. Computer Systems of Coventry (0203 23055) has already had marked success with a Punjabi version of Shabad in schools and local authorities on the subcontinent.

Now it has perfected a Hindi version and is trying to organise deals in India.

A spokesman said that there were a variety of import regulations to overcome but they were confident that a major breakthrough could be made.

CRASH REMEDY

A WAVE of complaints about ram/rom boards which have plagued the BBC Micro market has prompted Watford Electronics to help sort out the situation.

Owners of boards that have been causing user port crashes are being offered a £10 discount when trading in for one of Watford's own 32k, 64k, or 128k ram/rom cards.

"The numerous problems reported to us concerning incompatible rom/ram boards have been creating a bad feeling in the industry and we felt that it was time to help sort out the problem", said Nazir Jessa, Watford's managing director.

Build your own system...

with the Minerva **SYSTEMS DELTA, GAMMA and SIGMA** Individual programs designed to integrate; use separately or link together to form a powerful business system. Systems Delta, Gamma and Sigma... designed by highly acclaimed professional programmers with proven ability on the BBC, now providing definitive software for the Archimedes.

ARCHIMEDES

DeltaBase £29.95
Extremely powerful yet simple to use general Database. Over 8000 records, 255 fields and 16 subsets. Pull down Help Screens. Various screen modes. Extensive single or multiple criteria searches, sorts and maths facilities. Restructuring records is easy. Imports data from Viewstore, Betabase, InterBase, Mini-Office, etc.

System DeltaPlus £69.95
Extensive Relational Database Management System. 2 billion records, 16 million fields, 24 million subsets. Infinite files open at once. Powerful WIMP database. Multiple user-definable print formats. Unrivalled, comprehensive maths, searches and sort. Mailing labels. Extensive Reporter. Card copier. Fully programmable.

GammaPlot £34.95
Versatile Graphics program. Multiple charts on screen at any time including pie, scatter, line, hist, 3D. On-Screen editor for text presentation. Macros. Entry by keyboard or any Delta/Gamma File.

System GammaPlus £69.95
Graphics Management System. Multiple charts on screen at any time. Over 10 types available. Definable scaling and screen formats. Screen editor. Statistical analysis. Three dimensional charting. Macros. Fully programmable.

System Delta with Card Index £64.95
Still the most comprehensive and flexible data management system on the BBC. 8160 records, 255 fields, 8000 characters per record. 8 subjects. Up to 5 files open at any time. Find any record in 3 seconds. Extensive single or multiple criteria searches, sorts and maths facilities. Multiple print formats. Default card copier for transfer between files. Fully programmable relational system with over 150 commands available.

Mailshot, Reporter and Inter/View Link £19.95 each
Three versatile support programs for use with all System Delta files. Mailshot produces up to 4 across labels and links with wordprocessors for mail-merged documents. Reporter produces simple lists as well as fully definable reports including negative or positive columns, averages, totals, headings, sub and sub-sub-totals. Inter/View Link transfers data directly or as a result of any calculation including sum, average, count, etc.

System Delta Personal Accountant £45.95 (Nominal £55.95)
Five comprehensive accounting modules for use separately or as integrated suite. Many advanced features as listed above. Total flexibility allows customisation if required.

Order Processing/Invoicing, Sales Ledger, Stock Management, Purchase Ledger, Nominal Ledger

School Administrator £69.95
Pupil and staff records allow extra fields to be added if desired. Entry reports for examination boards. Form 7 DES statistics, etc.

System Sigma t.b.a.
Powerful Spreadsheet Management System containing the facility to design your own tailored system. To be released late 1987.

System Delta Personal Accountant £69.95 each module
The only flexible accounting suite. Use modules separately or integrate. Contains many features not found on other micros including definable invoice layouts, varied discount structures on one invoice, archive mail order customers for future mailshots, add new credit account at time of invoicing, selection of aged debtors/creditors or statements by various criteria, generates purchase orders, suggests stock levels, determines most profitable stock items, stock and sales graphs, numerous user-definable nominal accounts with unlimited bank accounts, output to a spreadsheet.

Order Processing/Invoicing, Sales Ledger, Stock Management, Purchase Ledger, Nominal Ledger.

Specialist Applications
Flexible specialist software available for School Administrator, Video Rental, Newsagent, Hotelier, Genealogy. (Timetabling coming early 1988)

Minotaur Game £14.95
Full feature 3 dimensional animated maze type game. Unbelievable graphics. Use brains or force to kill the Minotaur.

Specialist Applications from £54.95
Comprehensive management programs for Hotelier, Video Rental and Newsagent.

System Gamma £49.95
The first Graphics Management System. Anyone can produce stunning graphics and charts easily from the menu driven GammaPlot supplied. Multiple charts on screen at any one time and in any position desired. Several fonts provided for variable text editorial. Several Macro facility. Entry by keyboard or System Delta files. Fully programmable to create your own graphics programs.



COMPUTER SOFTWARE AND SYSTEMS SPECIALISTS
69 SIDWELL STREET · EXETER EX4 6PH · TELEPHONE EXETER 0392 37756



The great search for the most innovative use of a BBC Micro is gathering momentum. More than 500 entries have now been received, spurred on by the top prize – a £1,000 Archimedes, the world's fastest micro. Entries have come from all over Britain, and from users as diverse as country vicars and high powered industrialists. As such, they are a living testimony to the continuing importance of the BBC Micro in the UK today. Here, once again, is a random selection of the fascinating stories that have come to light . . .

MTTS1 TEST

PLEASE SELECT AN OPTION

- (1) Description of available tests
- (2) Full test
- (3) Part test
- (4) Repeat previous test(s)
- (5) Exit programme

TO RETURN TO THE MENU AT ANY STAGE
PRESS ESCAPE

A BBC Micro is ensuring that television sets don't fail half way through Tomorrow's World.

It is being used as the nerve centre of quality control to ensure that shoddy tellies don't emerge from British factories.

Developed by Terry Douglas, an applications engineer specialising in domestic television, it is marketed by Mullard, the electrical component manufacturer.

Recognising a need for improvement in television factory production testing, Terry turned to "the good old BBC Micro".

He has taken the Model B and turned it into an automatic tester with a system written in Basic for ease of modification.

The heart of the system is a means of converting from the resident RS423 to the two wire bus used in the TV.

With this two way communi-

cation established, the BBC Micro is able to carry out fast and accurate checks on everything from the remote control reception through to the LED displays and the tele-text chip.

"The task was to give TV set makers a tool for reliably testing chassis in production and giving fault details", explained Terry.

"A BBC Micro is ideal for this task with its great ability to interface with the rest of the world".

To suit the factory environment where personnel are not necessarily familiar with micros, the Basic test program was put into eeprom to boot into the rom filing system and run from switch on, thus avoiding disc drives in the factory.

Sanyo, in Suffolk, is just one manufacturer to adopt the BBC Micro system which is giving British-based industry a helping hand.

MICRO-BASED EMBROIDERY

A TEXTILE engineer based in Wales has developed a BBC Micro based alternative to commercial embroidery machines with screen input which cost well over £50,000.

David Selby of Newtown, Powys, has drawn on his experience working for Tootalls and Courtaulds to develop Sew-Easy, a package which allows actual sewing, not just designing, a pattern.

To achieve this, he uses two main peripherals – a Grafpad II for input and a conventional sewing machine – as well as a couple of stepper motors and "a few mechanical bits" like toothed belts and pulleys.

The sewing machine's feeder is removed and replaced by an embroidery holder which is moved in the X and Y directions by the two stepper motors.

Embroidery of a motif simply requires the drawing of

the required shape on the screen with the Grafpad, then several versions of the software take over.

For simple outlines, the BBC Micro is called upon to calculate stitch lengths and directions – and then drive the sewing machine from the stitch file.

With more complex motifs, the outline is first drawn and then the individual stitches are plotted using the "rubber band" mode of the Grafpad.

Communication between BBC Micro and sewing machine is via the user port, using eight data lines for the stepper motors, CB1 for the stitch counting and CB2 to start and stop the sewing.

Although compared with a commercial embroidery machine, it is slow at only 250 to 300 stitches a minute, it is a lot faster than by hand – and repeatable – and much, much cheaper.

SUPERIOR SLALOMS...

CANOEIST Paul Boothroyd has turned to his BBC Micro to help him more easily negotiate the tricky slalom courses on surging rivers.

The student paddler has developed a program capable

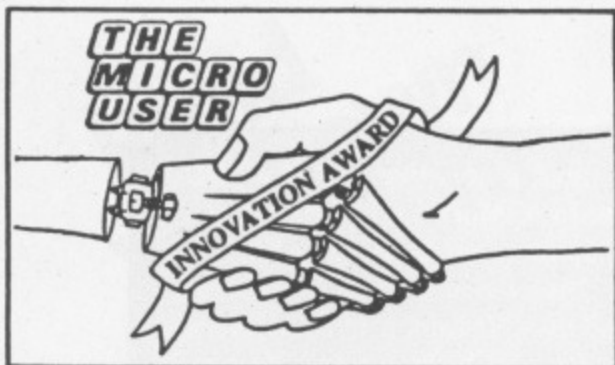
of storing the details of what obstacles can be found at competition venues.

It carefully evaluates the position of poles, the directions they must be negotiated, and the optimum speed

at which they should be approached.

The BBC Micro is finally called upon to provide him with information on his mistakes – where a pole was touched or a gate missed out.

Don't forget that the closing date for entries is October 31. The winner of this prestigious award will be announced at the Electron & BBC Micro User Show, opening at the New Horticultural Hall, Westminster, on November 13.



DESKTOP PUBLISHING AWARDS 1·9·8·7

THE search is now well under way to find the best examples of Desktop Publishing using a BBC Micro.

Desktop Publishing is the biggest growth area in microcomputing today. It has enabled people from all walks of life – owners of small businesses to club secretaries and community groups – to become publishers in their own right.

PIRA, the UK technology centre for the printing and publishing industry, is to sponsor annual awards for the best examples of Desktop Publishing. They will be presented at the first Desktop Publishing Show to be held at the Business Design Centre in Islington, London, from October 15-17.

There will be three categories:

- *Best newspaper or magazine.*
- *Most outstanding company report.*
- *Best leaflet, newsletter or brochure.*

A special award for the best design produced on a BBC Micro is being made by Acorn. The winner will receive an Archimedes – the fastest micro in the world.

For further details phone 061-457 8383 or write to: Desktop Publishing Awards, Europa House, 68 Chester Road, Hazel Grove, Stockport SK7 5NY

All entries should be received by Thursday, October 1.

Aid for disabled

A BBC Micro and a Master have both been brought in to help teach severely disabled adolescents with learning difficulties how to read.

The project is taking place at the Portland Training College for the disabled in Mansfield.

It is here that the staff have developed a special program known as Padread which works off a single switch.

This allows any severely disabled youngster to work through a reading skills training package almost entirely unaided.

In all, it contains some 19 sections.

The first enables the user to select the file that he or she is currently working on.

The second provides a number of options including scanning rate, reading speed, and the ability to restart from a point reached in the pro-



gram during an earlier session.

The third displays a story.

All the remaining parts of the package are made up of exercises based on the story.

These include yes/no questions, true/false questions, missing words, misspelt words, word searches, a "flasher" (which displays a

word on screen for a certain period of time, then asks the student what it was), hopscotch (searching for a word snaked in the middle of a maze of other letters), anagrams, word orders and alphabetical sorts.

To date the project is reported to have had a very high success rate.

Measuring up on Mars

VISITORS to the Bristol Exploratory Exhibition can now find out what their weights would be on other planets – courtesy of a BBC Micro.

Alex Wilding, a lecturer on secondment to Averys – the scales people – was asked to mastermind the project.

Originally it had been envisaged that an industrial weighing platform would be used linked to a display unit and two remote displays.

The weighing platform yields a small differential voltage (about 10mV full scale), while the "display unit" runs a 31k program,

written in 8048 assembler code, to perform ranging, zeroing, linearisation, auto-calibration and tare subtraction.

However, Alex Wilding had a better idea.

He decided to take the platform output to an amplifier with two op-amps to boost and level-shift for the 0V to 1.8V model B analogue input. This, with the platform, is powered by the -5V to +5V auxiliary power output.

The program displays an "invitation" screen and waits for someone to get on the platform.

It then weighs them,

calculates the mass, Earth weight, and what their weight would be on other planets.

Then it presents the answers in sequence with comments. By "Mode 2 palette-bashing", an animation of a pendulum is continuously displayed, with its period altering in sympathy with the different gravities.

The program is on eeprom in sideways rom, configured to load the run-code into ram on power-up and then pass control via the MOS to Basic.

"The result is a system under budget, under schedule and of superior performance", says Alex Wilding.

*First-Class Utility Software & Printers
from the Professionals.*

CJE Micro's

Unbeatable in print.

CJE Micro's are an official ACORN approved dealer.

A wide range of accessories and software for ACORN, Amstrad and Atari computers are on display in the CJE Micro's retail showrooms.

Multi-Font NLQ

**("Very good package . . .
Saved me over £100")**

V. BUNCE, OXFORD. DEC 86.

Upgrade your printer to NLQ with a choice of many fonts. Up to 49 predefined fonts are available on 4 discs, or you can design your own. Multi-font is easy to use and compatible with nearly all software. For prices see below or ring for further details on 0903-213361.

Some of the fonts available are shown here:

This is STANDARD
This is COURIER
This is ITALIC
This is **BOUCHÉ**
This is COMPTS
This is BOLD
This is SHADOW
This is OUTLINE
This is BRDWAYE
This is THEATRE

CJE Welcome EXPORT and TRADE ORDERS - inquire for delivery costs.

Phone/Credit Card and Official Orders are accepted. Please ring for all the latest information and prices on 0903-213361.

FONTAID

("Good value . . . Useful buy")

BEEBUG MAY 87.

Fontaid is a must for any Canon or Kaga Taxan owner. 60 predefined fonts are available or you can design your own. A Star NL10/NX15 version is also now available, so inquire for further details.

"Impressed... Delightful Simplicity... Easy to use"

(MICRO USER JUNE 87)

INFORM from CJE Micro's.

This unique sideways RAM information system is quick, versatile and simple.

NOW - Solidisk 256K version is also available.

Master Writeprotect/ROM select switch.

"I cannot praise it enough . . . Worth buying!!" MICRONET 800116575

This switch system selects RAM protected, RAM unprotected or ROM. Each bank is separately switchable. This is the MOST POWERFUL switch unit available at only £15.00 inc VAT. (p & p £1.00 extra).

CJEmicro's

CJE Micro's (Dept MUI0), 78 Brighton Road, Worthing, W. Sussex BN11 2EN. Tel: 0903-213361.

SOFTWARE PRICE LIST

All prices include VAT, but please add £1.00 for postage/packing and state 40, 80 track or 3½" ADFS when ordering.

MFNLQ £30.00
Font Discs B, C & D each £15.00

Fontaid £30.00
Fontaid with 6264 RAM £36.00
Font Discs A, B, C, D,
EA & Lang each £15.00

Inform £20.00

PRINTERS

Delivery on all printers is free. Ring for a sample printout, specification and the latest prices.

The following Near Letter Quality printers all come with centronics interface, friction and tractor feed.

Panasonic KXP1081 £180.00
Canon PW1080A £270.00
Star NL10 £260.00
Star NX15 £410.00
Star NB24/10 (216cps) £599.00

Juki Daisywheel £330.00
Free delivery on printers

CJE Printer packs

The CJE packs include; Cable, delivery, paper, plug, utility software and booklet. Please ask for further details.

The Printer packs cost £15.00 with printer: e.g. NL10 + pack = £260 + £15 = £275 inc. VAT.

BBC Cable if purchased separately is £8.00. Software on its own: £11.00 + £1 p&p.

NEWS

Desktop publishing gets a Year Book

THE world's first yearbook dedicated to the rapidly-growing desktop publishing industry is to be published in October by Database Publications.

The launch of The Desktop Publishing Yearbook is timed to coincide with the most important exhibition event in the DTP calendar - The Desktop Publishing Show 1987 - to be held at the Business Design Centre, London, from October 15 to 17.

Published with the cooperation of PIRA, the UK Technology Centre for the Printing and Publishing industry, the yearbook will become the bible of desktop publishing.

As well as comprehensive details of price-performance

of all the most important hardware and software in the field, the yearbook will also carry detailed practical articles aimed at both the newcomer to DTP and the experienced user.

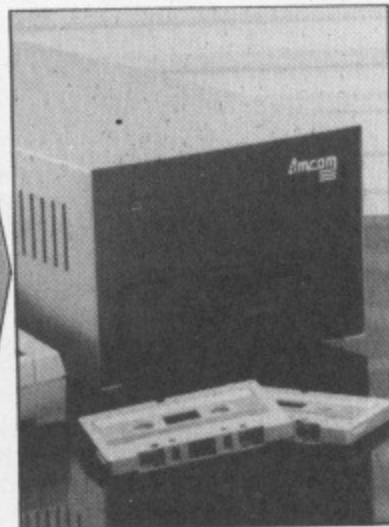
Topics covered will include single-user and multi-user systems, publishing software, laser and other printers, digitisers and scanners, computer typesetting, magazine and newspaper composition, documents and forms creation, bureau services, word processors, and many other key topics.

The yearbook will be on sale, price £5, at bookstalls throughout the country. But visitors to the Desktop Publishing Show on October 15 to 17 will receive a free copy.

AN 80Kb-a-second tape streamer to back up BBC-Micro-based hard disc drives has been launched by Amcom Software.

The 20Mb Tapestreamer is for both stand alone and E-net based Winchesters. It costs £950.

Amcom (0908 569212) has just organised a new approved dealer network and has reduced the base price of its stand alone hard disc range to £399.



THE FRIENDLY LINES

TWO utilities aimed at making the BBC Micro and Master range even more friendly have just been released by Camelot Computer Services.

The first, called The Menu, is in fact two utilities in one, designed to reside in and take advantage of the !BOOT file on discs to present a user-friendly front end to disc and rom systems. The List allows a meaningful description to

be entered for each file. It produces a ready-formatted printout.

Camelot (061-494 2253) says both are written entirely in machine code, have on-screen instructions and error trapping. They are compatible with the B, B+ and Master series using 8271 or 1770 DFS. On the Master they also display date and time. Price £15.75.

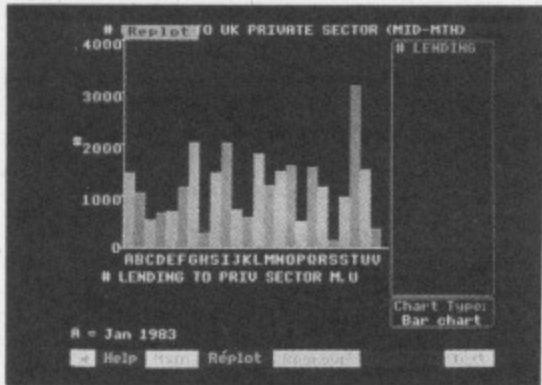
THE GALLUP CHART TOP 20 BBC SOFTWARE

| THIS MONTH | LAST MONTH | TITLE (Software House) | PRICE |
|------------|------------|---|-------|
| 1 | 1 | GRAND PRIX CONSTRUCTION SET <i>Superior</i> | 9.95 |
| 2 | 3 | AROUND THE WORLD IN 40 SCREENS <i>Superior</i> | 6.95 |
| 3 | 6 | DUNJUNZ <i>Bug-Byte</i> | 2.99 |
| 4 | • | CODENAME DROID <i>Superior</i> | 9.95 |
| 5 | 2 | PHANTOM <i>Tynesoft</i> | 7.95 |
| 6 | 7 | SUPERIOR COLLECTION VOL 1 <i>Superior</i> | 9.95 |
| 7 | 8 | SUPERIOR COLLECTION VOL 2 <i>Superior</i> | 9.95 |
| 8 | 5 | HERCULES <i>Power House</i> | 1.99 |
| 9 | 4 | PAPERBOY <i>Elite</i> | 9.95 |
| 10 | 10 | MICROPOWER MAGIC <i>Micropower</i> | 7.95 |
| 11 | 15 | STRYKER'S RUN <i>Superior</i> | 9.95 |
| 12 | 11 | REPTON 3 <i>Superior</i> | 9.95 |
| 13 | 14 | COMMONWEALTH GAMES <i>Tynesoft</i> | 6.95 |
| 14 | • | GEOFF CAPES STRONGMAN <i>Ricochet</i> | 1.99 |
| 15 | 12 | RAVENSKULL <i>Superior</i> | 9.95 |
| 16 | 13 | BIG KO <i>Tynesoft</i> | 7.95 |
| 17 | 16 | KONAMI'S COIN-OP HITS <i>Imagine</i> | 9.95 |
| 18 | • | SPY VS SPY <i>Tynesoft</i> | 9.95 |
| 19 | • | RED ARROWS <i>Alternative</i> | 1.99 |
| 20 | • | WINTER OLYMPICS <i>Tynesoft</i> | 7.95 |

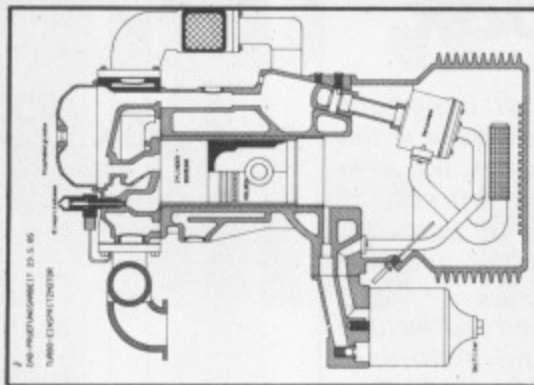
Compiled by Gallup/Microscope

Four new titles enter the chart this month, while Winter Olympics re-enters at 20. Superior demonstrate their commitment to the BBC Micro with five games in the Top 10 and with Codename Droid - Stryker's Run Part 2, entering at number four.

Every PLOTMATE picture tells a story



DOMESDAY
A typical bar chart from the Domesday database. Hard copy is obtainable via the Plotmate BBC Welcome disk.



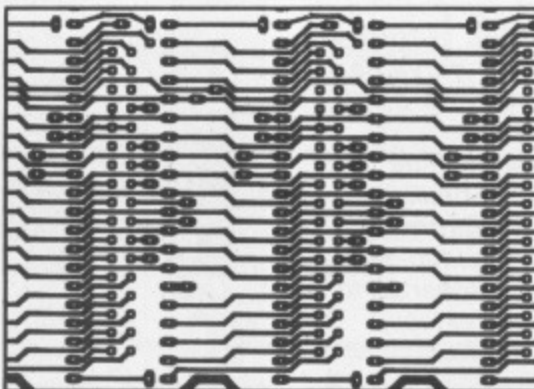
CAD
Example from SUPERDRAFT running on the NIMBUS.



DIGITISING
Map of Europe digitised and edited using LINMAP software.



IMAGE SCANNING
Linscan screen file of 'MONA LISA' incorporated into AMX PAGESMAKER.



PCB DESIGN
Using LINTRACK, a Printed Circuit Board design package.

ESS
20%-30%
DISCOUNTS

ESS
Linear Graphics' unique educational discount scheme.

PLOTMATE is one of the most popular graphics plotters used across the entire curriculum in education.

Sophisticated and inexpensive, Plotmate provides high definition plotted output and high resolution scanned input when used in conjunction with the LINSKAN Image Scanner.

MICRO COMPATIBILITY

Plotmate is compatible with all leading micros including the BBC, NIMBUS, IBM PCs and PC compatibles, such as the AMSTRAD PC1512.

CAD

Plotmate runs from many leading BBC packages including BITSTIK, AMX DESIGN, the REALTIME GRAPHICS SYSTEM and LOGOTRON LOGO. When the on-board graphics language range is extended, Plotmate 'M' models understand commands from HPGL 7475A/7470A industry standard languages enabling compatibility with a wide range of professional third party software including AUTOCAD, AUTOSKETCH, SUPERDRAFT, SCRIBE MODELLER and MICRODRAFT.

PCB DESIGN

LINTRACK is a sophisticated, low cost, CAD package which allows the creation and revision of printed circuit board artwork. BBC, Nimbus, IBM PC and Amstrad PC1512 versions available.

IMAGE SCANNING

The LINSKAN range of image scanners can create image files for most popular Desktop Publishing and Art packages.

AMX PAGESMAKER, FLEET STREET EDITOR, IMAGE, ARTROOM and ACE can process image files created by Linscan (for the BBC).

ALDUS PAGESMAKER and NEWSPAPER can use image files from Linscan (for the Nimbus).

GEM PAINT, XEROX VENTURA PUBLISHER, and GEM DESKTOP PUBLISHER can utilise image files created by Linscan (for IBM PCs and PC compatibles).

DOMESDAY

All Plotmate Welcome disks allow WRITE Files containing tabular data from the Domesday database to be reprocessed in pie, bar and line chart format on the BBC Master.

EDUCATIONAL DISCOUNTS

Linear Graphics offers the unique Educational Support Scheme (ESS) whereby savings of between 20%-30% on all Plotmate plotters, associated software and add-ons are available to all educational establishments. FREE training is offered with quantity orders.



PLOTMATE
LINEAR GRAPHICS LTD
28 Purdeys Way Rochford Essex SS4 1NE
Tel 0702 541663/4/5 Telex 995701

Please send me details on Linear Graphics' products. I am particularly interested in (please indicate)

NAME

POSITION

ESTABLISHMENT

ADDRESS

.....

TEL

ELECTRON &

BBC MICRO

USER SHOW

**Royal Horticultural Hall
Westminster, London SW1**



SEE the first software, hardware and books for the Archimedes from companies like Acornsoft, Clares, Minerva, Computer Concepts, and many others.

BUT THAT'S NOT ALL!

- ★ Hardware and software galore for BBC Micro and Electron owners
- ★ Lots of bargains for the BBC Micro and Electron at rock-bottom prices
- ★ Technical advice from the experts over the whole range of Acorn machines

10am-6pm, Friday November 13
10am-6pm, Saturday November 14
10am-4pm, Sunday November 15

Here's your personal invitation to try out the revolutionary Archimedes for yourself

Be one of the first to play Zarch, the spectacular new game that is the first to make use of the Archimedes' incredible speed to magnificent effect – the four-directional scrolling really has to be seen to be believed!

Come along and meet the author, David Braben, creator of Elite. Try your hand at the game itself . . . and prepare to be amazed!

All this – and much, much more – at the 17th record-breaking Electron & BBC Micro User Show.

**Save £1
a head
with this
advance
ticket order**

Please supply:

Adult tickets at £2 (save £1)..... £

Under-16s tickets at £1 (save £1) £

Cheque enclosed made payable to Database Publications Ltd.

Please debit my credit card account

No.

Signed.....
Admission at door:
£3 adults, £2 under 16's

Advanced ticket orders must be received by Wednesday November 4, 1987

Post to: Show Tickets,
Europa House, 68 Chester Road,
Hazel Grove, Stockport SK7 5NY.

Name.....
Address.....

A096

PHONE ORDERS: Ring Show Hotline: 061-480 0171
PRESTEL ORDERS: KEY *89, THEN 614568383
MICROLINK ORDERS: MAILBOX 72:MAG001
Please quote credit card number and full address



MORE than 50 major software houses are already busy developing new products to exploit the highly advanced features of the Archimedes.

Acorn's software support group is working closely with companies and have so far supplied more than 500 development machines to interested parties showing genuine ability and enthusiasm.

The group has found wide ranging interest in the machine around the country. None is more enthusiastic than Nova Fisher of Minerva who said she was aiming to become the largest supplier of Archimedes software.

"We have worked hard on preparing a lot of programs for the machine because we believe in it", she said.

More than 20 pieces of software from the house are either in the shops or under preparation. Out now is Delta-base, a low cost, powerful database which, like all Minerva's Archimedes software is genuine ARM programming and does not run under the emulator.

Coming soon is the maze game Minotaur and five independent accounting modules which can be linked under the System Delta Personal banner. These are order processing and invoicing; sales ledger; stock management; purchase ledger; and nominal ledger.

Also on the cards is System Delta Plus, a relational database management system. This WIMP-based package sports statistics like two billion records, 16 million fields and 24 million sub sets.

Specialist packages nearing completion include School Administrator, retail aids Video Rental and Newsagent, and Reporter, which helps generate specialist reports, works with the most common word processors and links up to Deltabase.

Minerva is claiming world firsts for a series of programs. System Gamma Plus is an innovative programmable graphics management system which has a sister program in System Gamma Plot, general graphics software. System Sigma is billed as the first programmable spreadsheet management system.

Before the end of the year, the company plans to release Ancestry for family tree preparation, Timetable for schools, Librarian for schools and small municipal libraries, and Profiling, designed to help schools provide the records on pupils required by new legislation.

It will be next spring before Minerva completes SuperDelta, which Nova Fisher describes as "the absolute ultimate in data management". Its fea-

Archimedes spawns a new world of software

tures will include random length fields, a soundex search system which will look for words phonetically as well as by spelling to pick up typing errors. It will also have human applied language which will enable direct English statements to be entered as instructions.

Computer Concepts has turned all its attention to the Archimedes.

General manager Rob Pickering said: "All our efforts are now towards doing everything we possibly can to produce

By IAN BYFIELD

software for the machine. We are looking for freelance and staff programmers who are interested to work with the ARM chip".

The company has several major applications in hand - word processor, desktop publisher, programmable designer, spreadsheet, database and such. There are also "plans for other things".

Substantial sums of money are being put into Archimedes software development by Logotron. Technical director Christopher Roper said Logotron was employing much more sophisticated software tools and techniques for its Archimedes products. He said he believed companies who did not shift gear in this fashion would be left a long way behind.

He called on Acorn to continue and renew its efforts to support software houses so that the base could soon become large enough to aid sales of the machine.

Logotron has taken the old Logo software and enhanced it for the new machine. Said Roper: "To users it will

appear like a very fast version of Logotron Logo, cleaned up a little and with much more workspace".

The company is also to release Xor, the maze game, again in an enhanced version.

Christopher Roper said that because all Logotron's software was written in assembly code, any versions for the Archimedes would easily be adaptable to take advantage of the machine's extra capabilities.

Beebug's software manager John Wallace said his company was very definitely committed to supporting the machine - but it would take some time to produce programs worthy of it.

"I believe that if software houses were to put out only BBC Micro-type software then the Archimedes would fail because its full potential of large memory and speed would not be achieved.

"Indeed it is rather difficult to know where to start. The Archimedes has so much potential you have to rethink the scale of your software activities".

He said Beebug had one or two projects in hand. But the first product for the machine would be an internal modem, 1200x1200, full duplex, auto-dial and Hayes compatibility.

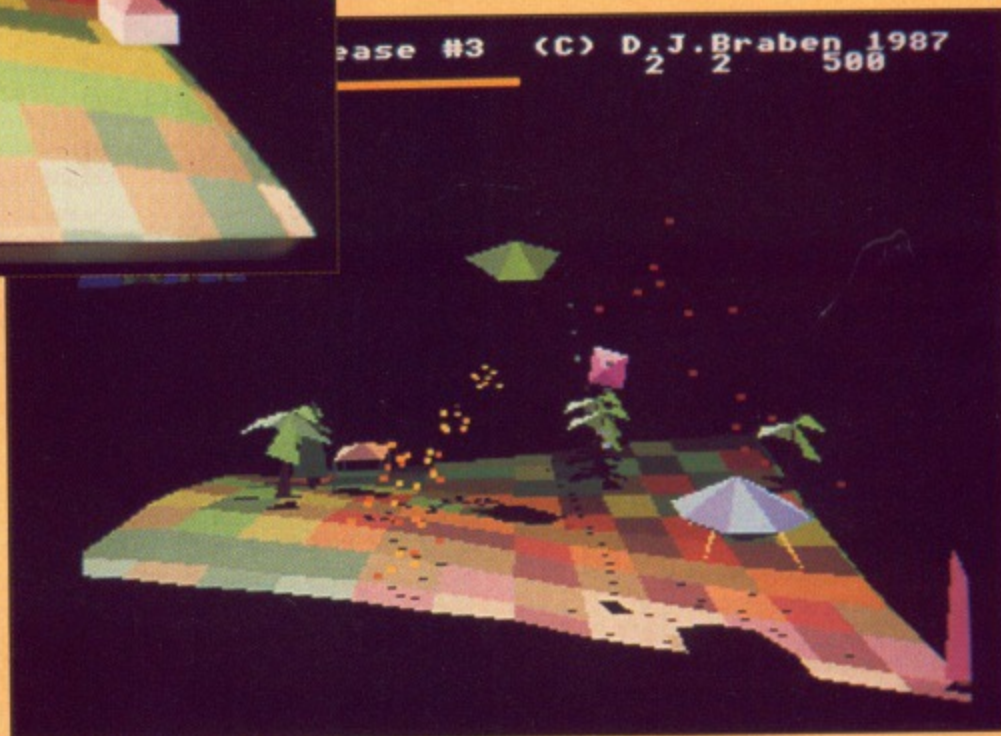
Software to run on the emulator would be available immediately, but the house was working on new programs. This would be like Beebug's successful Command modem software in that it could in effect be programmed, but would take advantage of the Archimedes's extra qualities.

Clares was quick off the mark with a toolkit and an art package plus a promise of more conversions of appropriate programs from their catalogue.

The toolkit has a whole series of



Scenes from Zarch, the ultimate shoot 'em up game on the Archimedes



editors, in words, hex, text, binary, memory and disassembler, all of which can be selected by a single keystroke.

It has a sophisticated search system which can look for a variety of elements including a sequence of bytes, words, text strings — including wild cards — and mnemonics. All this can be used in conjunction with a single line assembler.

The editing and searching can all be done from floppy or hard disc.

The arts package Artisan, written by the same people who produced Fleet Street Editor and Art Room uses windows extensively and offers sprite designers, palettes and zooms.

It works in Mode 12 but appears to offer more than the usual 16 colours. This is achieved by the combination of colours on neighbouring pixels.

Superior, who produced the game supplied on the Archimedes demo disc has expanded the program into a fully

fledged 3D scrolling landscape strategy shoot 'em up.

Zarch is a multi-level search and destroy game in which the player has to try to stop a landscape from being polluted by a variety of increasingly nasty craft, one of which actually mutates on contact with a particular bush to become even more venomous.

The company says it is committed to continued support for the machine and has two programmers working on games at present.

Acornsoft has a new version of View Professional for the machine. This is a highly advanced word processor which also includes a spreadsheet and database facilities.

Also on the Acornsoft label but from Grafox is a version of Logistix, the planning aid, designed to operate like a computerised wall planner.

The firm is now looking at its own

catalogue and third party products for candidates to port to the new machine.

BBC Software is taking a long term view of the possibilities of the Archimedes, since most of its products are for the education field and therefore have a long shelf life.

But the company is producing a communications package which software manager Jim Day describes as "more useful to the normal user than sophisticated for the hacker".

Taking a similar angle will be a word processor designed to be extremely comfortable to use.

A bridge game program will follow and there will be a selective look at BBC Soft's catalogue to see if there is anything worth enhancing.

All the company's products not specifically for the Archimedes from now on will be compatible across the BBC computer range.

5% OFF!

**5% DISCOUNT TO BEEBUG MEMBERS
ON ALL HARDWARE/SOFTWARE**
Only if you quote your membership number

The products in this price list are available in our showroom in St. Albans and by mail order. Telephone your order on 0727 40303 or send the order form to:

BEEBUG MAIL ORDER
Dolphin Place, Holywell Hill,
St. Albans, Herts AL1 1EX
Tel: 0727 40303—Multi-Lines
Alternatively come along and see us. We are open Mon-Sat 9-5.30 and Thursday 9-8.00pm



ORDERS CAN NOW BE PLACED VIA MICRONET.
SEE US ON PAGE 800909 OR SIMPLY TYPE "BEEBUG#"

PRICES INCLUDE VAT.

THERE ARE TWO PRICES LISTED BELOW FOR EACH ITEM. THE FIRST IS OUR NORMAL PRICE, THE SECOND OUR MEMBERS PRICE.

COMPUTERS

**Master 128
and Compacts**
Down in Price

Master 128 only £414.11
Compact Colour System- £546.25

| | | |
|------------------------------|---------|---------|
| 0264G Archimedes 440 Mono | 2701.35 | 2566.28 |
| 0265G Archimedes 440 Colour | 2873.85 | 2730.16 |
| 0266C 0.5Mb RAM (305 only) | 102.35 | 97.23 |
| 0267F Floppy Disc Drive | 143.75 | 136.56 |
| 0268G 20Mb Hard Disc (300's) | 573.85 | 545.16 |
| 0269C Podule Backplane | 44.85 | 42.61 |
| 0270D ROM Podule | T.B.A. | T.B.A. |
| 0271D I/O Podule | T.B.A. | T.B.A. |
| 0272D MIDI add-on to I/O | T.B.A. | T.B.A. |

PRINTERS

| | | |
|-------------------------------|--------|--------|
| 0199G Compact Entry System | 375.00 | 356.25 |
| 0198G Compact TV System | 390.00 | 370.50 |
| 0197G Compact MonoSystem | 440.00 | 418.00 |
| 0196G Compact Colour Sys. | 575.00 | 546.25 |
| 0227F Second 3.5" Disc Drive | 108.00 | 102.60 |
| 0201B Compact RS232 Interface | 29.90 | 28.41 |
| 0211C PAL TV Adaptor | 29.90 | 28.41 |
| 0250C Compact 5.25" Disc Lead | 12.32 | 11.70 |
| 0298B Compact Printer Lead | 9.77 | 9.29 |

| | | |
|----------------------------|--------|--------|
| 0299G Panasonic KX-P1081 | 180.00 | 171.00 |
| 0311G Taxan Kaga KP815 | 342.11 | 325.00 |
| 0316G Taxan Kaga KP915 15" | 440.00 | 418.00 |
| 0322G LX86 PRINTER | 275.00 | 261.25 |
| 0327G Star NL-10 | 285.00 | 270.75 |
| 0328G Epson FX800 | 405.00 | 384.75 |

MONITORS

| | | |
|----------------------------|--------|--------|
| 0200G Master 128 | 435.91 | 414.11 |
| 0202G Master ET | 359.43 | 341.46 |
| 0240C M128 Manual 1 ADJ22 | 14.95 | 14.20 |
| 0241C M128 Manual 2 ADJ23 | 14.95 | 14.20 |
| 0242C M128 Adv. Ref Man. | 19.00 | 18.05 |
| 0234B M128 Econet Module | 48.88 | 46.43 |
| 0235B M128 Eprom Cartridge | 15.18 | 14.42 |
| 0781B Care Elec. Cartridge | 8.95 | 8.50 |
| 0782B Care 4 Way Cart. | 14.95 | 14.20 |

| | | |
|-----------------------------|--------|--------|
| 0501G Kaga KX118 Green | 100.00 | 95.00 |
| 0502G Kaga KX119 Amber | 100.00 | 95.00 |
| 0556B BNC monitor lead | 3.90 | 3.70 |
| 0503G Zenith 123 12" Green | 83.00 | 78.85 |
| 0504G Zenith 122 12" Amber | 87.00 | 82.65 |
| 0530G Microvitec 1431 Mon. | 239.00 | 227.05 |
| 0531G Microvitec 1451 Mon. | 289.00 | 274.55 |
| 0550B 1.0m Mon. Lead RGB | 5.75 | 5.46 |
| 0573C 14" Swivel Mon. Stand | 14.50 | 13.78 |
| 0535G Supervision 625 RGB | 379.50 | 360.53 |
| 0536G Supervision 620 RGB | 318.55 | 302.62 |
| 0555B Supervision Mon. Lead | 7.00 | 6.65 |
| 0551E Single Master Plinth | 16.10 | 15.30 |
| 0559F Double Master Plinth | 28.75 | 27.31 |
| 0552E Single BBC B Plinth | 12.65 | 12.02 |
| 0553F Double BBC B Plinth | 23.00 | 21.85 |
| 0554B VDU Cleaner | 4.65 | 4.41 |

**Second-hand BBC
machines with three
months warranty
available from just £210.**

DISC DRIVES

ARCHIMEDES

| | | |
|-----------------------------|---------|---------|
| 0190G BBC 305 Entry System | 918.85 | 872.91 |
| 0191G BBC 305 Mono System | 976.35 | 927.53 |
| 0192G BBC 305 Colour System | 1148.85 | 1091.41 |
| 0193G BBC 310 Entry System | 1006.25 | 955.94 |
| 0194G BBC 310 Mono System | 1063.75 | 1010.56 |
| 0195G BBC 310 Colour System | 1236.25 | 1174.44 |
| 0260G Archimedes 410 Entry | 1608.85 | 1528.41 |
| 0261G Archimedes 410 Mono | 1666.35 | 1583.03 |
| 0262G Archimedes 410 Colour | 1838.85 | 1746.91 |
| 0263G Archimedes 440 Entry | 2643.85 | 2511.66 |

| | | |
|------------------------------|--------|--------|
| 0224G Master Disc Drive Unit | 316.00 | 300.20 |
| 0600F Cumana CSX100 40 | 106.95 | 101.60 |
| 0601G Cumana CDX200 40 | 215.00 | 204.25 |
| 0602F Cumana CSX400 40/80 | 142.60 | 135.47 |
| 0610F Cumana CS100 40 | 126.50 | 120.18 |
| 0603F Cumana CS400 40/80 | 162.15 | 154.04 |
| 0604G Cumana CD800S 40/80 | 286.35 | 272.03 |
| 0614F Cumana CS100E | 118.45 | 112.53 |
| 0615F Cumana CS400E | 155.00 | 147.25 |
| 0611A Cumana Disk Guide | 1.90 | 1.81 |
| 0650B 10 Memorex Discs SS 40 | 15.50 | 14.73 |
| 0651B 10 Memorex Discs DS 80 | 25.50 | 24.22 |

Prices Include VAT. There are two prices listed below for each item. The first is our normal price, the second our members price.

| | | |
|---------------------------------|-------|-------|
| 0669B 10 Memorex 3.5" Discs | 25.00 | 23.75 |
| 0652B Disc Head Cleaner (5.25) | 9.65 | 9.17 |
| 0648B Disc Head Cleaner (3.5) | 9.65 | 9.17 |
| 0653B Disc Case (10 discs) | 2.25 | 2.14 |
| 0654C Disc Box (holds up to 50) | 10.00 | 9.50 |
| 0655C Lockable Disc Box (50) | 13.80 | 13.11 |
| 0656C Lockable 3.5" box (50) | 12.11 | 11.50 |

OTHER HARDWARE

| | | |
|--------------------------------|-------|-------|
| 0701B Aries B32 RAM Card | 93.15 | 88.49 |
| 0740B Aries B12 ROM Board | 46.00 | 43.70 |
| 0749B Aries B12C Adaptor | 5.87 | 5.57 |
| 0704B ATPL ROM Board BBC | 39.67 | 37.69 |
| 0735B ATPL Battery Backup | 17.37 | 16.50 |
| 0746B ATPL ROM Board BBC + | 33.35 | 31.68 |
| 0707A 6264 8K RAM | 3.68 | 3.50 |
| 0705A 2764 8K EPROM | 2.64 | 2.51 |
| 0706A 27128 16K EPROM | 6.75 | 6.41 |
| 0715A Dust Cover BBC B/B+ | 3.45 | 3.28 |
| 0734A Dust Cover Master | 4.60 | 4.37 |
| 0718B Delta 3B Single Joystick | 9.99 | 9.49 |
| 0719B Delta 3B Twin Joysticks | 17.00 | 16.15 |
| 0720B Delta 14B Joystick | 12.50 | 11.88 |
| 0721B Delta 14B/1 Interface | 13.00 | 12.35 |

| | | |
|---------------------------------|--------|--------|
| 0773B Delta 3S Compact Joystick | 9.99 | 9.49 |
| 0774B Delta 3SO Optical F/back | 18.00 | 17.10 |
| 0741A Delta ASC/B Interface | 8.50 | 8.07 |
| 0764F Red Box Starter System | 129.00 | 122.55 |
| 0765D Red Leader | 59.95 | 56.95 |
| 0766D Red One | 34.95 | 33.20 |
| 0767D Red Two | 34.95 | 33.20 |
| 0775C Red Five | 49.95 | 47.45 |
| 0770B 13 amp spike plug | 11.99 | 11.39 |
| 0771B 3 way spike adaptor | 15.00 | 14.25 |
| 0772B 4 way spike strip plug | 14.50 | 13.78 |

COMPUTER CONCEPTS

| | | |
|--------------------------------|-------|-------|
| 1118B Spellmaster | 55.00 | 52.25 |
| 1117B Interword | 50.03 | 47.52 |
| 1110B Intersheet | 44.85 | 42.61 |
| 1114B Interchart | 29.90 | 28.41 |
| 1116B Interbase | 67.85 | 64.46 |
| 1100C Wordwise Plus | 46.00 | 43.70 |
| 1102B Wordwise | 28.75 | 27.31 |
| 1104B Printmaster (Epson) | 28.00 | 26.60 |
| 1115B Speech System incl.TTS | 30.99 | 29.44 |
| 1108B Acorn Speech Proc (5220) | 10.00 | 9.50 |
| 1111B Hi Intersheet Disc | 5.75 | 5.46 |
| 1112B Hi Wordwise+ Disc | 5.75 | 5.46 |

| | | |
|---------------------|-------|-------|
| 1113B Caretaker ROM | 28.75 | 27.31 |
|---------------------|-------|-------|

BEEBUG MODEM

| | | |
|--------------------------|--------|-------|
| 0762E BEEBUG Magic Modem | 84.11 | 79.90 |
| 0763E Modem + Command | 104.20 | 99.00 |

Carriage

Carriage is denoted by the letter contained in the stock code. A-50p, B-£1, C-£2, D-£3, E-£3.75, F-£5.50, G-£7. When ordering several items, use the highest price code and half of each subsequent code. For courier delivery use code G.

Offical Orders

Orders for £25 or over are welcome from education and government bodies. Alternatively pro-forma invoices are available on request.

Credit Cards

Access and Visa orders are welcome, and may be placed by letter or telephone.

BEEBUG LTD.,

Dolphin Place, Holywell Hill, St.Albans, Herts., AL1 1EX.

(0727) 40303

Trade-in your BBC or Master for a new Archimedes. Please telephone for details.

Order your Archimedes Now

To order your Archimedes, simply fill in the reservation form below and send it to us at BEEBUG. All orders will be processed in strict sequence. Archimedes 440's are expected in November with 410's following in the first quarter of '88.

Reservation Form

| Computer Model | Basic | with Mono Monitor | with Colour Monitor |
|----------------|---------|-------------------|---------------------|
| Archimedes 305 | 872.91 | 927.53 | 1091.41 |
| Archimedes 310 | 955.94 | 1010.56 | 1174.44 |
| Archimedes 410 | 1528.41 | 1583.03 | 1746.91 |
| Archimedes 440 | 2511.66 | 2566.28 | 2730.16 |

Access/Visa accounts and cheques will not be cashed until your new computer is actually sent.

Please appropriate box Please add £7 for Courier Delivery

Access/Visa No. ____/____/____/____ Card Expiry Date ____/____

Name: _____

Address: _____

Post Code: _____

Beebug Membership Number: _____ Signature _____

Please if you would like to trade-in your BBC or Master Computer

Model of Computer (e.g. BBC/B+/Master/Turbo/512) _____

Prices include VAT and 5% Members discount.



Don't let your Computer ROT!

Your BBC Micro/Master Has So Much Potential – Don't Let It Go To Waste

At Beebug we are keen to help you get serious with your computer. Our magazine (currently sent out to 20,000 members) aims to stimulate you with new and interesting ideas and to keep you up to date with the latest developments and programs.

Whether you are a hardened computer buff or a complete beginner, Beebug has much to offer you.

As A Member Of Beebug You Would Benefit From:

- Free access to our technical support team, to obtain impartial advice and help on any computer hardware, or software problems.
 - A swift mail-order service for all your hardware & software needs at competitive prices, with 5% members discount.
 - A showroom with knowledgeable staff on hand, where you can try out the latest hardware, peripherals and software.
 - Free personal adverts in the magazine to sell your unwanted kit.
 - A Trade-In service to upgrade your BBC to a Master.
- A New Members Pack, including screen planning sheets, key strip, computer reference card & a 56 page introduction to your computer.*

Recent issues of Beebug have included informative features and programs on the following subjects:

Business Graphics, Sideways Ram Construction Project, Home Banking, Sorting Data Files, Character Definitions, Storage Oscilloscope, Master Printer Buffer, File Security, Letter Headings, Virtual Arrays, View Printer Driver, Auto-Alarm, Chart Recorder, Help System.

As well as these we regularly include articles for beginners and experts, workshops, reviews, news, hints & tips and much, much more.

FOR A FREE BEEBUG INFORMATION PACK PHONE St. Albans (0727) 40303

I would like to subscribe to Beebug for 1 year and receive a new members pack and the next 10 issues of the magazine.
My machine is a BBC/Master/Compact. Delete as appropriate.

Name _____

Address _____

Signature _____

MU8

I enclose a cheque for £ _____ / Please debit my Access/Visa account with £ _____ Card expiry _____ / _____

Card No.



Subscriptions may now also be placed on Micronet 800. Just type *BEEBUG #

All payments must be in pounds sterling. Cheques must be drawn on a UK bank.

Subscription Rates

| | |
|------------------|--------|
| UK, BFPO, Ch Is | £12.90 |
| Rest Of Europe | £19.00 |
| Middle East | £23.50 |
| America & Africa | £26.00 |
| Elsewhere | £28.00 |

BEEBUG

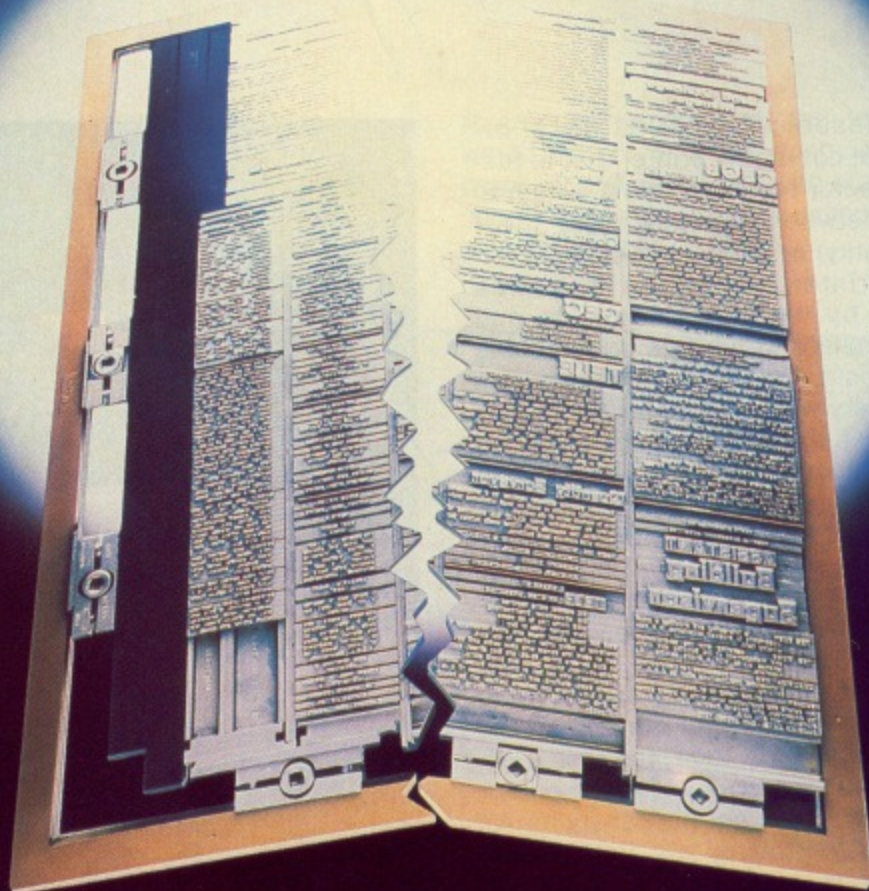
Send To Beebug, Dolphin Place,
Holywell Hill, St. Albans, Herts. AL1 1EX.
Or Phone St. Albans (0727) 40303

Stop The Rot And Join Now



The old technology is dead.

Join the revolution!



The printing industry has been rocked to the core by an ever-growing series of developments in the exciting new field of Desktop Publishing.

Traditional ways of producing the printed page have been revolutionised.

Now anyone can use a home or office micro to design and typeset anything from books and newsletters to advertisements and company reports.

With the latest methods it can all be done at a fraction of the conventional cost. And much quicker and easier than ever before.

Here's a unique opportunity to find out more about this bustling new industry – the first Desktop Publishing Show. All the major companies will be demonstrating their latest products. And there will be seminars throughout each day to tell you exactly how you or your company can benefit most from the Desktop Publishing revolution.

In addition, each visitor will receive a free copy of the Desktop Publishing Yearbook, worth £5 – packed with facts and figures on the most fascinating development in print technology since Caxton.

Desktop Publishing ¹⁹⁸⁷ SHOW

October 15, 16 & 17

**Business Design Centre
Islington, London N1**

Organised by Database Exhibitions



Sponsored by Pira, the UK technology centre for the printing and publishing industry

No admission charge. Please complete this coupon for your tickets.

Post to: Norah Hodgson, Database Exhibitions, Europa House, 68 Chester Road, Hazel Grove, Stockport SK7 5NY.

Please send me _____ FREE tickets to
The Desktop Publishing Show 1987

Name _____

Position _____

Address _____

_____ Postcode _____

NO PERSONS UNDER 18 ADMITTED

SHOW HOTLINE: 061-480 0171

A095

Peter Davidson puts

Panasonic's KX-P1081

printer through its paces

THE Panasonic KX-P1081 is a bi-directional dot matrix printer that is friction or tractor feed and has a switch to choose between standard, NLQ (near letter quality) or condensed print.

The printer reviewed here was supplied by Watford Electronics and came complete with a free printer cable and Dumpout 3 rom. A screen dump rom is necessary with any printer and it was nice to open the box and find a complete printing package.

The rom was fully reviewed in the February 1985 issue of *The Micro User* so beyond saying that it certainly works well with the KX-P1080 and now has an interrupt driven screen dump I won't be receiving it here.

There are three buttons on the right-hand side of the printer controlling the online status, form feed and line feed. The feed buttons work while the printer is online so it was not necessary to use the button controlling this, unlike many other printers.

Above these switches are three small lights – power, paper/error and online. Power and online remain lit while the printer is being used and the centre one indicates things like paper-out or jammed.

The mains lead is permanently connected to the rear of the printer but needs a plug fitting. As it can't be removed, it gets in the way slightly if you move the printer, but at least you can't lose it.

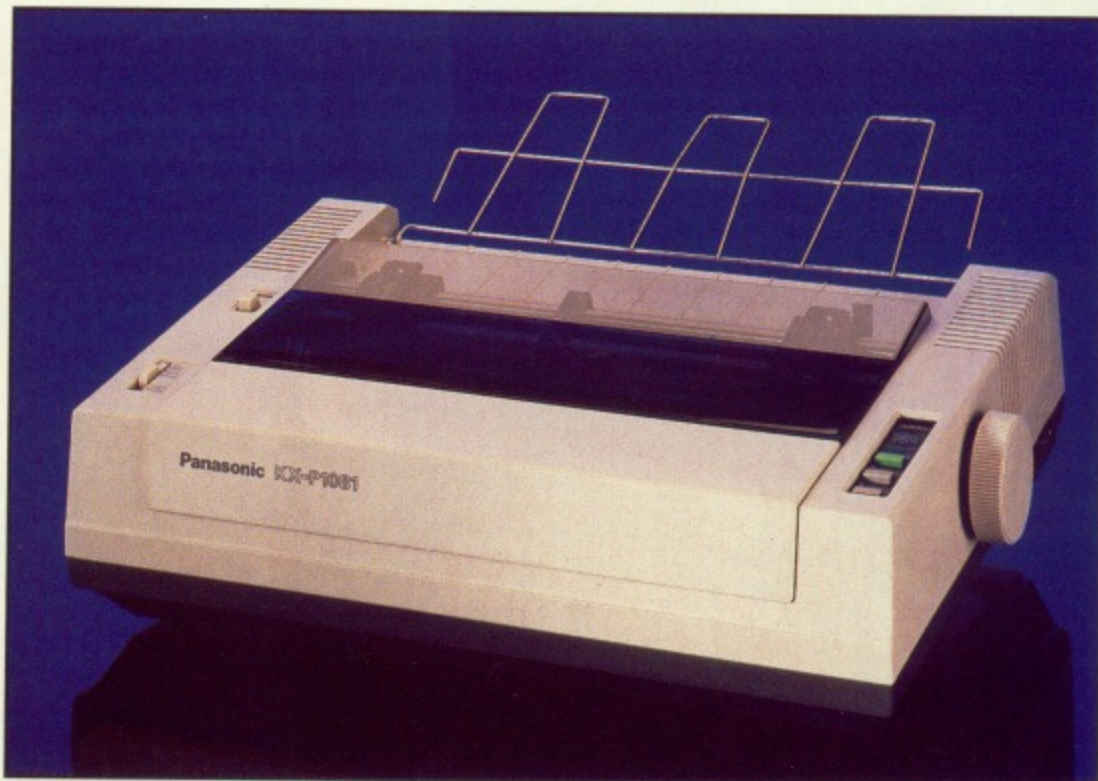
The dip switches are easily accessible under a piece of plastic near the print head. Flick it out of the way and the switches can be moved without searching for a screwdriver.

Epson compatibility is a feature advertised by many printer manufacturers. But just how compatible is compatible? Figure I shows the control codes and a P or E in the left-hand column shows ones applicable to Panasonic or Epson printers only. The Epson codes shown are those for an FX80 together with the extra ones from the LX-85.

A feature I occasionally require that was not available on the Panasonic was reverse paper feed, but this was more than compensated for by all the extra ones offered over my Epson FX80. This printer has been so well accepted in the office that someone asked if another printer is Panasonic compatible.

The KX-P1081 is rated at 120 characters per second. I compared the speed with an Epson FX80 rated at 160cps and found very little difference. In NLQ mode the speed drops to 24cps so it's a good idea to check the document in draft before moving to NLQ.

In some circumstances the Panasonic is faster than the Epson. A point to bear in mind when you choose a printer is that



An ideal companion

Product: KX-P1081 Panasonic Printer
Price: £178.25
Supplier: Watford Electronics, Jessa House, 250 Lower High Street, Watford WD1 2AN.
Tel: 0923 3774

speed is affected by things like head turn around time so the cps, while being an indication, does not give the whole story.

There is a built-in 1k buffer so a small document can be sent to the printer whole and you can continue working as it prints. Unfortunately there is no flush buffer button so if you make a mistake you have to wait while it empties or switch off.

The print head has nine pins and these are used to give a 9x9 matrix. In NLQ the matrix is 18x18. You can see from Figure I that a wide variety of typefaces and styles are available. The Figure itself was printed after sending the codes 27,33,4,27,83,1,27,65,4.

Figure II shows some of the many typefaces available and Figure III shows some NLQ text. As with all printers not all combinations of styles are available, but all the important ones such as NLQ italics are.

If the character you want is not avail-

able you can easily define your own. If you've ever defined a character on a micro you should have no problem. The horizontal and vertical lines in tables can easily be created using underline to draw across and by redefining ! (character 33) using the codes 27,121,33,0,0,0,0,255,0,0,0,0 to give upright bars.

The NLQ feature can be implemented using the switch on the left hand side of the printer or by sending control codes. It is slower than draft because the printer outputs part of the letters, moves the paper slightly and then goes over them again to give four times the dot density. The last line of Figure III shows a line of text interrupted during the second pass of the print head.

Printing is rather noisy compared to more expensive printers, but it is acceptable. It can be quietened using the half-speed and/or single-direction printing modes, but I'd rather put up with the noise and benefit from the speed.

Fanfold paper feeds in easily but you must ensure you feed it straight in at the back otherwise it soon snarls up. There is no tear bar so you have to move forward to the next perforation to tear the paper easily.

The ribbon is a cartridge type and drops in with no problems at all. It's

claimed to last for two million characters and there's a small button at the back of the cartridge you depress once printing becomes faint. This re-inks the ribbon and allows a further one million characters to be printed.

The manual is well written and far easier to understand than many I have seen. One of the appendices gives a summary of the features available, the code required to get them (in the form, for example, ESC+S+0) and a page reference. That page translates this to 27,83,n where n=0,48,178,176. A little confusing and all the options for n don't help, but far more helpful than the more usual form that the Escape codes are given in.

Each feature has a simple example to go with it. Unfortunately, they're not written for a BBC Micro and they're not even all for the same micro. In some a simple change of LPRINT to PRINT and the addition of a *FX3,2 at the start and *FX3,4 at the end allows the demonstration to be used on a BBC Micro.

Other sample programs require the

removal of the WIDTH and OPEN commands together with the #1s from the PRINTs. Add the FXs at the start and end and they work.

Overall this printer is excellent value

for money. It does all the tasks you would expect of a low-cost dot matrix machine and works well with all the software I tried. It's an ideal companion to your BBC Micro.

Figure 1: A wide variety of styles is available

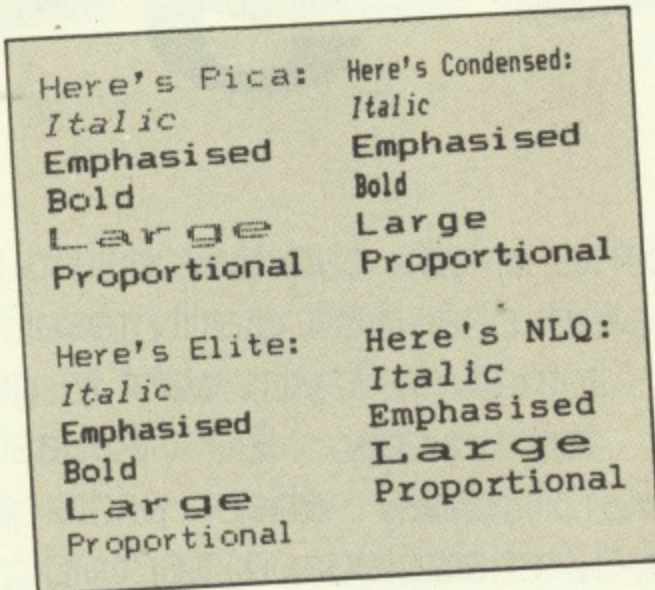


Figure II: Sample styles

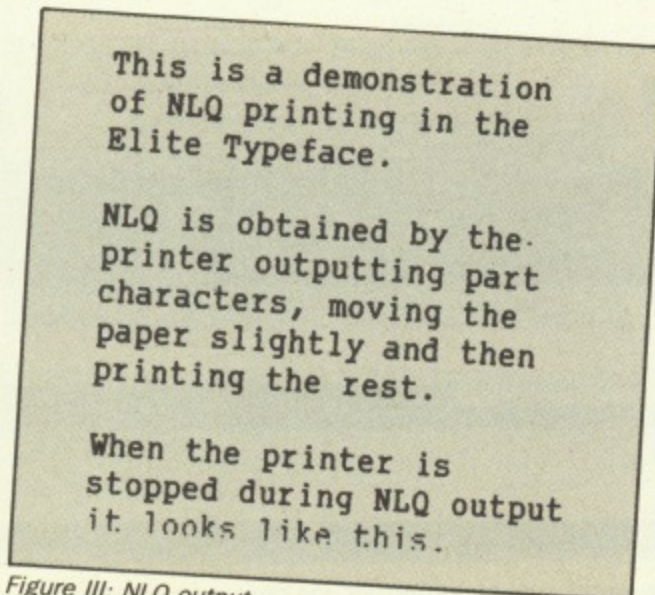


Figure III: NLQ output

| CHARACTER MODE | |
|--------------------------------|-----------------------|
| Cancel condensed | 18 |
| Cancel one-line double width | 20 |
| Set condensed | 18 |
| Set one-line double width | 14 |
| Set pica pitch | 27,80 |
| Set elite pitch | 27,77 |
| Set double width | 27,87,1 |
| Cancel double width settings | 27,87,0 |
| Set superscript mode | 27,83,0 |
| Cancel sub/superscript mode | 27,84 |
| Set subscript | 27,83,1 |
| Set italic | 27,52 |
| Cancel italic | 27,53 |
| Select international set | 27,82,n |
| Set emphasised print | 27,59 |
| Cancel emphasised print | 27,70 |
| Set double printing | 27,71 |
| Cancel double printing | 27,72 |
| Set underline | 27,48,1 |
| Cancel underline | 27,48,0 |
| Specify mode combination | 27,33,n |
| P Set NLQ (pica pitch) | 27,110 |
| P Set NLQ (elite pitch) | 27,111 |
| P Select character pitch | 27,119,n |
| Select NLQ font | 27,120,1 |
| Select draft font | 27,120,0 |
| Set proportional spacing | 27,112,1 |
| P Cancel proportional spacing | 27,112,0 |
| BIT IMAGE (GRAPHICS) MODE | |
| Set single density | 27,75,n1,n2 |
| Set double density | 27,76,n1,n2 |
| Set double speed, density | 27,89,n1,n2 |
| Set quadruple density | 27,90,n1,n2 |
| Select 8-pin image mode | 27,42,a,n1,n2 |
| Select 9-pin image mode | 27,94,a,n1,n2 |
| Assign bit image density | 27,63,n,e |
| LINE SPACING | |
| Line spacing 1/8" | 27,48 |
| Line spacing 7/72" | 27,49 |
| Line spacing 1/6" | 27,50 |
| Line spacing n/72" | 27,65,n |
| Line spacing n/216" | 27,61,n |
| Spaces n/216" (1-line only) | 27,74,n |
| PAPER FEED | |
| Moves to next top of form | 12 |
| Moves paper one line | 10 |
| Set skip perforation | 27,78,n |
| Cancel skip perforations | 27,79 |
| E Reverse feed | 27,106,n |
| Paper feed execution | 27,74,n |
| PAGE FORMAT | |
| Print then backspace one | 8 |
| Executes horizontal tab | 9 |
| Executes vertical tab | 11 |
| Set horizontal tab | 27,68,n1,...,nx,0 |
| Cancel horizontal tab | 27,68,0 |
| Set horizontal tab | 27,101,0,n |
| Set vertical tab | 27,66,n1,...,nx,0 |
| Cancel vertical tab | 27,66,0 |
| Set vertical tab | 27,101,1,n |
| Set page length in inches | 27,67,0,n |
| Set page length in lines | 27,67,n |
| Set column head (Left Margin) | 27,73,n |
| Set column end (Right Margin) | 27,81,n |
| Skips "n" position on line | 27,102,0,n |
| Skips "n" lines | 27,102,1,n |
| WORD PROCESSING | |
| Enables left alignment | 27,97,0 |
| Enables auto centering | 27,97,1 |
| Enables right alignment | 27,97,2 |
| Enables auto justification | 27,97,3 |
| DATA CONTROL | |
| Clears data in buffer | 24 |
| Deletes last character | 127 |
| Selects printer | 17 |
| Deselects printer | 19 |
| DOWNLOAD CHARACTER | |
| P Define download character | 27,121,loc,D1,D2,..D9 |
| P Cancel download character | 27,122,loc |
| MISCELLANEOUS | |
| Homes print head | 27,60 |
| Initializes the printer | 27,64 |
| Set half speed | 27,113,1 |
| Releases half speed | 27,113,0 |
| Set single direction | 27,85,1 |
| Releases single direction | 27,85,0 |
| P Enables paper-end detection | 27,57 |
| P Disables paper-end detection | 27,56 |

E=Epson only
P=Panasonic only

Reliable that leave you

There's no disputing the fact that Panasonic make a range of extremely reliable printers.

We've proved it by testing them in temperatures that would make other printers grind to a halt. It's the high standard of design, manufacturing and quality control which goes into every Panasonic product that makes our printers so reliable.

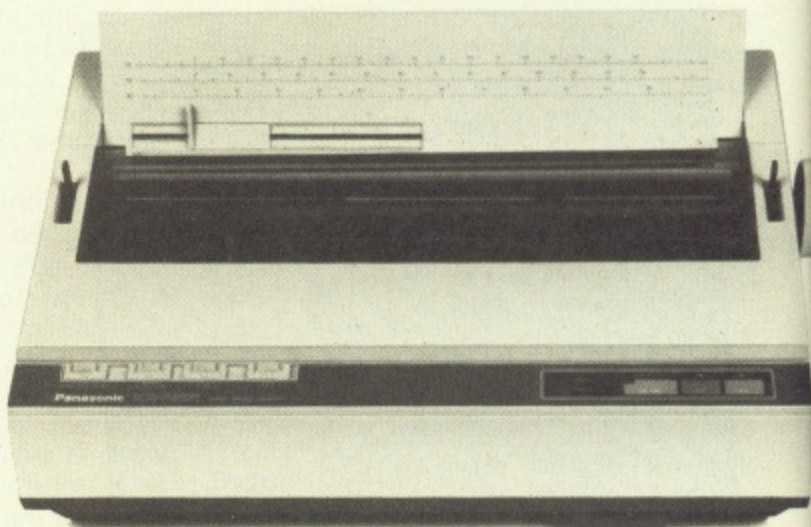
But reliability isn't at the expense of performance.

The KX-P1081 Dot Matrix model, for example, zips through your documents at 120 characters per

second, or you can switch it to print excellent near letter quality results. B

Alternatively, if you want to go all B out for quality, the Panasonic KX-P3131 Daisy wheel prints at a busy 17 characters per second. C

The results were impressive a



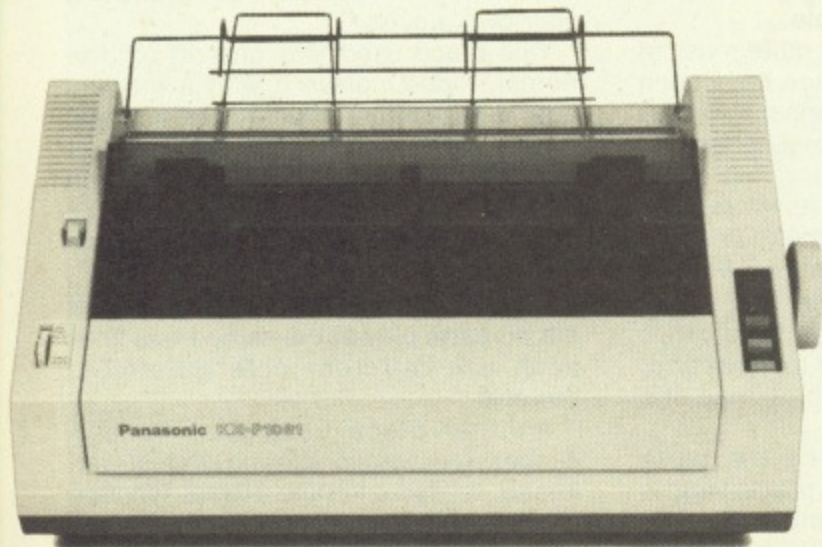
eprinters G won't ou broke.

print enough to scoop a coveted "Best Buy" award from "What To Buy For Business Magazine."

s. Naturally all our printers are compatible with almost every computer and software package available. And there can be no

argument about the price, which leaves just one thing to be resolved. Which Panasonic do you choose?

Clip the coupon below or call Julie Everard for more information about the full range of Panasonic printers.



To: Panasonic Industrial UK Limited, 280-290 Bath Road, Slough, Berkshire SL1 6JG. Telephone: Julie Everard on 0753 73181. Please send me details on the full range of Panasonic printers.

Name _____

Position _____

Company _____

Address _____

Post Code _____

Tel. No. _____

Panasonic
Office Automation

MU9 87

Ian Waugh makes
computered music with
the Hybrid Music System

The Music Micro

MUSICIANS have done many strange things to music over the years in their search for new styles and forms of expression. Sound can be treated in an infinite number of ways with reverb, echo, chorus and delay effects. Sounds can be speeded up, slowed down and altered harmonically, often beyond recognition of the original sound.

These experiments have been going on for years – even before the advent of the computer. What has been less common is the processing of the actual music lines.

Terry Riley gave music processing widespread attention with his *Rainbow In Curved Air* and much serial music uses similar melodic lines in a variety of ways. But these ideas are by no means new and their origins can probably be traced back to simple sounds such as London's Burning and Frere Jacques.

Such processing and manipulation is usually produced manually. That is, someone has to physically play all the parts (although they may later be manipulated by signal processing equipment). In many ways this limits the intricacy and complexity of the pieces, as ultimately everything must fit exactly. A task for the computer you might think – and you'd be right.

One of Hybrid Music System's many unique features is its ability to process music with the Ample language. It can be used to enter traditional music – often quite easily and economically – but it can also be used to apply programming functions to music.

As the system gives you full control over every aspect of the finished piece, from instrument creation to the arrangement, you can effectively use the language to alter any aspect of the music.

In case this is beginning to sound like an academic discussion on music composition, fear not. The idea is not as complex as it may seem and it's quite easy to implement in Ample.

The results, too, can be quite musical and some pieces I've written have been said to sound like *Tangerine Dream* (I didn't say that) and serial and minimalist music.

The piece presented here, *Adea*, only processes one aspect of the music, the tune itself. The instruments are all predefined and the mix remains static, but do listen to it in stereo if you can.

The piece only uses four musical riffs, the bass riff – *br1* – and three lead riffs – *lr1*, *lr2* and *lr3*.

These are processed by the parts which play them and the processing is quite simple: Each part plays its allocated riff with a different instrument (*delstring* is used twice, however) and with different note durations. A series of

rests is used to delay the entry of some of the parts. The piece gradually builds up until all eight parts are playing and then they fall out one by one.

The idea is quite simple, but it took a lot of trial and error to get it sounding right – the musician and his ear are still required and are, ultimately, the final judge.

The piece was originally conceived mathematically as a number of parts, each playing their riff a certain number of times, at different speeds and at different octaves.

The musical reality was not as perfect as the original mathematical model suggested (hence the tweaking) proving – to me at any rate – that although maths and music have their links, a good mathematical model does not necessarily produce good music.

If you examine the arrangement, however, you will see its underlying mathematical structure.

You can experiment quite freely with the arrangement, and here the computer has one enormous advantage over traditional recording procedures. A single part, arrangement or instrument can be altered very easily and quickly without disturbing the rest of the composition.

It would, in fact, be virtually impossible to create and edit a similar sort of piece using anything other than a MCL (Music Composition language) and a computer.

This is a simple example of how Ample can be used effectively to produce interesting and viable music.

You could also apply programming functions to the instruments and the mix so instruments change timbre and stereo position during play. The possibilities are enormous.

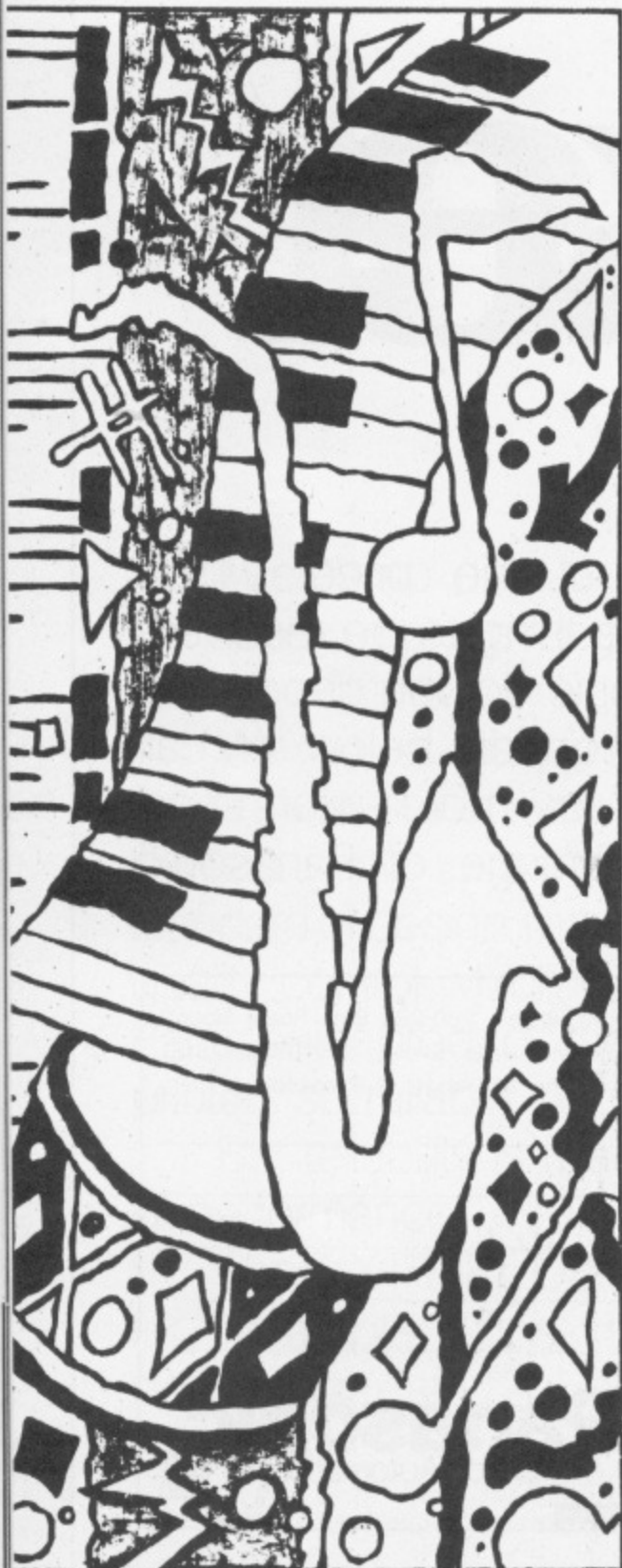
I've composed other pieces using variations on the above theme. I'll pass on a few of the processes I've used which will hopefully stimulate you into producing your own pieces.

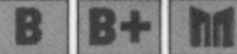
One piece used only one riff (of five notes) – *part1* plays it with a medium note duration in a middle-octave range. After a delay, *part2* joins in playing it at half the speed at a lower octave. Then *part3* comes in playing it at twice the speed of *part1* and at a higher octave. Get the idea?

Another piece again uses only one riff but all parts play at the same time. They each use different note durations, however.

Another piece uses echo to pan successive voices around the stereo image. It also uses the TRANS function to transpose each echo.

You can impose random durations and delays to pieces and may like to experiment with *Adea* by substituting random





delays in place of the fixed delay before each part enters.

Random values can be assigned to any parameter, even notes and instrument parameters. Using random numbers and IF... ELSE constructions you can make a part play different riffs.

You can experiment with different scales — such as ethnic scales — quite easily, too. A tune can be entered in a traditional key and various key signatures applied before playing.

For example I wrote a variation on Good King Wenceslas (not long till

Christmas now.) in F (one flat) and then played it with the following flattened notes: B, D and G. Then with B, E, D and G to give the piece a gypsy or eastern flavour. It's very easy in Ample to alter the key of a piece and use non-standard key signatures.

All these examples are simple to implement in Ample and I'm sure you can see how difficult — or impossible — they would be to produce using traditional music recording techniques, even with a room full of computer-driven Midi sequencers.

Adea runs on the Music 5000, or Music 500 with upgrade. A list of the words it uses is given at the top of the listing.

You can type the words and their definitions directly into the command area (press Tab after booting your system when in menu mode) using the same layout as appears in the listing, but you only need to enter the approximate number of spaces shown in the instrument definitions.

Save the program — just in case — then type RUN.

```
"RUN" [ ] "basstring" [ ] "block1" [ ]
"br1" [ ] "delstring" [ ] "ekopipe" [ ]
"glock" [ ] "info" [ ] "lr1" [ ]
"lr2" [ ] "lr3" [ ] "mix" [ ]
"part1" [ ] "part2" [ ] "part3" [ ]
"part4" [ ] "part5" [ ] "part6" [ ]
"part7" [ ] "part8" [ ] "phastring" [ ]
"plink" [ ] "pluck" [ ]
```

```
"RUN" [7 MODE DISPLAY
%      Adea
%      by
%      Ian Waugh
%
%      Version 1.0
%
info "12345678"PLAY ]
```

```
"basstring" [2 CHANS
1 CHAN ON RM
2 CHAN 1 OFFSET
EVERY CHAN
Hollow Slowvib Swell
118 AMP ]
```

```
"block1" [2 CHANS
1 CHAN Pure Flat Short
2 CHAN Hollow Flat Short
128 AMP
EVERY CHAN ]
```

```
"br1" [A/// "D/// "E/// "A///
"e/// "d/// "a/// /// ]
```

```
"delstring" [2 CHANS
1 CHAN ON RM 20 OFFSET ON INVERT
2 CHAN 128 AMP
EVERY CHAN
Round Delvib Swell
ON PHSET ]
```

```
"ekopipe" [2 CHANS
2 CHAN 183 SHIFT 128 AMP
EVERY CHAN
Round Delvib Echohit
ON PHSET ]
```

```
"glock" [2 CHANS
1 CHAN Clear Long Delvib
2 CHAN High Flat Short
128 AMP
EVERY CHAN ON PHSET ]
```

```
"info" [DISPLAY
```

%Only The notes A, D, E and A are used
%In this composition - hence the name
%There is one bass riff - br1 - which
%is played with different note durations
%by the first 4 parts. Parts 5 to 7 play
%combinations of the 2 sets of notes -
%lr1 lr2 lr3 - with different note
%durations. The piece builds up as each
%part enters then fades away as they
%drop out.

```
"lr1" [
'ADDaDDaD 'DaDDaDDa 'DDaDDaDD 'aDDaDDaD
'DaDDaDDa 'DDaDDaDD 'aDDaDDaD 'DaDDaDDa
'DDaDDaDD 'aDDaDDaD 'DaDDaDDa 'DDaDDaDD
]
```

```
"lr2" [
'DEEdEEdE 'EdEEdEEd 'EEEdEEdE 'dEEdEEdE
'EdEEdEEd 'EEEdEEdE 'dEEdEEdE 'EdEEdEEd
'EEEdEEdE 'dEEdEEdE 'EdEEdEEd 'EEEdEEdE
]
```

```
"lr3" [
'EAAeAAeA 'AeAAeAAe 'AAeAAeAA 'eAAeAAeA
'AeAAeAAe 'AAeAAeAA 'eAAeAAeA 'AeAAeAAe
'AAeAAeAA 'eAAeAAeA 'AeAAeAAe 'AAeAAeAA
]
```

```
"mix" [M5MIX 48,100=T 0 MSTUNE
1 SHARE 1 VOICES delstring
1 VOICE 108 VOL 0 PAN
2 SHARE 1 VOICES basstring
1 VOICE 108 VOL 2 PAN
3 SHARE 1 VOICES phastring
1 VOICE 108 VOL -2 PAN
4 SHARE 1 VOICES delstring
1 VOICE 108 VOL 0 PAN
5 SHARE 1 VOICES plink
1 VOICE 128 VOL -1 PAN
6 SHARE 1 VOICES pluck
1 VOICE 108 VOL 1 PAN
7 SHARE 1 VOICES block1
1 VOICE 128 VOL -3 PAN
8 SHARE 1 VOICES ekopipe
1 VOICE 128 VOL 3 PAN
PNUM SHARE ]
```

```
"part1" [SCORE 192, -2:
br1 -2: 3FOR(br1)FOR ^ ]
```

```
"part2" [SCORE 192, -2:
^ br1 2FOR(////)FOR
1: 2FOR(br1)FOR ^ ]
```

```
"part3" [SCORE 192, -2:
^^ br1 4FOR(////)FOR
1: 2FOR(br1)FOR ^ ]
```

```
"part4" [SCORE 192, -2:
^^^ br1 6FOR(////)FOR
1: 2FOR(br1)FOR ^ ]
```

```
"part5" [SCORE 192,
8FOR(////)FOR 12, 49=L
16FOR(2: lr1)FOR ^ ]
```

```
"part6" [SCORE 192,
10FOR(////)FOR
3, ^^ 12, 49=L
12FOR(1: lr2)FOR ^ ]
```

```
"part7" [SCORE 192,
12FOR(////)FOR
3, ^ 12, 49=L
8FOR(2: lr3)FOR ^ ]
```

```
"part8" [SCORE 192,
14FOR(////)FOR
3, ^^ 12, 49=L
4FOR(1: lr1)FOR ^ ]
```

```
"phastring" [2 CHANS
2 CHAN 100 OFFSET 128 AMP
EVERY CHAN
Bright Delvib Swell ]
```

```
"plink" [2 CHANS
2 CHAN 100 SHIFT
EVERY CHAN
Pure Flat Short
ON RM 20 PITCH ON PSENS ]
```

```
"pluck" [2 CHANS
1 CHAN 1 SHIFT ON RM
2 CHAN -1 SHIFT 128 AMP
EVERY CHAN
Hollow Slowvib Percuss ]
```

This is one of hundreds of programs available FREE for downloading on

MicroLink

In addition to these many BBC Micro programs in the MicroLink library will also run on the Electron.

This listing is included in this month's tape & disc offer. See order form on Page 141.

TELETEXT ADAPTER

Would you like access to free high quality software and over a thousand pages of information, but Prestel access charges and phone bills too expensive? Then read on!

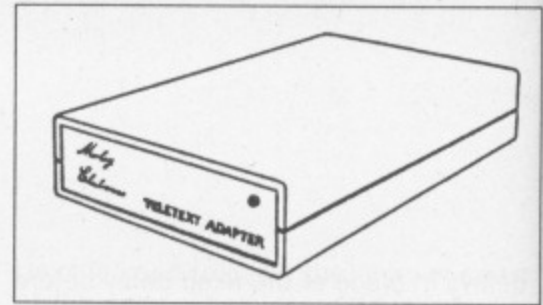
The answer is Teletext. Yes the same system everyone has seen incorporated into television sets, but with a difference. When Teletext is read by a computer you can actually use the data. The MORLEY TELETEXT ADAPTER introduces you to the world of Teletext at a price that won't break the bank. Inside it you will find the latest in second generation Teletext chip technology, which unlike our rivals who are still using chips designed more than ten years ago, will be fully compatible with any future advances in the Teletext system. With the Morley adapter you will get a state of the art unit that automatically tunes itself into the required station (no more messing around with screwdrivers or twiddling little knobs in the back of the case), a user friendly menu driven program, easy to follow instructions and a 12 month warranty. Add to this the free downloadable telesoftware and we are sure that you will agree that we are offering you one of the best bargains on the market today.

FEATURES:

* Advanced design uses the latest technology, will handle ANY future enhancements to the Teletext

system e.g.: full field; 8 bit data transfer; 2k pages etc.

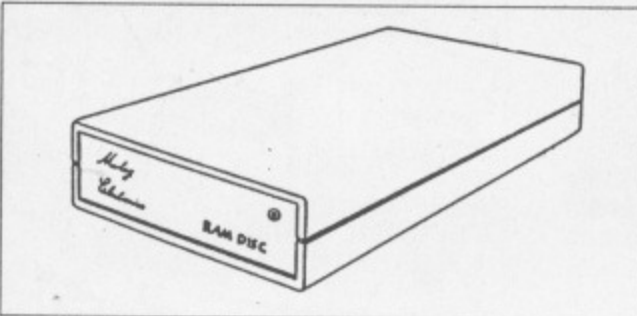
- * Simply plugs into the user port.
- * Low power consumption, less than 200ma. Optional power supply available.
- * User friendly menu driven software including extended OSCLI and OSWord commands for access from BASIC programs.
- * Supplied with 16k ATS (Advanced Teletext Software) and 16k support ROM software inc. printer dumps, page spoolers etc.
- * FREE Telesoftware, no access charges (updated weekly).
- * Save selected pages to disc/tape for later retrieval.
- * Full access to all Teletext services and channels e.g.: CEEFAX, ORACLE, 4-TEL.
- * Gives you a real-time clock at your disposal (*TIME).
- * Software upgrades to allow for any enhancements to the Teletext service, e.g.: extra channels, full field data on cable & satellite systems etc. (only the media charge).
- * Easy to follow comprehensive user guides.
- * No hardware limitations, it can for example receive virtually unlimited numbers of channels.
- * Utils disc available including printer drivers allows pages to be selected and dumped direct to a printer



(no more TV or Radio Times to buy).

WHAT THE REVIEWERS SAID:

"... In terms of price, performance, future expansion possibilities and those little touches that show thought for the end user I would recommend the Morley unit."—(*Acorn User*, January, 1986).
 "... The Morley unit has been designed to ensure that its operation is simple and smooth. It is the ideal Teletext adapter for school use."—(*A&B Computing*, June, 1986).
 "... Using it over a number of months in different schools, it has proved utterly reliable, and may confidently be recommended."—(*The Times Educational Supplement*, September, 1986).
THIS IS THE BIGGEST SELLING TELETEXT ADAPTER CURRENTLY IN PRODUCTION WORLDWIDE, AND COMES WITH A FULL MONEY BACK SATISFACTION GUARANTEE.



Now available!
 The first true MEGA capacity RAMdisc for the BBC, BBC B+ and MASTER computers. This fully compatible unit, currently available in either 1 or 2

megabyte versions comes complete with operating software on ROM, power supply, and a comprehensive user guide.

FEATURES:

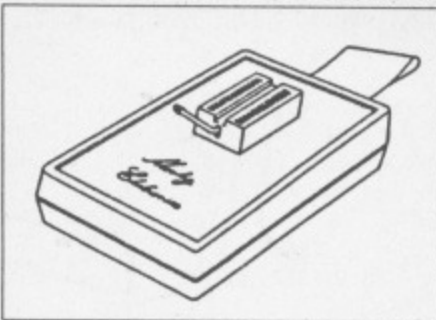
One megabyte of RAM connected to the 1MHz bus. Used with the supplied ROM software programs and files may be saved and loaded from the RAMdisc in the same manner as from a floppy disc with a large increase of speed, for example, a 20k mode 0 screen takes about 3-4 seconds to load from disc and about 0.2-0.3 seconds to load from the RAMdisc. The RAMdisc ROM operates as a utility ROM

RAMDISC

working with the current filing system rather than as a separate filing system. Therefore ensures compatibility with any Acorn compatible DFS (not ADFS). The RAMdisc can be selected by a * command to take the place of any drive number from 0 to 9. If the RAMdisc replaces a floppy drive as 0 for example, all commands addressed to drive 0 will be intercepted by the RAMdisc. The default drive number is 4. Any 'Dangerous' commands such as *COMPACT, *COPY, *BACKUP etc can be intercepted and the BBC's RAM from page 2 to &7FFF saved to RAMdisc workspace, and may be recovered using a *command. This prevents accidental corruption of any programs/data in RAM you may have been using at the time. The filing system wedge ROM supplied supports load/save, byte file access, all relevant OSFSC commands, and contains a formatter verifier and 'sector' editor for use with the RAMdisc. Catalogue structure allows up to 2,688 files.

Well that's the spec., add to this our usual 12 month no quibble guarantee and we're sure you'll agree the Morley RAMdisc is the sensible alternative if increased storage capacity and speed is your requirement.

EPROM PROGRAMMER V2



The MORLEY EPROM PROGRAMMER V2 is a small self contained unit that plugs into the BBC or MASTER user port. It comes with a high quality ZIF (zero insertion force socket) and contrasting plastic case. Also included in the package is it's own user friendly menu driven software on ROM or disc.

This state of the art unit, allows programming of 2764 (8k), 27128 (16k), and 27256 (32k) EPROMS. Not only does the hardware allow

programming of the usual NMOS devices, but will handle the new generation CMOS equally as well, and with the average time taken to program a 16k at less than 30 seconds we believe it to be one of the fastest programmers available today.

THE HARDWARE

The Unit is completely under software control, there are no knobs or switches to baffle the novice, and the extended features provided should excite the pro's.

THE SOFTWARE

The comprehensive user friendly software included in the package has two main parts, the first allows EPROMS to be read, programmed, verified and edited, also allowing a ROM image to be loaded or saved to disc. The second is a full ROM management system in its own right, which has a host of useful features and routines, such as KILL and RESURRECT ROM to disable or enable a sideways ROM, dump ROM image to buffer or disc, move ROM image in buffer to sideways RAM, and VIEW-SEARCH any sideways ROM.

The whole system is available now for less than the price of one WORDWISE chip. So get yourself the all new MORLEY EPROM PROGRAMMER V2 today and start using those expansion boards for what they were made for! ROMS. Immediate delivery no quibble 12 month guarantee.

MASTER CARTRIDGE

Designed and manufactured by Care Electronics to Acorn specifications. These high quality Master expansion cartridges will take two 16k sideways ROM's, and will, unlike similar cartridges available from other manufacturers, accept the new second generation programs, such as Computer Concepts Interword and Spellmaster ROM's. These Cartridges come in a high quality, robust, formed-plastic case, that fits neatly into either one of the Master's cartridge slots.

MASTER SMART CARTRIDGE

This device was designed and manufactured jointly by Morley and Care Electronics.

The Smart cartridge will at the press of a button halt any program running in memory and execute any one of a host of useful built in, or user defined procedures, and once completed will return to the program and continue where it left off. The only limiting factor with this device is the programmers imagination. The Smart cartridge will prove useful to the novice, allowing him to do the simple things like dump any screen to printer, and make backups of protected tape or disc based software, but has an open ended specification for the advanced 'HACKER' allowing advanced programming techniques to be incorporated into almost any program at the touch of a button.

BUILT IN FEATURES (at the press of a button)

- Autosaves computer's entire memory.
- Freeze program at any point.
- Screen dump (any mode) to printer or disc.
- Allows any OSCLI command without disturbing memory.
- Copies 90% of protected software.
- Tape to disc, disc to tape.
- User friendly menu.
- Sound On/Off.

**12 MONTH NO QUIBBLE WARRANTY
 ALL CARTRIDGES COME WITH A**

NEW*

MORLEY MASTER BOARD 'AA'

At long last the add-on all MASTER users have been waiting for, an internal ROM board.

No more need to turn the computer off to insert the cartridge containing the ROM you need to debug the program in memory.

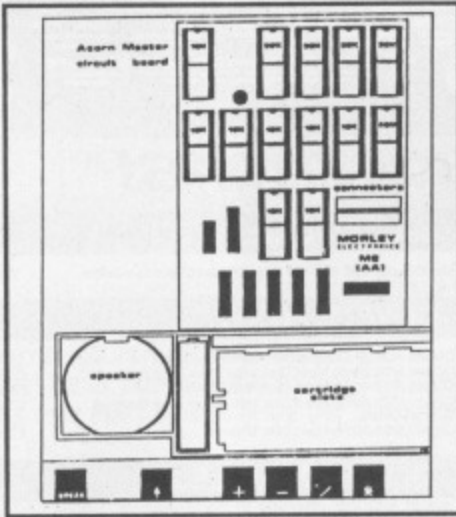
The new MORLEY MASTER BOARD "AA" allows you to have up to 8x16k and 4x32k extra Roms installed inside your MASTER and still leaves the cartridge slots free. This in effect allows your MASTER to support as many as 24, 16k ROMs installed permanently, whilst retaining the standard 4 x sideways ram banks and four banks by using cartridges

A staggering 32 ROM images installed and accessible at any time

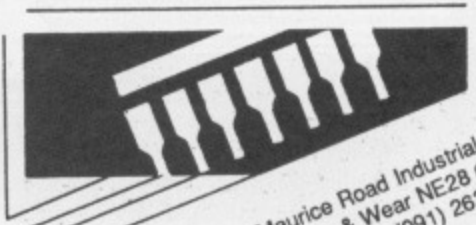
Included in the package is a utility ROM which has many useful features such as 'FICOPY', a clever file transfer program that transfers files between DFS and ADFS formats or vice versa.

So for less than the price of four external cartridges you get a MASTER BOARD "AA" which with twice the capacity has got to be THE ROM expansion for the serious MASTER user.

The unit comes with the usual Morley, full no-quibble twelve months warranty, and our usual after sales service



MORLEY
ELECTRONICS



Unit 3, Maurice Road Industrial Estate,
Wallsend, Tyne & Wear NE28 6BY
Telephone: Tyneside (091) 2627507
Telex: 265871 A/B MONREF G
(Quoting Mag 70211)

THE COMPLETE RANGE OF TELETEXT SOFTWARE from M/B SOFTWARE

***NEW... DESIGN 7 PLUS** - now 'the best' is even better. Held in high regard by reviewers and hundreds of satisfied owners, DESIGN 7 has been further improved, with revised keypad & even more features. Design/load/save and MODE 7 screen with ease, up to full CEEFAX/Oracle standard. Will convert ANY MODE 7 screen to a BASIC procedure, for inclusion in your own programs. ROM version includes a file copier, printer dumps useable from BASIC etc. B/MASTER/COMPACT.

TELETEXT EMULATORS/SCREEN DISPLAYS/INFORMATION SYSTEMS - A complete range of teletext programs to cater for all needs, with full teletext adapter interfacing.

***NEW... DESFAX** - totally new version - streets ahead of the competition - run your own information/display system. Stores hundreds of screens on dual 80 track drives (96 screens on single-sided 40 track), with access to any screen with a SINGLE KEYPRESS. Lots of special effects - screens can scroll, slide, overwrite etc. Animation, loops, subroutines - send for details - not enough space here to even begin to describe the advanced features!! B/MASTER/COMPACT

***NEW... MASTERFAX** - 84 MODE 7 screens in memory at once. 148 screens possible with cartridge RAM. An advanced teletext/carousel program featuring SINGLE KEYPRESS or 3-digit page selection. Runs entirely from memory - no disc accesses after pages are loaded. Superb animation and other effects. MASTER/COMPACT only.

***NEW... VU-FAX** - 1000 screens and no disc accesses! Screens stored on MORLEY 1MByte RAM DISC. SINGLE KEYPRESS gives instant access to any screen (or emulate teletext). This is the ultimate MODE 7 screen management system - there is nothing else like it. MODEL B/MASTER 128.

***ALSO... MASTERcopy** - DFS/DFS, DFS/ADFS, ADFS/DFS, ADFS/ADFS file copier. Uses the MASTER 128's memory to the full to permit fast disc copying. 31 DFS files to ADFS disc in less than 2 minutes. Creates directories automatically. You will wonder how you ever managed without this program. Described by reviewers as 'unexcelled'. MASTER 128 and COMPACT's fitted with DFS ROMS.

ORDER FORM

To order simply complete and return by post enclosing your cheque/P.O. made payable to Morley Electronics, or by phone during office hours, quoting your ACCESS or VISA number.

Morley Electronics, Unit 3 Maurice Road Industrial Estate, Wallsend, Tyne & Wear NE28 6BY Telephone Tyneside (091) 2627507. Telex: 265871 A/B MONREF G (Quoting Mag 70211)

ALL PRICES INCLUDE VAT @ 15%

| Qty. | Item | P&P Rate | Qty. | Item | P&P Rate |
|------------|------------------------------------|------------|------------|--|------------|
| Qty. _____ | Morley Teletext Adapters | 119.95 (a) | Qty. _____ | M/B Software Design 7+ | 9.95 (c) |
| Qty. _____ | Optional Power Supply | 9.95 (b) | Qty. _____ | M/B Software Desfax | 19.95 (c) |
| Qty. _____ | Teletext Utilities on disc | 5.95 (c) | Qty. _____ | M/B Software DesROM | 12.95 (c) |
| Qty. _____ | 1 Megabyte RAMdisc | 199.95 (a) | Qty. _____ | M/B Software Mastercopy Disc | 12.95 (c) |
| Qty. _____ | 2 Megabyte RAMisc | 349.95 (a) | Qty. _____ | M/B Software Mastercopy ROM | 14.95 (c) |
| Qty. _____ | Eprom programmer V2 | 34.50 (b) | Qty. _____ | M/B Software Masterfax | 29.95 (c) |
| Qty. _____ | Master ROM boards "AA" | 45.95 (b) | Qty. _____ | M/B Software VU-Fax System inc RAMdisc | 249.95 (a) |
| Qty. _____ | Master RAMdisc/SWR cartridge | P.O.A. | Qty. _____ | 5.25" Floppy discs x 10 | 7.95 (c) |
| Qty. _____ | Care Master ROM cartridges | 8.95 (b) | Qty. _____ | 27128 16k CMOS EPROM | 3.65 (d) |
| Qty. _____ | Master Smart cartridge | 39.95 (b) | Qty. _____ | Info Pack + Demo Disc of all Software | FREE (c) |

Please delete: Adapter software on ROM/Sideways RAM format/Software on 40/80 track disc

Name _____ Phone no. _____
Address _____ Post Code _____

Cheque No _____ Access/Visa No _____ Amount £ _____

Please add Postage and Packing @ a=£3.00 b=£2.00 c=£1.00 d=£0.65 (when ordering more than one item, add P&P. on highest rate item only)
GOVERNMENT, LOCAL AUTHORITY, AND TRADE ORDERS WELCOME. Please allow 28 days for delivery





Services
 M1 Junction 6
 M10 Junction 1
 M25 Junction 21A

"SNIFF OUT A BARGAIN AT COMPUTER EXPRESS"

NARROW DOT MATRIX PRINTERS

| | |
|---|---------|
| Epson LX800 - The Brand New Best Seller | £193.00 |
| Star NL10 - The Number Two Seller - Best Spec | £183.00 |
| Panasonic 1081 120cps & 80 col - Brand New! | £149.00 |
| Panasonic 1091 - Byte Magazine Says It's No.1 | £234.00 |
| Epson FX800 - Brand New! 240cps! Wow! | £234.00 |
| Epson EX800 300cps & 80 column - Super Fast | £374.00 |
| Seikosha MP1300A1 - 300cps! | £299.00 |
| MP 165 - Cheap Fast and Good Quality, 80cps | £170.00 |
| MP 135 - Cheap Fast and Good Quality | £135.00 |
| Oki Microline 182 - The Number 2 Brand | £187.00 |
| Oki Microline 192 - Perennial Favourite | £282.00 |
| Citizen MSP-10 180cps draft 80 column | £277.00 |
| Citizen 120D - 120cps draft 25cps NLO | £165.00 |
| Citizen MSP20 - 200cps draft 50cps NLO | £299.00 |

WIDE DOT MATRIX PRINTERS

| | |
|---|---------|
| Star NX15 - The New Wide-body NL10! | £288.00 |
| Star NR15 - Replaces the SR15 - A Great Mover | £398.00 |
| Panasonic 1595 - The Panasonic Favourite | £521.00 |
| Epson FX1000 - Brand New! Replaces FX105 | £385.00 |
| Epson EX1000 - 300cps & 136 column - Super Fast | £499.00 |
| Seikosha MP5300A1 - 132col Version of MP1300 | £439.00 |
| MP200 - 200cps! 132 column! | £280.00 |
| MP201 - 132 column 200cps | £295.00 |
| Oki Microline 193 - Worth A Look | £359.00 |
| Oki Microline 293 - Worth A Long Look | £608.00 |

24-PIN DOT MATRIX PRINTERS

| | |
|---|---------|
| Epson LQ800 - Letter Quality - 24-Pin Printhead | £420.00 |
| Epson LQ1000 - Letter Quality - 24 Pins - 132 Col | £571.00 |
| Epson LQ2500 - This one is really good! | £690.00 |
| Star NB15 - The big, up-market Star 24-pin 300cps | £599.00 |
| Star NB24-15 - Same as above, but 216cps | £518.00 |
| Star NB24-10 - 80 column 24-pin winner | £414.00 |
| NEC P6 - Good Buy | £379.00 |
| NEC P7 - One of the Best Sellers Ever - 24 pin | £441.00 |

DAISY WHEEL PRINTERS

| | |
|---|----------|
| Star Power Type 18cps - The Current Cheap One | £179.00 |
| Juki 6100 - 20cps - Very Popular | £254.00 |
| Juki 6200 - 30cps - Still Popular | £394.00 |
| Juki 6300 - 40cps - Very Up-Market | £642.00 |
| Juki 6500 - 60cps - Heavy Duty and Very Fast | £958.00 |
| Qume Sprint 11/90 - 90cps Daisywheel Printer | £1200.00 |
| Citizen HPC-45 45cps | £499.00 |
| Citizen Premier-35 | £510.00 |
| Brother HR25 | £549.00 |

COLOUR PRINTERS

| | |
|--|---------|
| Okimate 20 Thermal Printer | £159.00 |
| Juki 5520 - The Market Leader - Fast | £335.00 |
| Epson EX-Series Colour Option | £55.00 |
| NEC P565XL - Heavy-Duty Office Favourite! | £740.00 |
| Epson LQ2500 Colour Option/Makes LQ2500 Colour | £55.00 |
| Seikosha MP1300 Colour Kit/Makes MP1300 Colour | £87.00 |

INK JET PRINTERS

| | |
|--|---------|
| Epson SQ2500 - Ink your jet with this one! | £974.00 |
|--|---------|

PLOTTERS, DIGITIZERS & LASERS

| | |
|---|----------|
| New Oki Laserline 6-8 pages per minute | £1399.00 |
| HP LaserJet II - Newer, Better, Cheaper! | £1945.00 |
| Cherry A3 Digitizer | £475.00 |
| Roland DXY-880A Plotter - Best Value A3 Plotter | £609.00 |
| Roland DXY-990A Plotter | £923.00 |
| Epson GQ3500 - Brand new Epson best-seller! | £1359.00 |

CABLES AND THINGS

| | |
|---|--------|
| IBM-Compatible Centronics Parallel Cable (Round) | £12.00 |
| BBC Centronics Parallel Cable (Ribbon) | £8.00 |
| Two-Way Printer T-Switch | £45.00 |
| 80 Col Printer Stands | £21.00 |
| SpaceBase Adjustable Floor-Standing Printer Stand | £85.00 |

AMSTRAD PC

| | |
|---|----------|
| Amstrad 1512 Single Floppy/Mono Monitor | £415.00 |
| Amstrad 1512 Double Floppy/Mono Monitor | £525.00 |
| Amstrad 1512 Single Floppy/Colour Monitor | £555.00 |
| Amstrad 1512 Double Floppy/Colour Monitor | £666.00 |
| Amstrad 1512 20mb Hard Disk/Mono Monitor | £837.00 |
| Amstrad 1512 20mb Hard Disk/Colour Monitor | £959.00 |
| Amstrad 1640 Single Floppy (EGA Colour 640k) | £749.00 |
| Amstrad 1640 Double Floppy (EGA Colour 640k) | £849.00 |
| Amstrad 1640 20mb Hard Disk (EGA Colour 640k) | £1129.00 |

EPSON PC'S

| | |
|---|----------|
| Epson PC AX-20 AT 640k RAM, 1.2mb Floppy, 20mb HD | £1499.00 |
| Epson PC AX-40 AT 640k RAM, 1.2mb Floppy, 40mb HD | £1899.00 |
| Epson PC AX-60 AT 640k RAM, 1.2mb Floppy, 60mb HD | £2399.00 |
| Epson PC AX-80 AT 640k RAM, 1.2mb Floppy, 80mb HD | £2799.00 |
| Epson PCe | £1050.00 |



All prices exclude VAT and delivery. Prices are correct at the time of going to press although they are subject to change without notification. Official purchase orders welcome. Full back up and support. Open Monday to Friday 9am-6pm. Open Saturday 10am-4pm.

MACDOUGALL PC'S

| | |
|--|---------|
| MacDougall 286 AT 512k 10mb/20mb HD/mono monitor | £999.00 |
|--|---------|

OLIVETTI PC'S

| | |
|--|----------|
| Olivetti M28 AT Compatible - 20mb Hard Disk | £1831.00 |
| Olivetti M28 20mb Hard Disk with 20mb Tape Back-up | £2299.00 |
| Olivetti M28 40mb Hard Disk, 640k RAM | £2325.00 |
| Olivetti M28 40mb Hard Disk with 20mb Tape Back-up | £2796.00 |
| Special Offers: | |
| Olivetti M24 20mb Hard Disk Mono | £1299.00 |

SHARP PORTABLES

| | |
|--|----------|
| Sharp PC7100 20mb Hard Disk SuperTwist Screen | £1399.00 |
| Sharp P7200 20mb 80286 AT SuperTwist & SuperFast | £2099.00 |

COMPAQ

| | |
|---|----------|
| Compaq Portable III Model 2 640K/20MB HD | £2914.00 |
| Compaq Portable III Model 3 640K/40MB HD | £3234.00 |
| Compaq Deskpro 286 Model 20 640K/1 FD/20MB H.D. | £2181.00 |
| Compaq Deskpro 286 Model 40 640K/1 FD/40MB H.D. | £2536.00 |
| Compaq Deskpro 386 Model 40 1024K/40MB HD/Tape Bk | £3999.00 |

MONITORS

| | |
|---|---------|
| Dyneer 12in 12MHz Mono Monitor & Tilt/Swivel Stand | £99.00 |
| Taxon K125V3 Supervision III Colour Monitor | £359.00 |
| Eizo ER8042S 14in Ultra-High Res EGA Colour Monitor | £445.00 |
| ADI 14in Mono Monitor with Tilt/Swivel Stand | £120.00 |
| NEC MultiSync EGA Monitor | £489.00 |

ATARI

| | |
|--|----------|
| Atari Expandable PC Twin Drive Mono | £579.00 |
| Atari Expandable PC 20mb Hard Disk Mono | £799.00 |
| Atari 520STFM 512k RAM, disk drive, mouse | £250.00 |
| Atari 1040STF with Mono Monitor, 1mb RAM, disk drive | £529.00 |
| Atari 1040STF with Atari SC1224 Colour Monitor | £720.00 |
| Atari SH204 20mb Hard Disk Drive | £478.00 |
| Atari Mega ST (2 mega byte), with mono monitor | £810.00 |
| Atari Mega ST (4 mega byte), with mono monitor | £1050.00 |
| Atari SM125 High Resolution Monochrome Monitor | £114.00 |
| Atari SC1224 Colour Monitor | £296.00 |

ATARI TOP SELLING SOFTWARE

| | |
|--|---------|
| Flight Simulator II - Very Realistic Best Seller | £36.00 |
| VIP Professional (Lotus Clone Gem Version) | £149.00 |
| Metacomms Lattice 'C' Compiler | £71.00 |
| First Word Plus - Word Processor with Graphics | £62.00 |
| Easy Draw II - The Professional Drawing Program | £58.00 |

CATS 'N' MICE

| | |
|---|---------|
| Mouse Systems Mouse with Pop-Up Menus & PC Paint | £145.00 |
| Mouse Systems Mouse with Pop-Up Menus only | £125.00 |
| Microsoft Bus or Serial Mouse - Don't forget the cat! | £132.00 |
| Logitech Logimouse C7 | £77.00 |
| Logitech Logimouse P5 Package | £89.00 |

TANDON

| | |
|--|----------|
| PCA 20mb Hard Disk AT (1mb RAM Keyboard DOS Monitor P+S Ports) | £1345.00 |
| PCA 30mb Hard Disk AT (1mb RAM Keyboard DOS Monitor P+S Ports) | £1569.00 |
| PCA 40mb Hard Disk AT (1mb RAM Keyboard DOS Monitor P+S Ports) | £1789.00 |
| PCA 70mb Hard Disk AT (1mb RAM Keyboard DOS Monitor P+S Ports) | £2145.00 |
| Target 20 Mini AT (Complete Mono System) | £1599.00 |
| Target 40 Mini AT (Complete Mono System) | £1814.00 |
| Tandon NEW! Removable Hard Disk Pac system! | Call |

TOSHIBA

| | |
|--|----------|
| Toshiba T1100 Plus | £1299.00 |
| Toshiba T1200 | £1850.00 |
| Toshiba T3100 (20mb Hard Disk AT Portable) | £2550.00 |

DISKETTES

| | |
|--|------------|
| Computer Express 5.25in DS/DD 48tpi disks | £1.00 each |
| Computer Express 5.25in DS/DD 96tpi HI-Density | £1.85 each |
| Computer Express Brand 3.5in DS/DD diskettes | £1.99 each |
| Un-branded Verbatim 3.5in 5S/DD diskettes | £1.15 each |

COMMUNICATIONS

| | |
|--|---------|
| Miracle WS4000 V21-V23 Modem | £139.00 |
| Miracle WS3000 V22 Professional Modem | £85.00 |
| Sage Chitchat Comms Pack (Modem/Software/Cables) | £199.00 |
| Sage Chitchat Comms Software | £71.00 |
| One-To-One Electronic Mail Subscription | £15.00 |
| RS232 serial modem cable | £15.00 |

SPECIAL OFFERS

| | |
|-----------------------|--------|
| Migent Ability | £50.00 |
| LX-86 Auto Sheet Feed | £39.00 |

HARD DISKS

| | |
|--|---------|
| Dysan/Western Digital 20mb File Card | £289.00 |
| Miniscribe 30mb Scribe Hard Disk Card | £325.00 |
| Seagate 20mb Hard Disk Kit with WD Controller & Cables | £235.00 |
| Plus HardCard 20mb | £595.00 |

ADD-ON BOARDS

| | |
|--|---------|
| AST SixPack Plus 64k memory Multifunction Card | £189.00 |
| Quibe SixShooter Multifunction Card 64k memory | £25.00 |
| Intel AboveBoard with Ok installed | £125.00 |
| Everex Mini Magic Ram Expansion Card (384K) | £117.00 |
| Hercules Graphics/Graphics Plus Card | £179.00 |
| Everex EverGraphics-Plus (Clone Hercules Card) | £95.00 |
| Eizo Auto-Switch EGA Card | £219.00 |
| Paradise Auto-Switch EGA Card | £235.00 |
| AST Rampage | £200.00 |
| AST 3720 Terminal Emulation Card | £649.00 |
| AST 5251 Model 12 Remote Emulation Card | £525.00 |
| AST 5251 Model 11 Local Emulation Card | £600.00 |
| AST SixPack Premium 256k Clock Parallel & Serial | £330.00 |
| AST SixPack Premium 1mb EMS daughter board | £150.00 |
| AST Advantage 128k Serial parallel Port | £400.00 |
| Orchid PS/2 RamQuest 2 mb Memory Upgrade Card | £629.00 |

CHIPS, CO-PROCESSOR AND DRAM

| | |
|--|------------|
| 64k dRAM Chips (nine to make 64k) | £1.15 each |
| 256k dRAM Chips (nine to make 256k) 150 N.S. | £3.00 each |
| Intel 8087 5mz Maths Co-Processor | £97.00 |
| Intel 8087-2 8mz Maths Co-Processor | £139.00 |
| Intel 80287-8 Maths Co-Processor | £189.00 |

TOP IBM-COMPATIBLE SOFTWARE

| | |
|--|---------|
| WordStar 2000 Plus (release 2) | £229.00 |
| WordStar 3.4 | £149.00 |
| WordStar Professional Version 4 | £193.00 |
| Wordcraft | £299.00 |
| Word Perfect ver 4.2 - The Number 1 WP Package | £239.00 |
| Word Perfect Library | £123.00 |
| Microsoft Word ver 3 - Number 2 WP Package | £249.00 |
| Multimate ver 3.31 | £189.00 |
| Multimate Advantage II | £290.00 |
| Lotus Manuscript - Latest Blockbuster WP Package! | £236.00 |
| PFS: First Choice | £110.00 |
| Framework II Version 1.1 | £312.00 |
| Symphony Version 1.2 (Latest Version) | £319.00 |
| Lotus 1-2-3 ver 2.1 Top Selling Package In The World | £223.00 |
| Supercalc ver 4 - The Celebrated Lotus-Beater! | £192.00 |
| Graflok Logistics | £80.00 |
| Javelin | £59.00 |
| Word Perfect MathPlan | £258.00 |
| Smart System - The Best Integrated Package | £349.00 |
| Executive Systems X-tree (Super Friendly HD Organizer) | £40.00 |
| Lotus Metro | £85.00 |
| Pegasus Accounts (per Module) | £199.00 |
| Pirion Chess - You too can play like Gary Kasparov | £25.00 |
| Quaid Software Copywrite (Back up Protected Software) | £35.00 |
| Microsoft Flight Simulator - Don't crash! | £39.00 |
| Funk Software Sideways | £40.00 |
| Borland Turbo Lightning | £47.00 |
| Microsoft Windows | £56.00 |
| Norton Utilities 4 | £52.00 |
| Xerox Ventura Desk Top Publisher | £527.00 |
| Freelance Plus | £299.00 |
| Delta Professional | £325.00 |
| Ansa Paradox II - Multi-User Database! | £285.00 |
| Cardbox Plus | £225.00 |
| Ashton-Tate Rapid File | £193.00 |
| dBase III Plus - Best Selling Professional Database | £385.00 |
| FoxBase Plus | £269.00 |
| R-Base 5000 | £207.00 |

LOW COST SOFTWARE

| | |
|--|---------|
| VP Planner by Paperback Software - Best Seller! | £61.00 |
| VP Info (dBASE II Clone) | £61.00 |
| VP Expert | £75.00 |
| Borland Sidekick - The Original Co-Resident Process! | £49.00 |
| Borland Turbo 'C' - 'C' How You Like This! | £65.00 |
| Borland Turbo Pascal - The Classic Borland Product | £47.00 |
| Sage Book-keeper | £75.00 |
| Sage Retrieve Database | £71.00 |
| Sage PC Planner Spreadsheet (Lotus Clone) | £71.00 |
| Sage Desk-Set | £49.00 |
| Sage PC-Write Word Processor | £71.00 |
| Sage Accountant | £110.00 |
| Sage Accountant Plus - Top Selling Cheap Accounts | £155.00 |
| Sage Payroll | £85.00 |
| Sage Financial Controller - Just reduced from £995! | £240.00 |
| Personal Word Perfect | £149.00 |
| Word Perfect Junior | £80.00 |
| Microsoft Word Junior | £62.00 |
| WordStar 1512 | £90.00 |
| Multiplan Junior | £62.00 |
| Supercalc 3 | £80.00 |
| Amstrad Reflex | £80.00 |
| Migent Ability - Top Integrated Package | £75.00 |
| Migent Ability II - Spend a Little More, Mate! | £125.00 |
| Words & Figures - Lotus 123 v1 Clone with WP | £80.00 |
| Gem WordChart | £89.00 |



FOR FULL PRICE LIST PLEASE CALL
 TELEPHONE ORDERS WELCOME



0727 - 37451 / 72790



**SINGLE AND MULTI-USER
 MICRO-COMPUTER
 SOFTWARE SALES AND SUPPORT**

SHOWROOM • 99 PARK STREET LANE • BRICKET WOOD • HERTFORDSHIRE • AL2 2JA • ST ALBANS (0727) 72790

TELEX: 8950511 ONE ONE G (Quote Ref: 15412001)

OFFICE AND WAREHOUSE • UNIT A • CAXTON CENTRE • PORTERS WOOD • ST ALBANS • HERTFORDSHIRE • AL3 6XT • (0727) 37451

COMPUTER EXPRESS HOLLAND • NIJVERHEIDSWEG • N60 • 3812 PM • AMERSFOORT • NETHERLANDS • (33) 630544

Software · S · C · E · N · E ·

The Bug-Byte Compilation

| | | | | |
|---|---|---|---|---|
| S | G | P | V | O |
| 6 | 6 | 5 | 5 | 5 |

BUG-Byte is well known for its budget titles and this disc brings together four under the banner of The Bug-Byte Compilation.

If it's Wimbledon you pine for you may be tempted by Tennis. This one-player game lets you play over one to three sets, with four or six games per set. Viewing the court you move up to and back from the net, and from side to side – playing both attacking and defensive strokes.

Tennis is a brave attempt at portraying sporting action on the computer screen, but alas it is not that good.

Star Force Seven is a tactical game of space wars and planet colonisation. Your aim is to destroy the Zurg's home planet or capture and hold 25 other planets.

Before battle can commence you need to build a fleet of battleships, cruisers, transporters and scout ships from a fixed number of credits. Satisfied with your forces you choose a destination from one of 26 star systems and make the jump into hyperspace. While on this first journey you are prompted for a difficulty level.

The instructions tell of space battles, planetary bombard-

ment, industrial bases and recruiting fighters. How these are implemented I cannot say as the game had a nasty habit of crashing very near the beginning.

Fly your Harrier jump-jet over a scrolling background shooting down enemy bombers before they destroy your bases – that's Skyhawk.

Graphically the game is very simple, blue sky, green grass and white bases. The animation is smooth, but the plane's response to the controls is far too erratic.

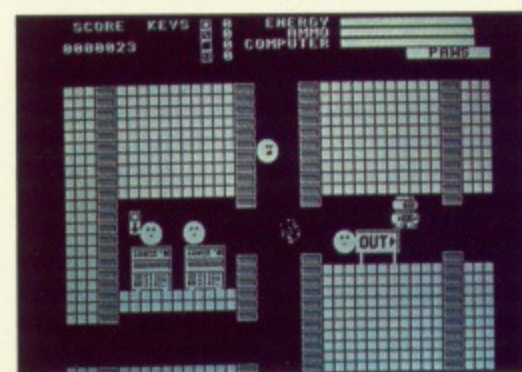
Enemy bombers fly into view from either side of the screen. Your defence of the bases is aided greatly by a small radar screen. The bombers are shown as small dots homing in on your position – by correctly judging their speed and height you can launch your first missile as they appear.

Skyhawk is a pretty reasonable game by budget standards, but don't expect too much.

Bug-Byte's Plan B is the last offering and by far the best. Your task is to guide a single combat droid through the Togrian Computer Complex wreaking havoc as you go.

Large, well-detailed sprites float through the air with the greatest of ease. It is such a pity that the control keys were not user-definable – I just couldn't get the hang of those specified.

You have only one droid so the length of the game is determined by the state of his energy cells. These are replenished by collecting spanners and oil cans.



The recent Micro Power compilations have all worked out at about £1 per game, most of which were of a similar, or higher, standard than these. On this basis I can't really recommend the Bug-Byte compilation.

Carol Barrow

Price: £7.95

Supplier: Bug-Byte, Victory House, Leicester Place, London WC2H 7NB.

Tel: 01-439 0666.

5 Computer Hits

| | | | | |
|---|---|---|---|---|
| S | G | P | V | O |
| 6 | 7 | 7 | 8 | 7 |

CROAKER heads this compilation tape of five golden oldies and is similar to Frogger. Your aim is to dodge traffic on a busy road then use floating logs and turtles as stepping stones to cross a river.

Later screens become more difficult as crocodiles appear and the turtles dive. Graphics are well drawn with smooth character movement. Although the sound becomes a little monotonous it can be switched off.

The next game is Blogger, a platforms and ladders game

with a burglar called, Roger the Dodger. With him you steal through 20 screens.

Unfortunately, most of the obstacles don't fit in with the scenario: Conveyor belts and disappearing platforms are fine but spaceships and railway engines are hard to explain, while giant mouths with gnashing teeth, although graphically effective, do not normally pursue even the most villainous criminal.

The sound effects are basic with the movement not always realistic resulting in Roger staying in the air for so long that Nureyev would be green with envy.

Swag is next and another game for baddies where you must collect £250,000 in diamonds before your opponent. And you are dodging bullets and killer droids all the time.

The screen shows two houses where you and your opponent hide your ill-gotten gains, and also the bank where a deposit of gold allows you a further supply of bullets.

Police cars interfere with your progress but can be stopped after a drink "that refreshes parts others can't reach" and shooting at their car.

Graphics are excellent, sound is good, and the action is very fast, for my money the best game on the tape.

Millionaire is a simulation where you are head of a software company and must make the necessary decisions on marketing, including whether to trade with Honest Harry.

The program is virtually all text, graphics being limited to a picture of the type of office you occupy, starting from a terraced house.

The questions posed are reasonably representative of the



sort of decisions that are made in business but too much depends on luck.

The last item is Bug Eyes 2, a multi-screen sequel to Space Agent Zelda Meets the Bug Eyes.

In the first game, Zelda took on the might of the Xabaneans and was captured. Your job is to search their flagship and find the 25 keys to release her while avoiding the nasties.

Sound is good, and the graphics are composed of smooth moving chunky sprites. I especially liked the way that, as you exit each screen, one of Sir Clive's C5s is waiting for you.

I rate Bug Eyes 2 and Swag as the best on this compilation and if you have neither of these it becomes excellent value. The other games tend to be a little dated and I would not buy it for them alone but they are worth having to build up your collection.

Beejay

Price: £6.95

Supplier: Beau-Jolly, 29a Bell Street, Reigate, Surrey RH2 7AD.

Tel: 0737 222003.



S: Sound
G: Graphics
P: Playability
V: Value for money
O: Overall

Arkanoid

| S | G | P | V | O |
|---|----|----|----|----|
| 9 | 10 | 10 | 10 | 10 |

AGEING computer hacks among you will no doubt remember Breakout from its arcade days. Using a bat you bounced a ball against a brick wall until you burst your way through. In this 1987 version, substitute spaceship for bat, throw in a few aliens and you have Arkanoid, an arcade hit from Taito.

The barriers are constructed from coloured bricks. Grey bricks must be struck twice before they disintegrate, orange ones are indestructible and are used to create simple mazes. Great accuracy is needed if you are to angle the ball – or should I say energy bolt – into the maze opening.

Barrier design is varied: Traditional rectangular shape, a wedge, a channel of indestructible bricks which zig-zags its way up the screen, and even a giant space invader. Quick thinking, or zealous use of the pause button, is essential if you are to assess a new screen's strengths and weaknesses

Price: £8.95 (cass) £14.95 (disc)
 Supplier: Imagine, 6 Central Street, Manchester M2 5NS.
 Tel: 061-832 6633

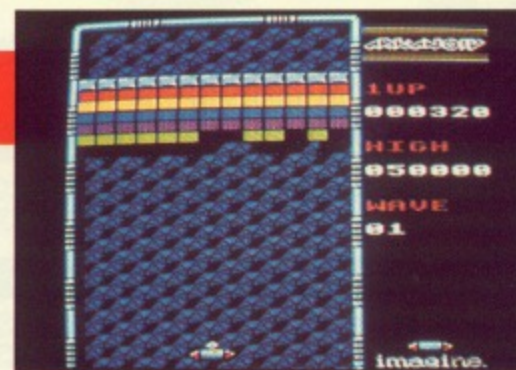
before you lose a life.

Hyperspatial masonry is not the only problem in your battle through the void. Each screen has its complement of alien spacecraft which until level five don't fire at you. They can be destroyed with either bat or ball. Their hindrance value comes in the form of unexpected deflections and quick returns if they fly near your bat. On the plus side you will sometimes get a bounce off an alien which sends the ball through an awkward little gap.

Some of the coloured bricks contain capsules which appear when the brick in which they are trapped is destroyed. There are seven types, each a different colour and embossed with a letter. The capsule is activated by catching it on your bat. This is not as easy as it sounds as the ball is often returning at the same time.

The first capsule is labelled with an S, and slows the ball, making it easier to hit. Better still is the E capsule which expands your bat to twice its size.

C comes into its own on the screens where you are trying to



fire the ball into a narrow gap as it captures the ball and holds it until you press the fire key. D stands for disruption – the ball splits into three causing incredible damage. My own favourite is the L capsule: This little baby arms your bat with twin lasers, so now you can show these aliens what real destruction is!

The B capsule is like a gift from the gods creating a hole in the wall through which you can escape to the next level.

Arkanoid has been beautifully reproduced by veteran programmer Peter Johnson for the BBC Micro.

Jon Revis

Panik

| S | G | P | V | O |
|---|---|---|---|---|
| 5 | 5 | 8 | 8 | 7 |

BACK in the year dot, Acornsoft brought out a game called Monsters. It was a ladders and levels game in which the aim was to make the screen hero dig holes in the levels so that the chasing monsters could fall in and be buried. This is the game that Atlantis has revived under the name of Panik.

At the start, the monsters are pink and fairly harmless. They have a limited brain and need only to be buried once. It is hard to be so cruel to these cheerful, smiling creatures, yet if they manage to climb out from your hole, a mutant red monster is created.

Price: £1.99. Supplier: Atlantis, 28 Station Road, London SE25 5AG. Tel: 01-771 8642

These are mean and fast beasts and killing them requires two holes, one directly under the other. Red monsters can metamorphose into the ultimate green variety. These devils need three vertical holes to kill them and they make the game live up to its name.

It need hardly be said that any kind of monster must be avoided. All contact is fatal.

You will also lose one of your three lives if you run out of oxygen (time) before ridding a screen of all of its nasties. On the first three screens all the monsters are pink, but on the fourth screen the red variety appears. Each screen is similar, but the number and type of monster keep the difficulty increasing.

The style of this game is decidedly dated. The screen

display is simple and does not do justice to the capabilities of the micro. The sound effects are simple (but permanent) and lack the plaintive quality of the original Monsters.

The winning point for this game is the ease of use of the keyboard. Just four keys are needed: Z and X always move the hero left and right, * and ? make him go up or down ladders. If these keys are used at a point where there is no ladder, he will fill or dig holes instead.

If you've got Monsters then I couldn't really recommend Panik – the games are just too similar. If not, and you like simple, fun ladders and levels games – then Panik is a snip and worth adding to your collection.

Rog Frost

Geoff Capes – Strongman

| S | G | P | V | O |
|---|---|---|---|---|
| 7 | 7 | 8 | 9 | 7 |

GEOFF Capes must be one of the world's best known strongmen. Olympic shot putter and veteran of many a world's strongest man competition, he is the archetypal he-man. Strongman is a collection of six events designed to sort out the men from the boys.

The secret of success is a dedicated training regime and if you are to be a worthy successor to Geoff Capes you too must hone your body to the peak of physical fitness. To this end you are presented with an initial training session.

The lower half of the screen is devoted to five icons, each relating to a specific group of muscles. A power meter waits for you to start bashing the joystick or keyboard. You have 10 seconds to obtain the highest possible power reading. You

Price: £1.99
 Supplier: Ricochet/Mastertronic, 8-10 Paul Street, London EC2A 4JH.
 Tel: 01-377 8411.

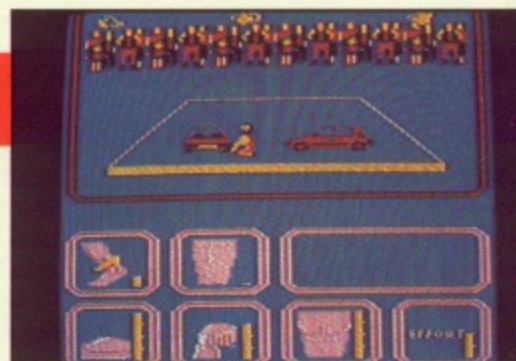
then divide this power among the five muscle groups to determine your level of physical fitness.

Beetle rolling is the first challenge – Volkswagen Beetles. As each muscle icon flashes you must place the cursor on it and press the fire button. Make no mistakes and Geoff will begin to roll the car: Make a boob and the motor drops on his foot. Success earns extra power to rejuvenate your aching muscles.

Sumo wrestling is one of the easier events. Run at your opponent, time an upper cut correctly, and the game can be over in seconds. Get it wrong and you'll find yourself on your posterior, travelling backwards at a rate of knots.

Event number three is a fairground ring-the-bell affair. Using the muscle icons you manoeuvre the large mallet to position above the peg. Get this right and you can start pounding the keyboard to build up power in preparation for the strike.

Tug of war is one of Geoff's strongest events. The icon



selection routine is again the order of the day. Next, it's time to sing the lumberjack song as Geoff lays into a mighty redwood.

Finally we have the barrel loading, which is a killer. Joystick waggling is needed to lift the barrel, followed quickly by icon selection to carry it to the truck.

Geoff Capes – Strongman requires a good balance of speed and skill, and is excellent value for money.

Steve Brook

Graham Gooch's Test Cricket

| S | G | P | V | O |
|---|---|---|---|---|
| 6 | 6 | 7 | 7 | 7 |

CRICKET is a tactical game of many subtleties which make it interesting to watch and difficult to play.

For the same reasons, trying to simulate cricket on a computer accurately would appear to be a near-impossible task. Audiogenic have made an attempt and produced Graham Gooch's Test Cricket.

The object is to win a cricket match. You can play one of three types of limited over cricket or a full two innings test match. The teams are England and Australia, but you can alter the data statements in the program to change the names of the teams and the players, together with their batting and bowling averages.

Initially you enter the team selection program which allows you to choose the teams from two squads of players. I think it would help if the lists included some information about the players for instance whether they are batsmen, bowlers, wicket keepers or all rounders.

Once the teams have been selected you decide what type of match you wish to play, whether you require a one or two-innings game and if you want the simulation or arcade mode. The simulation mode is where you just watch the

game happen and occasionally chip in to change the bowlers. Next, you must choose your skill level, and who your team's wicket keeper and slip fielder will be. Be careful here. The first time I played the game I put Botham in the slips and found later that this prevented him from bowling.

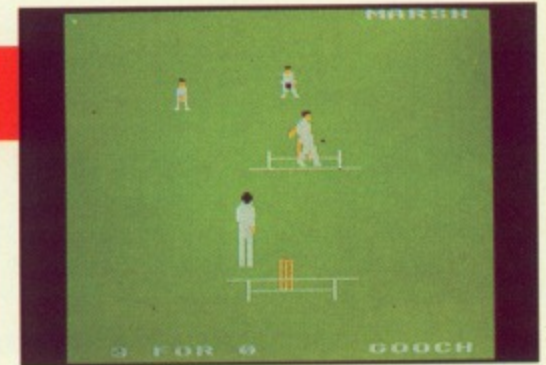
If you win the toss you can bat first or put the opposing side in. Take my advice: If you get the choice, bat second – The game lasts longer that way. Bowling takes a little practice, but after a while it is possible to make some reasonable deliveries.

I found batting, on the other hand extremely difficult, even at the first skill level. The main reason is the speed of the opposition bowlers. They get through an over in less than 30 seconds.

The colour scheme is predominantly green, with some white used for the players' bodies and the crease markings. Very small amounts of yellow and black are also used. The playing screen is extremely bright and it didn't take me long to swap the colour monitor I normally use for a black and white portable television.

The view you get is from behind and slightly above the bowler. The graphics, while not anything to write home about, are adequate.

The sound is pretty awful – every time you start the bowler's run up there is an annoying beep. The other sounds are the thwack of the ball hitting the bat or pads, a slightly



different thwack when the ball catches the edge of the bat and a sound like bacon frying to represent applause.

There are several ways a batsman can be out: Bowled, l.b.w., caught behind by the wicket keeper or slip fielder and caught on the boundary.

For some reason the boundary fielders drop catches nine times out of ten when I'm bowling, but never miss a catch when I'm batting. There is one other way of getting out and that is by being run out. You never actually see it happen though.

The instructions for the game are concise, easy to follow but by no means complete.

Graham Gooch's Test Cricket is a fair attempt at a cricket simulation. I just feel that it may have limited appeal. Those who don't like or don't understand cricket may find the game boring, while purists will probably think it "just isn't cricket!"

Desmond

Price: £9.95 (cass) £11.95 (disc)

Supplier: Audiogenic, 12 Chiltern Enterprise Centre, Station Road, Theale, Berkshire, RG7 4AA.

Five Star Games 2

| S | G | P | V | O |
|---|---|----|---|---|
| 8 | 9 | 10 | 9 | 9 |



NO compilation is complete without a shoot-'em-up game and the first item on this double cassette pack, Galaforce, is one of the best.

A space invaders-type with wave after wave of aliens intent on destruction, each one having its own attack pattern to add to your difficulty.

Some waves have motherships which release reinforcements until destroyed, while others conceal armed bombers hiding behind other craft.

Control is by keyboard or joystick and excellent sound and graphics make this a game you'll be playing after midnight.

The second game is Thrust, where you manoeuvre your spaceship over a Power Pod and activate your tractor beam before moving on to the next planet in the Empire.

Sounds easy? The catch is that the pods are guarded by an efficient planetary defence system usually located in deep tunnels.

Having eliminated the guard posts and hooked the pod, your troubles start as the pod tends to swing like a pendulum causing problems in the confined tunnels.

The game claims 72 different screens but I have only completed a few so far as they become progressively more difficult.

Karate Combat comes next, using either a joystick or a number of keys in various combinations to allow 16 different karate moves or blows.

There is a practice mode so you can tackle a target that doesn't hit back. Once you feel confident other modes allow you to tackle a friend or a computer-controlled opponent.

There are 16 of these but I've only seen one, Tushima Nakato. In every bout so far, no sooner have I straightened up from my ceremonial bow than he has knocked me into the middle of next week. But with a little more practice...

The graphics are excellent and realistic enough to satisfy



even the most bloodthirsty.

The second cassette starts with Stockcar which is one or two players against a number of computer-controlled cars on a choice of six different circuits.

The game is very dated, being one of Micropower's early offerings, but it is still very playable and has been a well used item in my collection for some years.

The final game is Moon Mission, where you carry stranded astronauts through an asteroid belt to the top of the screen.

Like the previous game, although the graphics are adequate it lacks the quality of recent releases and they are obviously makeweights to the compilation.

Despite my comments on the last two games I am very impressed with this collection – any compilation containing three first class games has to be a good buy.

Beejay

Price: £9.95

Supplier: Beau Jolly, 29a Bell Street, Reigate, Surrey RH2 7AD

Tel: 0737 222003.

Crazy Er*bert

| S | G | P | V | O |
|---|---|---|---|---|
| 6 | 8 | 5 | 7 | 6 |

CRAZY Er*bert is a cuddly looking little character who plays the hero in this 3D Pacman-type game. He lives in a world made up of interconnected cubes and his aim is to visit each cube so that its top surface changes colour. He treats his cubes as stairways, and travels up or down them diagonally. Four keys are needed to steer him and these take a bit of getting used to.

At the start you can choose from 10 levels of difficulty and whether movement should be fast or slow. I still find the slow option is hard enough. It's an old gripe, but what a pity there is no sound-off option. The sound effects are quite adequate, but many games players need silence at times.

Er*bert does not live alone, but the other occupants of his world are all enemies. You are persistently chased by Coily

Price: £1.99

Supplier: Alternative Software, Units 3-6 Bailey Gate Industrial Estate, Pontefract, West Yorkshire, WF8 2LN.

Tel: 0977 797777.

Snake and Boris Gorilla. If they catch you one of your three lives is lost. Escape is provided by two elevators which return you to the surface.

If Boris or Coily try to follow, they vanish for a few vital seconds. This gives you a chance to escape, and gain some bonus points. Er*bert can also collect a Rota Hat which allows you limited flight with two extra keys required to manage the flying skills. Elevators and Rota Hats can only be used once.

To add to the problems, some unseen giant is rolling boulders down the cubes. In higher skill levels some of the cubes turn into vaporisers. These have a drastic effect on your life expectancy but fortunately they don't last long.

Also at the higher levels, Er*bert cannot manage to paint the cubes at the first attempt. You have to apply the undercoat on the first visit and a second trip is required to put on the top coat.

To score high points you can make Er*bert pick up Boris's banana. This also causes Boris to lose his temper, but you



can drop the banana with a quick press of Space.

If Er*bert manages to recolour all his cubes you move to a new and more complicated screen. There are four such screens in all which means that with 10 levels and two speeds, there are 80 possible combinations.

Back in the old days of 1983, this game would have rated as amazing value at only £1.99. Now, it is merely ordinary – a game to amuse the kids for a while with its well-drawn large and colourful graphics, but lacking any real depth. Its worth buying for its compatibility with model B and Master 128 computers.

Rog Frost

Gisburne's Castle

| S | G | P | V | O |
|---|---|---|----|---|
| 5 | 7 | 9 | 10 | 8 |

GISBURNE'S Castle was first released by Martech some three years ago as a full price game, and it has now been re-released at a budget price.

The aim is to steer Robin of Foxley – The Hooded Man – through Sherwood Forest and into Guy of Gisburne's heavily defended castle, to free Maid Marion who has been captured and held as bait.

This quest leads you to confrontation with the guards who take various guises but who are all dead shots with wooden beams or axes – you have to rely on your archery skills. Being hit reduces your energy, but your arrows can destroy the guards though their bodies take time to fade away and leave a clear path.

You can replenish your energy by picking up food on your way and arrows can be supplemented by collecting the quiv-

Price: £2.99. Supplier: Martech, Bay Terrace, Pevensey Bay, East Sussex BN24 6EE. Tel: 0323 768456

ers which have been left lying about.

The shoot-'em-up part of the game requires speed and dextrous finger work. At the same time you also have adventure-style problems to solve.

Could it be that the guards in the castle need poisoned arrows to kill them? Will the rope enable me to escape from the dungeon? Where should I throw the dynamite?

Many posers like this occur and just as in a text adventure you will have to decide which of the many objects to carry and where to leave the spare items. What ever you do, don't go in the hut until you've got the sack!

Different keys allow you to move up, down, left or right and fire arrows. You can also use keys to pick up objects when you are near them and alter the object you hold in your hand.

You can use hand held objects, or drop or throw them if preferred. There is also a mystery key which seems to have good effects sometimes, but at others proves disastrous.

This is a true arcade adventure. And while the graphic

quality may not be up to present day standards, the game has many plus features.

You can define the keys and change them during a game, the sound (which is adequate) is optional, and at any time you can obtain a display of the various characters. You can also alter your opponent's skill level, to Novice, Marksman or Robin Hood.

If I attempt anything but Novice, my energy rapidly drains away to nothing.

Anti-pirate security is novel – on loading you are presented with a number. The cassette inlay has a six letter code which corresponds with the number and before playing the game you must type this in. There are 250 possible codes, and it is different each time you play, so ownership of the cassette inlay is essential.

I find Gisburne's Castle addictive and excellent value for money – for arcade adventure freaks.

Rog Frost

Ziggy

| S | G | P | V | O |
|---|---|---|---|---|
| 5 | 5 | 7 | 5 | 6 |

IS it a bird, is it a plane? No, it's a spring – Ziggy, the unlikely new star from Audiogenic. The first, I suspect, in a run of the new style of 3D arcade adventures.

The screen is laid out in a style known as oblique projection, where horizontal lines are rotated 45 degrees to the horizontal.

If you can say that while standing on your head with a disc drive between your teeth, then you're half way to getting

Price: £7.95

Supplier: Audiogenic, 12 Chiltern Enterprise Centre, Station Road, Theale, Berkshire RG7 4AA.

Tel: 0734 303663.

somewhere in Ziggy, which has got to qualify as one of the trickiest games yet.

You start in fine style, with the little spring bouncing merrily around level zero collecting the crystals, one in each of the four rooms. At this stage it takes no more than a little thought to collect all four jewels.

Then it's on to the up square for the second level and beyond. Until level four it's straightforward but then things start to get hectic. Patches of glue and skulls start to get in your way and you have to increase bounce speed and distance to leap over them.

All this effort drains lifeforce at an alarming rate and if you keep it up for too long, it's curtains.

Graphically speaking, Ziggy is not very spectacular.

Although the characters are nice and chunky, the playing area is in two colours, and even though these vary from level to level, the effect is still rather drab.

Sadly it gets worse, the animation is jerky and the key response irritatingly sluggish. This is a pity because it detracts from what essentially is a very enjoyable game.

One feature I was pleased to see was a screen designer, so that even if you can't complete the 200 rooms supplied you can at least define your own. And just for a change, there's a natty little tune that won't drive you round the bend because you can turn it off.

Ziggy is the type of game that you'll either love or hate. So I strongly recommend that you try it first.

Julia Forester

THE NEW AMX MK. III MOUSE. TRAP ONE SOON.



The MK III AMX Mouse is a product of Swiss precision and the result of a world-wide search to find a worthy successor to the AMX Mouse MK II.

The new Mouse has been specifically chosen to be the perfect partner to the ever expanding range of AMX software. The unique patented design includes high resolution D.P.I. and superior ball technology to ensure that contact between the Mouse and the surface is constant at all times. There's a new shape too, that fits comfortably in the hand.

The AMX Mouse MK III costs only £34.99 or you can join the great "Mouse-Swap". Part exchange your old Mouse for the MK III for only £29.99.



*SUPERART

AMX MOUSE MK III PLUS SUPERART 16K ROM, PLUS DISC £79.99

Acknowledged as the most sophisticated, yet easy to use paint package available for the BBC Micro, it's no wonder over 20,000 have already been sold. 'Superart' features include cut, copy, paste, move, rotate, plus many, many more such as fantastic spray and zoom facilities.

Available for BBC B, B+; Master 128, and Master Compact. Please state which version is required when ordering.

SUPERART (ONLY) £49.99

PICTURE GALLERY 2 x FLIPPY DISC £24.99

Instant art! A collection of fine drawings produced by acclaimed artists using superart.

*STOP PRESS

AMX MOUSE PLUS STOP PRESS 2 x 16K ROM, 2 x DISC £79.99

The most highly acclaimed desktop publishing software available for the BBC Micro. Already thousands of users are producing professional documents, newsletters, flyposters etc. in fact anything where text and graphics are required.

'Stop Press' comes complete with 16 variable typefaces.

Available for the BBC, B+ and Master 128. Please state which version is required when ordering.

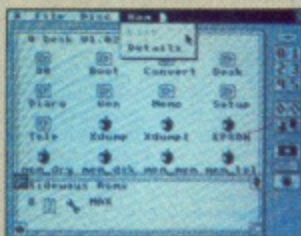
STOP PRESS (ONLY) £49.99

EXTRA! EXTRA! 2 x FLIPPY DISC £24.99

300K fantastic clip art, over 25 fonts and utility software.

*MAX 16K ROM £19.99

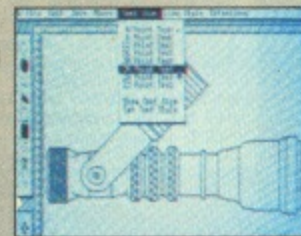
MAX provides an easy to use graphic based front end to your computer's disc filing system including a comprehensive set of disc management operations such as cataloging, copying, deleting and re-naming. You can also run programs from within MAX. Available for the BBC, B+, Master 128 and Master Compact. Please state which version is required.



*AMX DESIGN 32K ROM AND DISC £69.99

A highly sophisticated CAD package which allows the user drawings to be produced such as a simple PCB design up to the most intricate, architectural drawing.

Advanced features include full zoom and macro facilities, 58x58 screen canvas, full supported printer and plotter output. Available for the BBC, B+, Master 128 and Master Compact.



**FANTASTIC
AMX
SOFTWARE
OFFER!**

The additional AMX Software range that requires the original AMX Art Rom or Super Art Rom including: 3D Zicon normal price £24.99 Database normal price £24.99 XAM normal price £24.99 MindGames normal price £14.99. Total price - £89.96 but now available as a complete package at only £69.99. These superb products are available from all good computer dealers or direct by Cheque, Access or Visa. All prices include VAT and post and packaging.



FOR INSTANT ACCESS, VISA ORDERS TELEPHONE (0925) 413501/2/3



AMX SOFTWARE

IMAGINATION AT YOUR FINGERTIPS

* ALL THESE PROGRAMS WORK WITH
KEYBOARD, JOYSTICK OR MOUSE.

EDUCATION

Superart and stop press are now available under licence for ECONNET levels 2 and 3. Please apply direct for Educational Discounts.

ADVANCED MEMORY SYSTEMS LTD. 166/170 WILDERSPOOL CAUSEWAY, WARRINGTON, WA4 6QA. TELEX 628672 AMSG. FAX 0925 58039.
TUBELINK ON PRESTEL PAGE 2582182 SUPPORTS THE AMX MOUSE, AND ALL AMS SOFTWARE.

TWILLSTAR COMPUTERS LTD

WINTER CATALOGUE OUT NOW! FREE Phone and get your issue.

Computers



ARCHIMEDES HIGH PERFORMANE COMPUTER SYSTEMS

Archimedes systems use the Arthur operating system, a new version of the BBC Micro operating system. BBC BASIC is replaced by a new extended version, BBC BASIC V. The speed and power of Archimedes allows the programmer to exploit RISC architecture with a range of high level languages for scientific engineering and business uses. In addition to BBC BASIC V, Acornsoft's development languages include C, ISO-Pascal, FORTRAN, Lisp and Prolog. The Acornsoft Software Developers Toolbox provides utilities to simplify program development and debugging; while an extensive Software Developer's Debug Tool facilitates high level language development in C, Pascal or FORTRAN. All Archimedes Systems have a floating point emulator as standard. On the 400 series, complex mathematical calculations can be further enhanced by the addition of a floating point unit (FPU). All machines have feature: 32 bit RISC technology - BM enhanced style keyboard with 3 button mouse - BBC Micro style operating system (Arthur) - BBC BASIC V - interfaces; printer, serial, monitor, stereo sound - ECONET plug-in option - a variety of podules can be fitted. Archimedes is an open system and its flexibility is achieved by fitting any of the following podules (peripheral modules) via a back plane: hard disk controller (300 series only) - ROM extension board - MIDI music interface - MS-DOS co-processor - SCSI - hardware floating point unit - Ethernet podule.

THE 300 SERIES Consists of two models, Archimedes 305 0.5 Mbyte of RAM and Archimedes 310 with 1 Mbyte of RAM. Both machines have a 512 Kbyte ROM and a 1 Mbyte (unformatted) 3 1/2" disc drive.

THE 400 SERIES Offers increased expansion capabilities. The Archimedes 410 has 1 Mbyte of RAM, 1 Mbyte (unformatted) 3 1/2" disc drive, a hardware floating point unit option, a co-processor bus, a hard disk controller, a four socket back plane, 512 Kbytes of ROM. At the top of the range is Archimedes 440. This machine possesses all the features of the 410 as standard, with the adoption of 4 Mbytes of RAM and a 20 Mbyte hard disk.

| | |
|--|---------|
| 305 BASE AKB10 | 918.85 |
| 305 & mono monitor | 976.35 |
| 305 & colour monitor | 1148.85 |
| 310 BASE AKB15 | 1006.25 |
| 310 & mono monitor | 1063.75 |
| 310 & colour monitor | 1236.25 |
| 410 BASE AKB26 | 1608.85 |
| 410 & mono monitor | 1666.35 |
| 410 & colour monitor | 1838.85 |
| 440 BASE AKB20 | 2643.85 |
| 440 & mono monitor | 2701.35 |
| 440 & colour monitor | 2873.85 |
| Archimedes/Master Econet | 49.99 |
| 0.5 MB RAM | 102.35 |
| Floppy disk | 143.75 |
| 20 Mbyte hard disk & podule (300 only) | 573.85 |
| Podule Backplane | 40.25 |
| ROM Podule | TBA |
| I/O Podule | TBA |
| MIDI add-on to I/O | TBA |
| A series reference manual | £19.95 |

| | |
|---------------------------------|---------|
| MASTER 128 | |
| Complete With Internal Software | £399.00 |
| Master Turbo Upgrade | £113.95 |
| Master Econet Module | £46.00 |
| Master ET | £349.00 |
| Master 512 Upgrade | £217.35 |

The Master 512 upgrade board incorporates the Intel 80186 processor, plus 512K bytes of RAM. Digital Research DOS+, which is compatible with both MS/DOS version

2, and CP/M 86, allows you to run a large proportion of the most useful programs available. A dual 80 track disc drive is required to run programs on the 512. Provided free with 512 upgrade board are three GEM packages, GEM Desk Top, GEM Write, GEM Paint.

UNIVERSAL SECOND PROCESSOR
This allows you to connect co-processor boards designed for the Master Series to your BBC Models B or B+. Fitting a Turbo board boosts the BBC's already rapid performance to twice the speed of the standard processor. Fitting the 512 co-processor converts the BBC micro into a 16 bit machine, opening up new possibilities within the world of MS-DOS and CP/M 86.

| | |
|-------------------------|---------|
| MS-DOS and CP/M 86. | £86.25 |
| Eprom Cartridge | £14.95 |
| Reference Manual Part 1 | £14.95 |
| Reference Manual Part 2 | £14.95 |
| Acorn Teletext Receiver | £108.00 |

FILESTORE
Filestore provides shared access to file and printer services on Econet. The filestore consists of two units - a dual 3.5 inch floppy disc unit 1.2 Mbytes of storage (Filestore EO1) which can be expanded with a high performance 20 Mbyte Winchester disk drive unit (Filestore E20).

| | |
|---------------|---------|
| FILESTORE EO1 | £952.00 |
| FILESTORE E20 | £829.00 |

ECONET ACCESSORIES

| | |
|-----------------------------|---------|
| 100m Cable | £89.00 |
| Station Lead Set | £29.00 |
| Econet Starter Kit | £99.00 |
| Econet Bridge | £199.00 |
| Level 1 Fileserver 40 Track | £99.00 |
| Level 2 Fileserver 80 Track | £235.00 |
| Print Server Eprom | £49.00 |

BBC Upgrades

| | |
|--------------------|--------|
| 64K Upgrade Kit | £39.95 |
| 17/70 Upgrade Kit | £49.94 |
| ADFS ROM | £29.95 |
| Disc Upgrade Kit | £65.00 |
| Econet Upgrade Kit | £49.00 |
| DNFS ROM | £20.00 |

WORD PROCESSING SPECIAL PACKAGE

PACKAGE 1
Based on Master 128. The Twillstar All in One Word Processing Package contains a Master 128, View 3.0, Viewsheet, High Res Green Monitor, 800K Dual Drives with PSU, Quendata Daisy Wheel Printer together with a box of Discs, Paper, and all the Cables. £899.00

PACKAGE 2
Based on Master Compact 128. The Twillstar package includes Compact 128, latest version of the View Word processor, single 640K disk drive, monochrome monitor, correspondence quality printer. All connecting cables for above and also 5 disks and some paper. £635.00

BBC Master Compact

Twillstar continues to offer the MASTER COMPACT for your Home Education and Business needs! Complete with bundled software and an integral 3.5" Disk Drive in the following Systems:-

| | |
|---|---------|
| ENTRY SYSTEM | £299.00 |
| *128K* *Single 640K Drive* *bundled software* | |
| TV SYSTEM | £325.00 |
| *128K* *Single 640K Drive* *UHF Modulator* *Bundled Software* | |
| MONO SYSTEM | £369.00 |
| *128K* *Single 640K Drive* *Bundled Software* *12" High Res Monochrome Monitor* | |

COLOUR SYSTEM £499.00
128K *Single 640K Drive* *Bundled Software* *14" Medium Res Colour Monitor*

SPECIFICATIONS: * Compatible with Master Series micro subset * 128K RAM inc 64K sideways RAM * 64K ROM inc 32K MOS. 16K BASIC * Up to 4 internal ROM sockets * 3.5" 640K formatted disk drive * **OUTPUTS:** Video/RGB/Printer/ Mouse or Joystick * Disk drive * (optional) Econet * Serial * 5V power from disk drive module * Usual 8 BBC disply modes inc. Mode 7 * **BUNDLED SOFTWARE:** Pull down menus * Desk top inc. note pad, calculator * VIEW 3.0 * CARD INDEX * Full LOGO * BBC BASIC 4.0 * ADFS + Utils * Welcome suite * Tutorials * (1770 DFS under licence)

2nd DRIVE KIT £113.00

Monitors

MONOCHROME MONITORS
Phillips BM 7502
12" hi res. P31 Green Phosphor Screen. CVBS input. Audio input. Band width 20 MHz. 2000 CHRS Dispay. Adjustable viewing angle. £79.00

| | |
|--------------------------------------|---------|
| Phillips BM 7522 | £95.00 |
| Amber Screen | |
| Phillips BM 7542 | |
| Dedicated WD phosphor Screen monitor | £95.00 |
| Phillips BM 7513 | |
| 12" Green IBM compatible | £120.00 |
| TAXAN | |
| New Taxan Monochrome Screens | |
| Taxan KX117 | |
| 12" Green Screen P31 | £89.00 |
| Taxan KX118 | |
| 12" Green Screen P39 | £99.00 |
| Taxan KX119 | |
| 12" PUL Amber Screen | £99.00 |

COLOUR MONITORS
Microvitec 1431 Std Res £201.25
Microvitec 1451 Med Res £255.00
Microvitec 1441 Hi Res £391.00
Microvitec 2030 Cs 20 Std Res £425.50
Microvitec 1431 AP Std Res £224.25
Microvitec 1451 Ap Med Res £293.25
PHILLIPS
New from Phillips
Phillips CM8833
14" CVBS and RGB medium resolution colour monitor. IBM PC compatible. Fast blankup to enable superimposing. Stereo Audio. Ear phone socket. 600 dots x 285 lines vertical £269.00
Phillips CM8852
14" RGB professional med res colour. 700 dots x 285 £289.00
Phillips CM8873
14" RGB high resolution colour monitor Res 850 x 480 £550.00

Taxan Super Vision 620
High Resolution colour monitor with several unique features, at an affordable price.
SUPERVISION 620
12" RGB High resolution colour monitor. Fully compatible with IBM, Apple, BBC and most other Personal Computers. 635 x 312 line resolution. Positive or negative sync input. Text colour switchable to green, amber, white or blue or inverse white. Super high contrast tube. Optional tilt-swivel base (with clock/calendar available). Special introductory offer. £299.00

NEW SUPERVISION 625
12" high resolution colour monitor. 661 dots x 312 lines £369.00

MONITOR TO TV CONVERTER
AV 7300 Colour tuner module Push button control. 12 preset channels. Built in aerial. Compact design. Composite video only £69.00

Mitsubishi 1404 Medium Resolution Monitor with 640 X 200 Pixels RGB available with IBM or BBC Leads. £249.00

Disc Drives

MITSUBISHI DISC DRIVES
User Friendly Disk Drives 100% BBC compatible slimline disc drives. All drives are supplied complete with formatting diskette, comprehensive users manual and all necessary cables. All drives are 40/80 Track switchable at the front and have two years warranty.

| | |
|-------------------------------------|---------|
| 5 1/4" Drives without P.S.U. | |
| MD 400A Single 400K Double Sided | £118.00 |
| MD 802C Dual 400K Double Sided | £219.00 |
| 5 1/4" Drives with P.S.U. | |
| MD 400B Single 400K Double Sided | £135.00 |
| MD 802E Dual 400K Double Sided | £249.00 |

SPECIAL
MD 802D Dual 400K Drives horizontally mounted in a monitor stand to fit both the BBC B and the Master series. £269.00

SOURCE DISK DRIVES
Source SD35 3 1/2" disk drive, single drive £85.00
Source SD352 3 1/2" dual drive £149.00

Supplied cased complete with cables, powered from computer. Extended two year warranty.
Source SD35S 3 1/2" single drive with P.S.U. £135.00
Source 352S 3 1/2" dual drive with P.S.U. £199.00
Source SD3545S Combo dual 5 1/4" and 3 1/2" drives with P.S.U. £249.00

Winchester Disk Drives

WINCHESTER DISK DRIVES
Source HD20 Twillstar's 20 Mbyte winchester drive including Acorn DFS ROM complete with P.S.U. £599.00

Source HDP201 Twillstar's 20 Mbyte winchester drive and a 400k double sided floppy drive built in a plynth to accomodate monitor on the top and the computer underneath. Includes ADFS ROM and P.S.U. £869.00

Source TS10 10 Mbyte tape streamer backup unit with utilities £695.00

Othe size hard disks are available, please call for our latest prices.

Accessories

Taxan KIF 4308 buffer compatible with any Centronics interface printer £149.00
Further 64k upgrade available. Printer/Computer sharers.
2 - 1 £39.00
6 - 1 £79.00
Serial and Parallel T Switches
Parallel T switch £67.85
Serial T switch £67.82

FLOPPY DISKS
Raven 5 1/4" pack of 10 in a clear library box £15.00
Raven 5 1/4" rainbow colour pack of 10 in library box £17.00
Raven 3 1/2" single sided pack of 10 in library box £18.00
Raven 3 1/2" double sided pack of 10 in library box £25.00

LOCKABLE STORAGE BOXES
Trackmaster 5 1/4" 70 x 5 1/4" lockable £7.95
Trackmaster 5 1/4" 100 x 5 1/4" lockable £9.95
Trackmaster 3 1/2" 40 x 3 1/2" lockable £6.95
Trackmaster 3 1/2" 100 x 3 1/2" lockable £9.95

YOUR ONE STOP MEGA-COMPUSTORE FOR HOME, EDUCATION & BUSINESS NEEDS!

Printers

SPECIAL OFFER

SAVE £29.00

FREE PRINTER STAND
FREE BBC CABLE
200 SHEETS OF PAPER

When you buy a **Panasonic KX-P1081** The faster and enhanced KX-P1081. 120 cps in draft mode. 24 cps in NLQ mode. Fully Epson RX80 and IBM Matrix and Graphics Printers compatible. Standard friction and tractor feed. Operator accessible print mode switch. Standard 8 bit parallel interface. RS232 interface is optional **£179.00**



Juki 5510
- Gives you 180 CPS & NLQ Standards **£269.00**

Compatible with both the Epson and the IBM Graphic Printer. Standard 2K memory (expandable to 14K) built-in Parallel Centronics interface and 8-switch international character sets.

If you need colour too, the optional Juki 5510 Colour Kit gives you seven colours. **£112.00**

EPSON PRINTERS

Epson FX 800 and FX 1000 range offers superior printing and technical features. 200 cps in draft and 40 cps in NLQ. Complete with tractor and friction feed as standard. Offering IBM compatibility, full graphics. Also includes two NLQ fonts, 10,12,17 and 20 cpi, double height and double width with 8K buffer built in.

FX 800 **£369.00**
FX 1000 **£499.00**
FX 800 Sheetfeeder **£141.00**
FX 1000 Sheetfeeder **£163.00**

Epson EX 800/1000 High speed printers. 300 cps in 12 cpi mode. Also offers four colour printing.

EX 800 **£465.00**
EX 1000 **£626.75**
Colour option for both **£62.00**



JUST RELEASED

Epson LX 800
120 cps Epson & IBM compatible. Near letter quality. Standard centronics interface complete with tractor feed **£229.00**

Epson LQ 800 **£499.00**
Epson LQ 1000 **£669.00**

CREDIT FACILITIES

Full credit facilities now available nationwide

- * LOW DEPOSITS
- * FAST FRIENDLY SERVICE
- * UP TO 3 YEARS TO PAY

Call for further details
Typical APR 36.3%

CANON PW1080A

80 column printer with 160 cps draft and 40 cps NLQ with built in friction and tractor feed. Fully compatible with Epson FX80. Standard parallel interface. **£249.00**

CANON 55A

Wide version. Fully IBM compatible. **£399.00**

STAR NL-10

Fine Near-Letter-Quality, 100% compatibility and total reliability all in one easy to use printer **£229.00**

STAR NX-15

Same as Star NL-10 but with 136 column width. Both Epson and IBM compatible **£399.00**

MP200

200 cps in draft. 40 cps in NLQ mode. 7K buffer as standard (128 downloadable characters in NLQ) optional 8K memory. IC font cards. **£274.85**

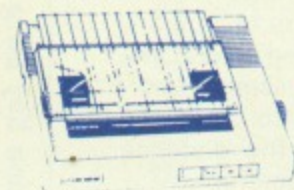
MICRO P MP165

80 Columns. 165 cps in draft mode. 35 cps in NLQ mode. Ultra high resolution graphics. Friction and tractor feed. 2 Year warranty. Epson or IBM compatible control codes. **£199.00**



MP201

Same as MP200 with 136 columns **£318.55**



MP135

Just released
135 cps, 80 column printer. Friction/tractor feed. NLQ. Epson & IBM Compatible **£145.00**

MP480

New
Fast reliable 480 cps dot matrix printer. 74 cps, NLQ, 80 column, fully Epson & IBM compatible, Std parallel **£349.00**

TAXAN KXP815

Taxan KXP 815 New enhanced KP 810 with 160 cps and fully Epson & IBM Compatible **£299.00**

TAXAN KXP915

Taxan KXP 915 New enhanced KP 915 with 180 cps and fully Epson & IBM Compatible **£420.00**

CITIZEN MSP10E

160 CPS Draft and 40 CPS NLQ. With two years warranty **£269.00**

CITIZEN MSP-15E

17" wide carriage. 136 column operating at 160 CPS and at the flick of a switch will print near letter quality at 40 CPS. Fully Epson and IBM compatible. 8k of standard buffer built in. Standard Centronics are optional RS232 **£379.00**

CITIZEN 120D

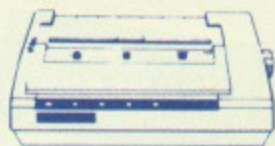
Bringing to the small business, educational and home user good quality and attention to detail. Its compact size, host of standard features and built in quality and reliability that supports Citizens unique full 2 year warranty make it a must for all computer users. Fast draft output: 120 cps. Built-in NLQ: 25 cps. IBM and Epson compatible. Plug-in interface cartridge. Tractor and friction feed as standard. Optional cut sheet feeder. **£179.00**

CITIZEN LASER OVERTURE 110

Overture 110 Prints 10 pages per minute. Comes complete with internal controller with print resolution of 300 x 300 dots per inch. Print capability of Standard Text, IBM & Epson bit-map graphics, IBM graphic character set, Epson graphic character set. Resident fonts are: Citizen Pica upright/italic, Citizen Elite upright/italic, Citizen Courier, Citizen Bookface (over 56 typefaces), downloadable one character set in Epson Mode. 11 international character sets. Standard Centronics Parallel and Serial RS232C. Standard 512K memory 384-byte user available. Fully compatible with Epson FX1000 IBM Proprietary & Diablo 630. **£1850.00**

SOURCE
The Complete Solution

TECO VP1814



Dot matrix printer. The VP1814 is fast highly reliable and easy to operate.

- ★ Standard 80 column
 - ★ The high-speed, low energy consumption 9 wire dot head gives printing speed of 189 cps and NLQ speed 36 cps
 - ★ Bi-directional, logic seeking in text mode
 - ★ Fan-fold, roll or cut-sheet paper is possible with adjustable sprocket pin feed and friction feed
 - ★ Offers: emphasized, double print, super script, sub script
 - ★ Justified print modes are also available including left, centre, right and full justification
 - ★ 9 graphic modes are available
 - ★ Both download and inprint buffer can exist simultaneously
 - ★ 7K input buffer standard can be expanded to 15K
 - ★ Printing modes selectable at front panel (NLQ/draft, Pica/Elite, enlarge, emphasize, condense, italic)
 - ★ 11 Language international character font is internalized
 - ★ Both IBM and Epson compatible
- MAIN UK DISTRIBUTOR **£229.00**



SWIVEL BASE OFFER

Special summer price Tilt and swivel base for 12" or 14" monitor or TV. "Looks very elegant" at an unbeatable price. **£9.95**



PRINTER STAND

Fits nearly any width of printer. Allows paper storage and gives ideal viewing position. Can also be used for computers and monitors. Steel construction prevents bending or buckling **£18.00**

DAISYWHEEL



PANASONIC KX-P3131

A Fully Formed Serial Impact Daisywheel printer with print speed of 17cps. Diablo compatible print wheels. Print pitches available are: 10, 12, 15 and proportional spacing. Standard friction feed and optional tractor. Paper width 13.5 inches. Standard Centronics optional RS-232C. Built with 6K text buffer expandable to 32K buffer. **£289.00**

BROTHER HR 20

The new Brother Daisywheel HR 20 8K standard buffer upgradable to 16k. Comes standard with serial and parallel port **£389.00**

JUKI Daisywheel

Juki 6100 **£329.00**

NEW MP26 Daisywheel

MP26 A feature rich very quiet printer. Universal compatibility with almost all personal computers at an unbeatable price. Speed: 26 cps. 132 columns Diablo 630 compatible **£249.00**

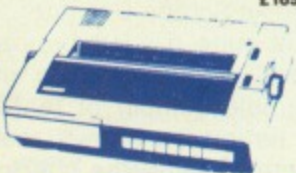
Optional Tractorfeed **£95.00**
Optional Sheet feeder **£145.00**

MP40

A very fast, quiet printer with features and compatible with virtually all computers at a fantastic price. 40 cps, 132 column, diablo 630 interface, parallel interface, built in standard RS232 optional **£355.00**

GAKKEN GPR-2000

Print speed of 18 characters per second. Fully Qume compatible. Takes Qume exchangeable Daisywheel and ribbons. Selectable 10,12 & 15 pitch. Supports proportional spacing. Standard friction feed. Tractor/cut sheet feeder and serial interface optional. **£169.00**



How to Order

You can purchase any of the items listed. All you have to do is write your requirements on a sheet of paper, and we will despatch your goods within 24 hours, subject to availability. Please add the following amounts for Postage and Packing.

Items below £10.00 add £1.50
Items below £50.00 add £2.50
Items below £100.00 add £3.50
Items over £100.00 add £8.00
(UK Mainland only)

All prices include VAT at 15% 'No Hidden Extras'

Prices correct at time of going to press but subject to change without notice.

Please make cheques payable to:

TWILLSTAR COMPUTERS LTD.

Access/Visa Card Holders:

Welcome. Call now on:-

01-571 5938 or 574 5271

TWILLSTAR COMPUTERS LTD



**APEX HOUSE
BLANDFORD ROAD
NORWOOD GREEN
SOUTHALL
MIDD UB2 4HD
☎ 01-574 5271 or
☎ 01-571 5938
Telex: 25247 Telex G.attn TIL
Fax: 01-547 4326**



HAVE you ever wanted to be creative on your BBC Micro? Perhaps to create a poster, design a page or just doodle.

Unfortunately, most art packages cost a lot of money. So as a step in the right direction and to help you decide what features you need when moving on to a more expensive package we present the MicroWorks Screen Designer.

This is quite a short program – only just over 7k – but crammed into it are a considerable number of features. Type in the listing as shown, correct any typing errors using the checksums and save the program.

You can cut out or copy the function key strip provided and slide it into position above the keys on your micro. You are now ready to run the program.

There is a short pause while the machine code is assembled and an array for sine and cosine values is initialised and you are then presented with the title screen. You can either wait for the time-out or press any key to start.

The crosshairs that are now on the screen always indicate that you are in select mode and most of the function keys will only respond while you are in this mode. The only ones that will work when using another function are load, save and cancel.

When you first run the program it is in foreground colour line drawing mode. You can change mode by pressing the appropriate function key.

To specify a point on the screen move the crosshairs using the cursor keys then press Copy. Now use the cursors again and you'll see the line or shape you've selected appearing on the screen.

There are two special cases: The triangle requires three points to be selected so the crosshairs stay on screen until the second point is selected. The polygon option puts up a question mark when you select it and

Steve Turnbull

presents a powerful

screen designer

you press a key for the number of sides on the polygon – three to nine.

The text option allows you to type any keyboard character on to the screen in a variety of type styles and sizes. Proportional mode allows you to alter the character pitch which is the distance between each of the characters.

When you are selecting a point you can move around the screen faster by using the Shift and Control keys in combination with the cursor keys.

To save your screen just press function key 9 and type in the name of the file. There is no error checking for valid file names, full discs and so on, so be careful.

The text is written to the screen using VDU5 and EORing so that it can be wiped out by overwriting. Loading a previously saved Mode 4 screen uses the same routine to get the filename.

As it stands MicroWorks is fairly straightforward and would be quite easy to modify perhaps with the addition of a flood fill routine or a mouse.

Mode 4 was chosen rather than Mode 5 to allow reasonable resolution and have enough memory space to include all the functions. Modification to use other modes would be quite simple and useful if you have a second processor, B+, Master or Compact. If you do change the mode most of the functions will still operate correctly although special consideration will be needed for colour selection.

So there you have it, the MicroWorks program for your works of art.

| MicroWorks Function Key Strip | | | | |
|-------------------------------|------------------------|-------------------------|--------------|--------|
| Shift + control | Cancel action | Toggle colour | Shift | Normal |
| f1 | Toggle fill | Dotted line | | |
| f2 | Italic toggle | Triangle | | |
| f3 | Bold/feint toggle | Rectangle | | |
| f4 | Inverse toggle | Circle | | |
| f5 | Proportional toggle | Increase increase pitch | Polygon | |
| f6 | Decrease brush width | Increase brush width | Brush | |
| f7 | Decrease spray density | Increase spray density | Spray | |
| f8 | Text width toggle | Text height toggle | Text | |
| f9 | Quit | Load picture | Save picture | |

rtin a microcosm

```

100 TS= "MicroWorks"
110 AS= "S.Turnbull"
120 REM (c) Micro User 1987
130 ON ERROR MODE135:REPORT:PRINT" at
";ERL:END
140 MODE4:VDU23,1,0;0;0;0;0;
150 HIMEM=HIMEM-&200:PROCinit
160 CLS:PROctitle:CLS
170 REPEAT PROClift:PROckey:GX=GET
180 IF GX<32 PROCctrl
190 IF GX>31 IF GX<127 PROClet
200 IF GX>127 IF GX<138 PROCfn
210 IF GX>143 IF GX<154 PROCs_fn
220 IF GX>159 IF GX<170 PROCc_fn
230 UNTIL quit:PROCquit:END
240 DEF PROCctrl
250 IF GX=13 PROCret
260 ENDPROC
270 DEF PROCret:IF ip<8 ENDPROC
280 PROCptr(ip):px=LX%
290 py=py-32+32*((SZ% AND2)>0)
300 PROCptr(ip):ENDPROC
310 DEF PROClet:IF ip<8 ENDPROC
320 PROCptr(ip):PROctxt(GX,0,col)
330 PROCptr(ip):ENDPROC
340 DEF PROCfn
350 IF GX<137 mode=GX-128 ELSE PROCsp
360 ENDPROC
370 DEF PROCsp:PROCptr(ip):PROcnm
380 IF n$>" PROCcli("SAVE "+n$+L$+" F
FFF8000")
390 PROCptr(ip):ENDPROC
400 DEF PROCs_fn:IF ip>-1 ENDPROC
410 IF GX=144 col=col EOR 1
420 IF GX=145 fill=NOT fill
430 IF GX=146 REM Nothing assigned
440 IF GX=147 REM Nothing assigned
450 IF GX=148 REM Nothing assigned
460 IF GX=149 PTX=(PTX+1)MODmxpt
470 IF GX=150 wdh=(wdh+1)MODmxd
480 IF GX=151 dens=(dens+1)MODmxdn
490 IF GX=152 SZ%=SZ% EOR 2
500 IF GX=153 PROClp
510 ENDPROC
520 DEF PROClp:PROCptr(ip):PROcnm
530 IF n$>" PROCcli("LOAD "+n$+L$)
540 PROCptr(ip):ENDPROC
550 DEF PROcnm:GCOL3,1:MOVE 24,1000
560 VDU5:INPUT"Name:n$:MOVE 24,1000
570 PRINT"Name:n$:VDU4,23,1,0;0;0;0;
580 ENDPROC
590 DEF PROCcli($&700):LOCALX%,Y%
600 Y%=7:CALL&FFF7:ENDPROC
610 DEF PROCc_fn:IF GX=160 PROCptr(ip)
:PROCunset:PROCptr(ip)
620 IF ip>-1 ENDPROC
630 IF GX=161 REM Nothing assigned
640 IF GX=162 ST%=ST% EOR 1
650 IF GX=163 ST%=ST% EOR 2
660 IF GX=164 ST%=ST% EOR 4
670 IF GX=165 ST%=ST% EOR 8
680 IF GX=166 wdh=wdh-1:IF wdh=-1 w
dth=mxwd-1
690 IF GX=167 dens=dens-1:IF dens=-1 d
ens=mxdn-1
700 IF GX=168 SZ%=SZ% EOR 1
710 IF GX=169 quit=TRUE
720 ENDPROC
730 DEF PROCinit
740 PRINTCHR$136"Please wait...";
750 TY%=1023:BY%=0:*FX225,128
760 LX%=0:RX%=1279:*FX226,144
770 bx=0:px=400:py=700:*FX227,160
780 col=1:mode=0:unset=-1:ip=-1
790 wdh=4:mxwd=20:dens=4:mxdn=20
800 ST%=10:SZ%=0:PTX=0
810 mxpt=5:fill=FALSE:L$=" FFFF5800"
820 PROCunset:TGX=60:IGX=360/TGX
830 VDU&FE17;&6060;&6060;&6060;&7C60;
840 DIM d% 256,s(TGX+TGX/4)
850 quit=FALSE:PROCassem:*FX4,2
860 ACX=-129:CLX=-26:CRX=-122
870 CUX=-58:CDX=-42:CCX=-106
880 FOR AX=0 TO TGX+TGX/4
890 s(AX)=SINRAD(IGX*AX)
900 NEXT:KX=TRUE:ENDPROC
910 DEF PROctitle
920 VDU19,0,4;0;19,1,3;0;
930 PROctab(T$,10,7,&A,3)
940 PROctab("by",18,10,9,0)
950 PROctab(AS,10,12,&C,1)*FX15
960 Z%=INKEY500:ENDPROC
970 DEF PROctab($d%,X%,Y%,AX,B%)
980 ?sty=AX:?siz=B%:CALL out:ENDPROC
990 DEF PROCquit:CLS:*FX4
1000 PROctab(T$,4,4):ENDPROC
1010 DEF PROckey
1020 REPEAT dx=0:dy=0:*FX21
1030 IF K% PROCptr(ip)
1040 REPEATK%=INKEYACX:UNTILNOTK%
1050 IF INKEYCLX dx=-FNinc
1060 IF INKEYCRX dx=+FNinc
1070 IF INKEYCDX dy=-FNinc
1080 IF INKEYCUX dy=+FNinc
1090 IF INKEYCCX K%=TRUE
1100 IF K% PROCptr(ip):PROCmove
1110 UNTIL NOTK%:ENDPROC
1120 DEF PROCmove:*FX21
1130 IF dx=0 IF dy=0 PROCset:ENDPROC
1140 px=px+dx:py=py+dy
1150 IF px<LX% px=LX%ELSEIFpx>RX%px=RX%
1160 IF py<BY% py=BY%ELSEIFpy>TY%py=TY%
1170 ENDPROC
1180 DEF PROCptr(P%):GCOL 3,1
1190 IFP%=-1 PROCpccr:ENDPROC
1200 IFP%<6 PROCmode(P%):ENDPROC
1210 IFP%=6 PROCbrsh(wdh):ENDPROC
1220 IFP%=7 PROCspdy(dens,wdh):ENDPROC
1230 IFP%=8 PROCmode(P%)
1240 ENDPROC
1250 DEF PROCpccr
1260 MOVE px,BY%:DRAW px,TY%
1270 MOVE LX%,py:DRAW RX%,py
1280 ENDPROC
1290 DEF FNinc:KX=TRUE
1300 =4-12*INKEY-1-28*INKEY-2
1310 DEF PROCset:KX=TRUE
1320 IF ip=-1 PROCstart ELSE PROCform
1330 PROClift:ENDPROC
1340 DEF PROCstart:ip=mode
1350 px2=px1:py2=py1:px1=px:py1=py
1360 IF mode<>5 ENDPROC
1370 PROCchr(ASC"?"):FX21
1380 sides=INSTR("3456789",GET$)+2
1390 IF sides<3 sides=0:PROCunset
1400 PROCchr(ASC"?"):ENDPROC
1410 DEF PROCchr(C%):VDU5
1420 MOVE px-16,py+32:VDUC%4
1430 ENDPROC
1440 DEF PROCmode(M%)
1450 IF M%=0 PROCln:ENDPROC
1460 IF M%=1 PROCdt:ENDPROC
1470 IF M%=2 PROCtr:ENDPROC
1480 IF M%=3 PROCcr:ENDPROC
1490 IF M%=4 PROCcc:ENDPROC
1500 IF M%=5 PROCpl:ENDPROC
1510 IF M%=6 REM Nothing assigned
1520 IF M%=7 REM Nothing assigned
1530 IF M%=8 PROctx(px,py)
1540 ENDPROC
1550 DEF PROCform:GCOL 0,col
1560 IF ip<8 PROCmode(ip)
1570 PROCunset:ENDPROC
1580 DEF PROCln:LOCAL P%:P%=5
1590 DEF PROCdt:LOCAL P%:P%=21
1600 PROCplot(P%):ENDPROC
1610 DEF PROCtr:IF px2=unset ip=-1:PROC
ptr(ip):ENDPROC
1620 IF fill PROCplot(85):ENDPROC
1630 MOVE px2,py2:DRAW px1,py1
1640 DRAW px,py:DRAW px2,py2:ENDPROC
1650 DEF PROCplot(P%)
1660 MOVE px2,py2:MOVE px1,py1
1670 PLOT P%,px,py:ENDPROC
1680 DEF PROCunset:px2=unset:py2=unset
1690 IF mode>3 IF mode<6 px=px1:py=py1
1700 px1=unset:py1=unset:ip=-1:ENDPROC
1710 DEF PROCrc
1720 IF fill PROCrcf ELSE PROCrcu
1730 ENDPROC

```

This is one of hundreds of programs available FREE for downloading on

MicroLink

In addition to these many BBC Micro programs in the MicroLink library will also run on the Electron.

UTILITY

◀ From Page 39

```

1740 DEF PROCrcf
1750 MOVE px1,py1:MOVE px1,py
1760 PLOT 85,px,py1:PLOT 85,px,py
1770 ENDPROC
1780 DEF PROCrcu
1790 MOVE px1,py1:DRAW px1,py
1800 DRAW px,py:DRAW px,py1
1810 DRAW px1,py1:ENDPROC
1820 DEF PROCcc
1830 LOCAL XX,Y%,R%,EX,P%,Q%
1840 IF fill PX=4:Q%=5 ELSE PX=69:Q%=69
1850 Y%=SQR((px-px1)^2+(py-py1)^2)
1860 IF Y%<4 PLOT69,px,py:ENDPROC
1870 EX=3-2*Y%:VDU29,px1,py1;
1880 IF XX<Y% REPEAT PROCdc:UNTILXX>=Y%
1890 IF XX=Y% PROCdc
1900 VDU29,0;0;:ENDPROC
1910 DEF PROCdc
1920 PLOT PX,XX,Y%:PLOT QX,XX,-Y%
1930 PLOT PX,Y%,XX:PLOT QX,Y%,-XX
1940 PLOT PX,-XX,Y%:PLOT QX,-XX,-Y%
1950 PLOT PX,-Y%,XX:PLOT QX,-Y%,-XX
1960 IF EX<0 EX=EX+4*XX+6 ELSE EX=EX+4*(XX-Y%)+10:Y%=Y%-4
1970 XX=XX+4:ENDPROC
1980 DEF PROCpl
1990 IF fill PROCplf(sides) ELSE PROCplu(sides)

```

```

2000 ENDPROC
2010 DEF PROCplu(S%):LOCAL A,I,R%
2020 R%=SQR((px-px1)^2+(py-py1)^2)
2030 IF R%<4 ENDPROC
2040 I=360/S%:MOVE px1,py1+R%
2050 FOR A=0 TO 360+I STEP I
2060 DRAW px1+FNsn(A)*R%,py1+FNcs(A)*R%
2070 NEXT:ENDPROC
2080 DEF PROCplf(S%)
2090 LOCAL A,I,R%,XX,Y%
2100 R%=SQR((px-px1)^2+(py-py1)^2)
2110 IF R%<4 ENDPROC
2120 I=360/S%:XX=px1:Y%=py1+R%
2130 FOR A=0 TO 360+I STEP I
2140 MOVE XX,Y%:XX=px1+FNsn(A)*R%
2150 Y%=py1+FNcs(A)*R%:DRAW XX,Y%
2160 PLOT 85,px1,py1:NEXT:ENDPROC
2170 DEF FNsn(A%)=s((A%MOD360)/DIVIG%)
2180 DEF FNcs(A%)=s(((A%+90)/MOD360)/DIVIG%)
2190 DEF PROCbrsh(W%):GCOLOR,col
2200 LOCAL fill:fill=TRUE
2210 px1=px:px=px+W%*4:py1=py
2220 PROCmode(4):px=px1:ENDPROC
2230 DEF PROCspry(S%,W%):GCOLOR,col
2240 LOCAL AX,LX,RX,CX:IF S%=0 ENDPROC
2250 W%=W%*4:FOR LX=1 TO S%
2260 IF RND(3)=1 NEXT:ENDPROC
2270 AX=RND(360):RX=RND(W%)
2280 PLOT69,px+RX*s(AX/DIVIG%),py+RX*s((AX+90)/MOD360/DIVIG%)

```

```

2290 NEXT:ENDPROC
2300 DEF PROCclift:IF ip<0 PROCptr(ip)
2310 REPEATUNTILINKEYACX:IF ip<0 PROCptr(ip)
2320 ENDPROC
2330 DEF PROCtx(px,py)
2340 PROCtxt(254,3,col):ENDPROC
2350 DEF PROCtxt(CX,AX,BX)
2360 IF ip<>8 ENDPROC ELSE GCOLOR,BX
2370 ?sty=STX:?siz=SZX:dX?0=CX:dX?1=13
2380 MOVEpx,py:VDU5:CALL prnt
2390 VDU4,23,1,0;0;0;0;:px=px+FNtix
2400 ENDPROC
2410 DEF FNtix:LOCAL WX:WX=?wid
2420 IF STX AND8 WX=WX+PTX
2430 =(WX-WX*((SZXAND1)>0))*4
2440 DEF PROCassem:code=HIMEM
2450 chr=&4F:df1=&50:df2=&58
2460 xpo=&61:ypo=&62:idx=&63:idy=&64
2470 sty=&65:siz=&66:wid=&67:tmp=&68
2480 oswrch=&FFF:osword=&FFF1
2490 osbyte=&FFF4:FOR LX=0 TO 2 STEP 2
2500 PX=code:COPT LX
2510 .out STX xpo:STY ypo
2520 LDH dX:CPX #13:BNE ppp:RTS
2530 .ppp JSR posn:.prnt
2540 LDA siz:AND #15:CMP #0:BEQ nrm
2550 CMP #2:BEQ dbh:CMP #3:BEQ qd
2560 JMP dbw:.nrm LDH #&FF:STX idx
2570 .nrm1 INC idx:LDX idx
2580 LDA dX,X:CMP #13:BEQ nrmx

```



| | | | | | | | | |
|--------------|--------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|
| 100 = D1CA A | 480 = 4663 A | 860 = 38AC 2 | 1240 = ED0F 9 | 1620 = E3B 4 | 2000 = ED0F 4 | 2380 = D6E9 B | 2760 = 50D0 0 | 3140 = 9F5A 6 |
| 110 = 6CB5 5 | 490 = E8CC D | 870 = F612 E | 1250 = 48C2 B | 1630 = 3CAA C | 2010 = B3CF C | 2390 = 3BF 9 | 2770 = A3C5 3 | 3150 = D9E0 8 |
| 120 = 0 5 | 500 = F0E9 2 | 880 = 39B0 0 | 1260 = C670 8 | 1640 = 8CAD A | 2020 = 746B 5 | 2400 = ED0F 4 | 2780 = B827 3 | 3160 = 7C15 5 |
| 130 = C136 5 | 510 = ED0F A | 890 = 1E0 A | 1270 = 1BF3 8 | 1650 = A73C 5 | 2030 = 98B7 E | 2410 = AAB1 8 | 2790 = 3EB 9 | 3170 = 7972 E |
| 140 = 2C9A 1 | 520 = 8B88 8 | 900 = 7C9F F | 1280 = ED0F 8 | 1660 = E5EC 9 | 2040 = F960 2 | 2420 = A18 2 | 2800 = AC63 1 | 3180 = 690B 1 |
| 150 = 4EFA F | 530 = AA9A C | 910 = 5C22 2 | 1290 = D87B 3 | 1670 = 9495 B | 2050 = BA90 8 | 2430 = EC05 6 | 2810 = 27E0 3 | 3190 = 6FA4 1 |
| 160 = 1063 D | 540 = C19E A | 920 = 51E2 B | 1300 = 2304 0 | 1680 = 94B0 B | 2060 = 298B 0 | 2440 = CC0C C | 2820 = 6697 D | 3200 = DFB1 A |
| 170 = 5170 8 | 550 = 4CD8 9 | 930 = 8608 0 | 1310 = BBF6 C | 1690 = 88E9 F | 2070 = E531 D | 2450 = 4247 6 | 2830 = 20BE 9 | 3210 = C15C 4 |
| 180 = 4D7A 1 | 560 = 82D2 1 | 940 = 3EFC C | 1320 = 1C40 9 | 1700 = 10A1 2 | 2080 = 12DC B | 2460 = 2D7 D | 2840 = 1217 E | 3220 = 99E4 B |
| 190 = 6BC8 C | 570 = 2476 8 | 950 = 75F4 C | 1330 = D7F2 4 | 1710 = 9E1A 4 | 2090 = D19A 7 | 2470 = E789 7 | 2850 = A695 F | 3230 = 85D3 0 |
| 200 = A941 8 | 580 = ED0F 5 | 960 = CE83 8 | 1340 = FE86 D | 1720 = 28AE D | 2100 = 746B D | 2480 = 6BA1 D | 2860 = 7C1E 8 | 3240 = 35D4 1 |
| 210 = B6AE 0 | 590 = E7E2 C | 970 = 5452 5 | 1350 = 4DB2 8 | 1730 = ED0F 5 | 2110 = 98B7 3 | 2490 = DE82 4 | 2870 = 4CAA 8 | 3250 = AC46 6 |
| 220 = A267 B | 600 = 50E0 7 | 980 = 5CBF 4 | 1360 = 27D6 8 | 1740 = 7417 7 | 2120 = 2C49 A | 2500 = 7CBB 2 | 2880 = DFBA A | 3260 = CC93 4 |
| 230 = 9461 6 | 610 = A011 8 | 990 = AF04 0 | 1370 = E5BB E | 1750 = 6744 F | 2130 = BA90 B | 2510 = ACD8 C | 2890 = 7AAB 6 | 3270 = 2365 0 |
| 240 = E06E C | 620 = 84EC B | 1000 = B3A9 C | 1380 = C2F5 B | 1760 = E8C7 C | 2140 = 120 F | 2520 = 1C7B E | 2900 = E9BB E | 3280 = F789 5 |
| 250 = 13AD 9 | 630 = 2DFF 7 | 1010 = 2EDA C | 1390 = CFD9 7 | 1770 = ED0F 1 | 2150 = F8B1 6 | 2530 = FFEB 8 | 2910 = 4830 1 | 3290 = 6619 A |
| 260 = ED0F 5 | 640 = EC5B A | 1020 = 69B 4 | 1400 = 2045 4 | 1780 = 5645 C | 2160 = 1ABB E | 2540 = 56CF F | 2920 = 9FE4 1 | 3300 = 5643 6 |
| 270 = 5A77 E | 650 = 995B 7 | 1030 = F287 9 | 1410 = 88BC 5 | 1790 = E9ED 3 | 2170 = CC96 2 | 2550 = 1207 0 | 2930 = 7FE6 8 | 3310 = 12C3 A |
| 280 = E7F1 C | 660 = 3395 8 | 1040 = 50E4 3 | 1420 = 892C F | 1800 = 94F6 B | 2180 = FEF8 4 | 2560 = 8013 B | 2940 = 6B50 8 | 3320 = 217F 9 |
| 290 = 20FF 4 | 670 = B77A B | 1050 = AE33 9 | 1430 = ED0F E | 1810 = A936 F | 2190 = 5494 0 | 2570 = 8957 C | 2950 = EE1F 9 | 3330 = 98C4 1 |
| 300 = C19E B | 680 = 247A 1 | 1060 = 65F1 5 | 1440 = 78F5 A | 1820 = AE58 5 | 2200 = F917 A | 2580 = 1FFC 8 | 2960 = 25A2 5 | 3340 = 558B 0 |
| 310 = 7DB1 5 | 690 = B82 0 | 1070 = B4DC E | 1450 = 752 5 | 1830 = D71C C | 2210 = B0D7 8 | 2590 = 1BB7 A | 2970 = 9091 6 | 3350 = D5D 9 |
| 320 = CD78 B | 700 = D490 5 | 1080 = F42D F | 1460 = BE52 8 | 1840 = 1F0F B | 2220 = D982 9 | 2600 = 5F8C 1 | 2980 = 98BB F | 3360 = 339B 7 |
| 330 = C19E 1 | 710 = EA85 F | 1090 = 288B B | 1470 = CF07 D | 1850 = E0F1 5 | 2230 = B049 A | 2610 = F137 4 | 2990 = 90F6 C | 3370 = E079 8 |
| 340 = 8000 D | 720 = ED0F F | 1100 = C451 3 | 1480 = 247C 8 | 1860 = 7AF6 3 | 2240 = 517F D | 2620 = 825D A | 3000 = 5B10 1 | 3380 = 1030 5 |
| 350 = 6C7F 9 | 730 = 40D7 6 | 1110 = 4B31 E | 1490 = 502B A | 1870 = 6A2B 7 | 2250 = AE49 D | 2630 = 664C 7 | 3010 = 4041 E | 3390 = EC7 B |
| 360 = ED0F 6 | 740 = F759 9 | 1120 = B27 A | 1500 = 4400 1 | 1880 = 787E 6 | 2260 = 138F B | 2640 = 59DF C | 3020 = 4041 5 | 3400 = ED2A 3 |
| 370 = 9AD0 C | 750 = 95DD B | 1130 = 7635 B | 1510 = 8313 0 | 1890 = E0FE B | 2270 = A3F4 1 | 2650 = 87C3 7 | 3030 = 4041 4 | 3410 = EBBE 0 |
| 380 = E11C B | 760 = A8C1 E | 1140 = B452 A | 1520 = B022 8 | 1900 = 39CE 1 | 2280 = 24A4 9 | 2660 = 6B50 4 | 3040 = 4041 F | 3420 = 83A4 2 |
| 390 = C19E B | 770 = 3ABA 2 | 1150 = B69A B | 1530 = 4798 D | 1910 = 37CF 0 | 2290 = E531 8 | 2670 = 5C2E 2 | 3050 = 274A 7 | 3430 = 584D C |
| 400 = 2C90 F | 780 = 8C81 7 | 1160 = 1876 4 | 1540 = ED0F D | 1920 = 520A B | 2300 = C39E 5 | 2680 = 3F13 3 | 3060 = 407E C | 3440 = 1849 7 |
| 410 = AD18 F | 790 = D89C 6 | 1170 = ED0F 1 | 1550 = C099 2 | 1930 = 4F18 7 | 2310 = F419 2 | 2690 = 2F7B 5 | 3070 = 4079 3 | 3450 = FA79 A |
| 420 = 76CD A | 800 = 755F B | 1180 = B98E 9 | 1560 = 28E C | 1940 = 8AC9 D | 2320 = ED0F 1 | 2700 = D527 2 | 3080 = 2B82 F | 3460 = 953B A |
| 430 = DA08 5 | 810 = 66EA 7 | 1190 = 6AF A | 1570 = F50C 7 | 1950 = A295 0 | 2330 = 838D 6 | 2710 = 857 C | 3090 = BFA2 3 | |
| 440 = E939 A | 820 = 3CB3 C | 1200 = 96F2 B | 1580 = C8A7 3 | 1960 = 2EF4 6 | 2340 = FAF3 E | 2720 = 3066 9 | 3100 = D042 D | |
| 450 = F907 2 | 830 = CCEF 7 | 1210 = 122B 2 | 1590 = 61E9 E | 1970 = C4D9 1 | 2350 = 8E49 A | 2730 = 8F5A 3 | 3110 = 701C 2 | |
| 460 = CE0D B | 840 = 917C 7 | 1220 = 3A1 8 | 1600 = A897 9 | 1980 = 997 7 | 2360 = 4DDC E | 2740 = EC91 F | 3120 = 4675 4 | |
| 470 = 234D F | 850 = 7A39 8 | 1230 = C043 2 | 1610 = 208B F | 1990 = 949F E | 2370 = FAC1 C | 2750 = 20A9 B | 3130 = 8063 7 | |


```

2590 JSR gdef:LDX #7
2600 .nm LDA df1,X:STA df2,X
2610 DEX:BPL nm:JSR pdef:JMP nrm1
2620 .nrmx RTS
2630 .qd LDX #&FF:STX idx
2640 .qd1 INC idx:LDX idx
2650 LDA d%,X:CMP #13:BEQ qdx
2660 JSR gdef:LDX #0
2670 .qd2 LDA df1,X:JSR dwd:PHA
2680 INX:CPX #8:BNE qd2
2690 JSR def21:JSR pdh:LDX #7
2700 .qd3 PLA:JSR dwd:DEX:BPL qd3
2710 JSR def21:JSR pdh:JMP qd1
2720 .qdx RTS
2730 .def21 LDX #7
2740 .d21 LDA df2,X:STA df1,X
2750 DEX:BPL d21:RTS
2760 .dbh LDX #&FF:STX idx
2770 .dhl1 INC idx:LDX idx
2780 LDA d%,X:CMP #13:BEQ dh1x
2790 JSR gdef:JSR pdh:JMP dhl1
2800 .dh1x RTS
2810 .pdh LDY #0:JSR dhd
2820 LDA #8:JSR oswrch
2830 LDA #10:JSR oswrch
2840 LDY #4:JSR dhd
2850 LDA #11:JSR oswrch:RTS
2860 .dhd
2870 LDA df1+0,Y:STA df2+0:STAdf2+1
2880 LDA df1+1,Y:STA df2+2:STAdf2+3
2890 LDA df1+2,Y:STA df2+4:STAdf2+5

2900 LDA df1+3,Y:STA df2+6:STAdf2+7
2910 JMP pdef:.dbw LDX #&FF:STX idx
2920 .dbl1 INC idx:LDX idx
2930 LDA d%,X:CMP #13:BEQ db1x
2940 JSR gdef:LDX #0
2950 .dbl2 LDA df1,X:JSR dwd
2960 PHA:INX:CPX #8:BNE dbl2
2970 JSR pdef:DEX
2980 .dbl3 PLA:JSR dwd:DEX:BPL dbl3
2990 JSR pdef:JMP dbl1
3000 .db1x RTS:.dwd
3010 ROLA:PHP:ROLdf2,X:PLP:ROLdf2,X
3020 ROLA:PHP:ROLdf2,X:PLP:ROLdf2,X
3030 ROLA:PHP:ROLdf2,X:PLP:ROLdf2,X
3040 ROLA:PHP:ROLdf2,X:PLP:ROLdf2,X
3050 RTS:.posn PHA:LDA #31:JSR oswrch
3060 LDA xpo:JSR oswrch
3070 LDA ypo:JSR oswrch:PLA:RTS
3080 .gdef STA chr
3090 LDX #chr MOD256:LDY #chr DIV256
3100 LDA #10:JSR osword
3110 LDA chr:CMP #32:BEQ prop
3120 LDX #7:LDA #0:.slop0
3130 ORA df1,X:DEX:BPL slop0
3140 TAX:STA tmp:BMI chg
3150 .slop1 LDA #0:STA tmp:LDX #7
3160 .slop2 LDA df1,X:ASL A
3170 STA df1,X:ORA tmp:STA tmp
3180 DEX:BPL slop2:BIT tmp:BPL slop1
3190 .chg LDA sty:AND #1:BEQ fein
3200 .ital CLC:ROR df1:ROR df1

3210 CLC:ROR df1+1:ROR df1+1
3220 CLC:ROR df1+2:ROR df1+3
3230 .fein LDA sty:AND #2
3240 BEQ invt:LDX #7
3250 .fl LDA df1,X:ASL A
3260 AND df1,X:STA df1,X:DEX:BPL fl
3270 .invt LDA sty:AND #4
3280 BEQ prop:LDX #7
3290 .iv LDA df1,X:EOR #&FF
3300 STA df1,X:DEX:BPL iv
3310 .prop LDA #8:STA wid
3320 AND sty:BEQ gdx
3330 LDA chr:CMP #32:BNE nspc
3340 LDA #4:BNE gdx
3350 .nspc LDX #7:LDA #0
3360 .prlp1 ORA df1,X:DEX
3370 BPL prlp1:LDX #8
3380 .prlp2 ROR A:BCS prlp3
3390 DEX:BNE prlp2:.prlp3 TXA
3400 .gdx STA wid:.gdx RTS
3410 .pdef LDA #23:JSR oswrch
3420 LDA #255:JSR oswrch:LDY #0
3430 .pdl LDA df2,Y:JSR oswrch
3440 INY:CPY #8:BNE pdl
3450 LDA #255:JSR oswrch:RTS
3460 ]:NEXT:ENDPROC
    
```

This listing is included in this month's tape & disc offer. See order form on Page 141.

NEW TECHNICAL REFERENCE GUIDE NOW AVAILABLE!
£12
Please contact us for further details.

At last a machine code development system that really does outperform ADE

SYSTEM Software

12 Collegiate Crescent
Sheffield S10 2BA

Tel. (0742) 682321

Access and Barclaycard welcome
Further information available



Features

- Runs on BBC B, B+, Master, Compact, ADFS, DFS, ANFS, NFS
- Full use of all available RAM
- Intelligent memory management unit (MMU)
- User switches on all main features
- Automatic search for macros on disc
- Assemble absolute or relocatable code
- Source program tokenised or full text
- REPEAT..UNTIL, WHILE..WEND etc. high level language constructs
- Macros nestable to any depth
- Excellent error diagnostics
- Linker
- Editor and symbolic disassembler provided



Versions and prices

Recommended for Master Compact..
ADE+ MMU and 65C00 series assembler on disc (3.5" ADFS). 32K sideways RAM required.
£42.00 + vat

Recommended for BBC B, B+ ...
ADE+ MMU and 65C00 series assembler on 2 16K EPROMS with DFS 5.25" utilities disc.
£46.00 + vat

Recommended for Master 128, turbo..
ADE+ MMU and 65C00 series assembler on EPROM cartridge with 5.25" DFS utility disc.
£49.00 + vat

Upgrade
ADE to ADE+ (upgrade to either disc, EPROM or cartridge, you must send in ADE ROM chip)
£27.00 + vat

Upgrade
ASM to ADE+ (upgrade to either disc, EPROM or cartridge, you must send in ASM ROM chip)
£35.00 + vat

Please add £1.25 P&P per unit.



The Ultimate Assembly Language Development Tool

ADE+ is a 65C00 series assembler system supporting all the mnemonics of the 65C12 used in the latest BBC microcomputers plus the additional 'Rockwell' instructions. ADE+ is fast, faster in fact than the in-built BASIC assembler and all rival products that we have tested. The assembler produces absolute code that can be *RUN or linker modules that can be merged with the output from other programs using the ADE+ linker. ADE+ supports a powerful linker which drastically cuts assembly time; a feature normally only found on minis and mainframes. The linker will even link the output from compilers with your assembly language programs. Full library support for both the linker and the assembler is provided - fast searching for unknown instructions in a random access macro library. ADE+ is a modular system with many modules to add later; i.e. a mouse based editor & a Z80 cross assembler! A print spooling system uses sideways RAM as a print buffer to eliminate waiting time; your listing runs off as a background job! Use the print spooler from BASIC or your own programs. ADE+ uses ALL available memory. With a second processor attached the IO processor spare memory is used as a buffer to reduce the amount of disc access. All available memory is handled by ADE+'s intelligent memory management module. Use your own favourite editor or the one provided. Assemble from disc or memory. Full utilities including librarians, converter for BBC BASIC etc. ADE+ must be the bargain of 1986/7!

A comparison of three 65C12 assemblers

| Feature | ADE + | BBC Basic | MACROM |
|---------------------------|-------------|--------------|------------|
| Number of pseudo-ops | 64 | 4 | 36 |
| Use of all available RAM | Yes | No | No |
| Macros | Yes | No | Yes |
| Relocatable output | Yes | No | No |
| Linker with libraries | Yes | No | No |
| High level constructs | Yes | Yes | No |
| Number of error reports | 39+warnings | 3+BASIC errs | 20 |
| 65C00 extended opcodes | All | 65C 12 only | 65C12 only |
| Switch off 65C 12 opcodes | Yes | No | No |
| ROM size | 32K | 16K | 16K |
| Disassembler | Yes | No | Yes |
| Label restrictions | No | Yes | Yes |

for everything from
SOLIDISK Acorn Computers



With a little More!

Open hours:
 Shop and showroom:
 Monday to Saturday, 9.30am to 5.30pm
 Mail order and Services:
 Monday to Friday, 8.30am to 5.30pm

ARCHIMEDES:

- A-305 basic with 0.5MB of RAM £799 + VAT
- A-310 basic with 1.0 MB of RAM £875 + VAT
- A-305 model 3 with 1.5 MB of RAM £919 + VAT
- A-305 model 4 with 2.0 MB of RAM £1039 + VAT
- A-305 model 5 with 2.5 MB of RAM £1045 + VAT
- A-305 model 6 with 4.0 MB of RAM £1245 + VAT



WITH 1.5 MB OF RAM!

Complete ARCHIMEDES 305 systems with a unique choice of RAM size, disc drives and monitor to fit your requirements.
 — 6 possible RAM sizes: from 0.5 MB to 4 MB.
 — 3 possible disc drive systems: single 3.5", twin 3.5" or one 3.5" and one 5.25" drives.
 — 3 monitors: 12" green, 14" Acorn colour or 14" NEC Multisync high resolution colour monitor.
 The Archimedes A-305 is a big feature micro with a huge potential. Our package prices for any complete Archimedes system (computer, drive and monitor) are the best around. The picture on the left shows a typical system comprising the A-305 upgraded to 1.5 MB of RAM, 3.5" drive, Acorn 14" colour monitor, mouse and free software. Price: only £1,086 + VAT (£1,245 inclusive).
 Data sheets on the Archimedes range are available on request.

It's Easy To Masterise Your Beeb

With Solidisk Add-Ons!

The Master wins over the BEEB on the provision of the Advanced Disc Filing System (ADFS), a Real Time clock, more memory and two internal co-processors.

Your BEEB can now gain those features and even beat the MASTER on the same ground with Solidisk add-ons. They are intelligently designed to use a minimum number of components, to occupy a minimum space inside the BEEB, to work together and with Acorn peripherals.

We work hard to keep prices low, so that it's much cheaper to upgrade your BEEB than exchanging it for a MASTER. As your BEEB retains its original features (such as an 8271), it can run more software too!

If you want to know more, Ask for the data sheets!

WD-1770 DFS:

The new Acorn Disc Filing Systems DFS and ADFS require both the WD-1770 chip. Solidisk offers two basic WD-1770 models which are totally compatible with the Acorn DFS/ADFS ROMs. We also offer our own DFS 2.2 and ADFS 2.1 ROMs which have a superset of utilities and commands. Data sheets on these ROMs are available on request.

- 1) WD-1770 DUAL DENSITY DISC INTERFACE for previously tape based BEEB. This is the standard Acorn disc upgrade since 1985. Prices are:
- WD-1770 DDFS without DFS ROM £35.00 inc.
 - WD-1770 DDFS with DFS 2.2 ROM £45.00 inc.
 - WD-1770 DDFS with ADFS 2.1 ROM set £55.00 inc.

Data sheet available on request.

2) WD-1770+8271 (DFDC) DISC INTERFACE: for BEEB already equipped with the 8271. This system allows you to keep the existing 8271 disc interface while adding the new WD-1770 chip. It has a simple switch to allow changing between the 8271 and the WD-1770. To operate the hardware, you will need either the latest ROMs from Acorn (8271 DNFS 1.2, 1770 DNFS and 1770 ADFS) or Solidisk ROMs. If you are stuck with old or inappropriate DFS software, buy the inexpensive DFS 2.2 ROM. Prices are:

- DFDC without DFS ROM £45.00 inc.
- DFDC with DFS 2.2 ROM £50.00 inc.
- DFDC with ADFS 2.1 ROM set £55.00 inc.
- DFDC with 2.2 and 2.1 set (3 ROMs) £63.00 inc.

Data sheet available on request.

SOLIDISK TWOMEG 128K:

The new style TWOMEG 128K memory combines Sideways RAM, four EPROM sockets and Shadow RAM on a single board, running at the same 2MHz speed at the BEEB. As you can imagine from the picture, it's unobtrusive and very easy to fit, just drop in and go. It's the ideal memory upgrade for all BEEBs. With plenty of ROM sockets (4 on the motherboard and 4 on the TWOMEG board) and 128K of additional RAM, it beats the MASTER hands down. We supply five software discs to support this excellent product. Price £60.00 inc.

SOLIDISK FOURMEG 32K UP TO 256K:

SPEED, Sideways RAM, shadow RAM and 4 or 5 H/C ROM sockets are combined on the features laden Solidisk FOURMEG series. All FOURMEG boards have a 4MHz GTE 65C02 CPU as standard, same as on the Acorn TURBO co-processor. The new CPU can run BASIC 4 (and many other languages) at twice the speed of the MASTER or the COMPACT.

Its performance is comparable to a MASTER fitted with the TURBO board (costing a great deal more). New reduced prices:

- FOURMEG 32K, 32K RAM, 5 H/C ROM sockets, software support on disc £60.00 inc.
- Additional 32K RAM chip, optional, each £15.00 inc.
- FOURMEG 256K, 256K RAM, 4 H/C ROM sockets, software support on disc, new low price £100.00 inc.
- Software support disc, volumes 2 to 15, each £2.00 inc.

Please specify 40 or 80 track disc formats.
 Data sheet available on request.

SOLIDISK REAL TIME CLOCK:

The Real Time Clock can be plugged into any ROM socket on the BEEB motherboard with absolutely no wire attached. The Real Time Clock provides battery-backed TIME function (even usable with BASIC 4) and *CONFIGURE. Price £29.00 inc.
 Data sheet available on request.

SIDEWAYS-RAM BOARDS:

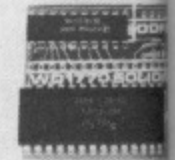
Sideways RAM can be used to load ROM images into the BEEB, make a printer buffer, store data and programs etc. Sideways RAM are additional memory to the basic 32K of the BEEB. To date, more than 50,000 BEEBs have been fitted with Solidisk Sideways RAM.

- SWR32, 32K Sideways RAM + software disc No 1 £20.00 inc.
- SWR64, 64K Sideways RAM, two H/C EPROM sockets + software disc No 1 £30.00 inc.
- 96K extension to SWR32 £25.00 inc.
- SWR128 new style, 128K Sideways RAM, 2 H/C EPROM sockets + software disc No 1 £45.00 inc.
- Software discs from 2 to 15, each £2.00 inc.

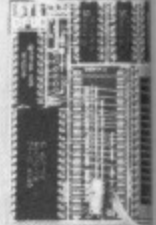
Please specify 40 or 80 track disc format.
 Data sheet available on request.

ELECTRON EFS: LAST FEW!

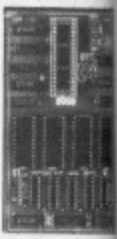
This excellent product combines a disc interface with DFS and ADFS, Solidisk Winchester port and 16K Sideways RAM. Price £50.00 inc.



WD-1770 DFS



WD-1770 + 8271



TWO MEG 128K



REDUCED!



SPECIAL OFFER



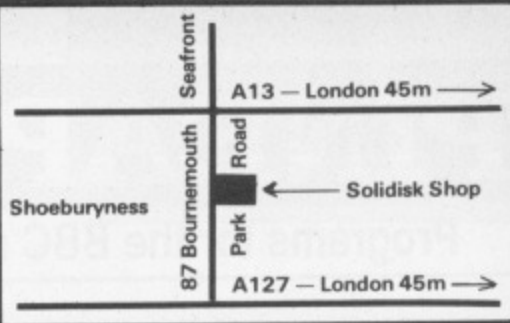
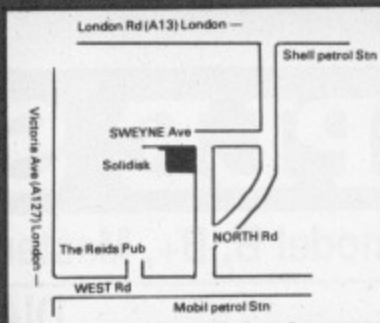
LAST FEW!

Address:

Shop and showroom:
87 Bournemouth Park Road,
Southend.
Mail order and Services:
17 Sweyne Avenue,
Southend SS2 6JQ

Telephone:

Shop and showroom:
Southend (0702) 616 818
Mail order:
Southend (0702) 354 674
Technical Services:
(0702) 43 11 22

**MASTER:**

Our typical MASTER systems comprise the MASTER with 128K RAM, wordprocessor, spreadsheet, ADFS 2.1 cartridge and choice of drives and monitors.

- A — twin 3.5" drives.
- B — twin 5.25 drives.
- C — one 3.5" and one 5.25" drive.

The price of the complete system depends on the choice of monitor:

- without monitor: £640.00
- with 12" green or amber monitor £730.00
- with 14" colour (Philips CM8833 or Acorn) monitor £840.00

Free demo disc with each system.
Data sheet available on request.

**COMPACT:**

Our Master Compact systems comprise the COMPACT with 128K RAM, CDFS 2.1 ROM, the same choice of disc drives as with our MASTER systems and choice of monitor.

- with TV modulator £499 inc.
 - with 12" green Acorn monitor £599 inc.
 - with 14" colour Acorn monitor £759 inc.
- Free demo disc with each system.

THE PC-500:

The PC-500 is just what you need to take advantage of the biggest software investment on earth: PC software, PC public domain and PC shareware.

The PC-500 is the Acorn 80186 internal co-processor for the MASTER adapted by Solidisk with an appropriate lead for use on the BEEB (and the Master).

It has a mouse, 512K of RAM, 10MHz — 16 bit CPU (around 3 times the speed of the normal PC), 4 software discs containing the Digital GEM operating system, a wordprocessor, a painting program, CPM emulator and other utilities.

Price: £239 inclusive. Your BEEB must have a WD-1770 and ADFS.

Data sheet available on request.

THE PC-PLUS:

The PC-PLUS is an expanded PC-500, with one Megabyte of RAM instead of 512K. The extra memory allows large applications such as Desk Top Publishing (eg Fleet Street Editor) to be used on the BEEB or the MASTER.

The PC-PLUS is supplied with the same accessories as the PC-500 including the mouse and 4 discs. Price £339 inc.

Upgrade from an existing Acorn 80186 costs £119.00 but you will be required to sign a service agreement. Please ring for details.

Data sheet available on request.

TURBO-BEEB:

The TURBO-BEEB plugs directly into the TUBE connector of your BEEB and consists of the Acorn TURBO 64K, 4MHz 65C02 internal co-processor for the MASTER adapted by Solidisk with an appropriate lead for use on the BEEB (and the Master), like the PC-500. Price £135.00 inc.

Data sheet available on request.

MASTER MEGA CARD:

The MEGA CARD (256K) plugs into a cartridge slot on the MASTER and adds instantly 256K of RAM. The card can be used as RAMDISK, printer buffer or sideways RAM. Price £100.00 inc.

Data sheet available on request.

MASTER ROM CARTRIDGE:

Our MASTER ROM CARTRIDGES can accommodate all software EPROM/ROM useable on the MASTER. They are small enough to be kept permanently inside the computer if you wish. Thus capable of accommodating bulky ROMs such as Interword and Interbase or protecting your ROM from being 'borrowed'. Price £4.00 without plastic case, £5.00 with plastic case. Prices start as low as £1 each for large quantities.

SPECIAL DRIVE LEADS:

We have 3 different DRIVE SPECIAL LEAD SETS to accommodate two 3.5" drives or two 5.25" drives or one of each. Each set comprises a special data lead and a special power lead.

- BEEB or MASTER £15.00
- COMPACT £17.00
- ARCHIMEDES £16.00

IMPORTANT NOTICE ON TRADE UP:

Solidisk will accept return of STL memory board up to one YEAR old for TRADING UP. The selling price (below) is the price we sell at the time of the trade-up transaction. In all cases, the minimum balance must be at least £25.00 inclusive of VAT.

| Age | Trade-up allowance |
|-----------------|----------------------|
| Up to 3 months | 90% of selling price |
| Up to 6 months | 75% of selling price |
| Up to 12 months | 50% of selling price |

| Age | Trade-up allowance |
|-----------------|----------------------|
| Up to 3 months | 90% of selling price |
| Up to 6 months | 75% of selling price |
| Up to 12 months | 50% of selling price |

BEST PRICE PROMISE:

We guarantee that our prices on selected systems are THE BEST and to prove it, we promise you that if you find the same system sold cheaper by any other officially listed Acorn dealer within ten days of your purchase, we will refund you the difference. Our PRICE PROMISE does not affect your statutory rights.

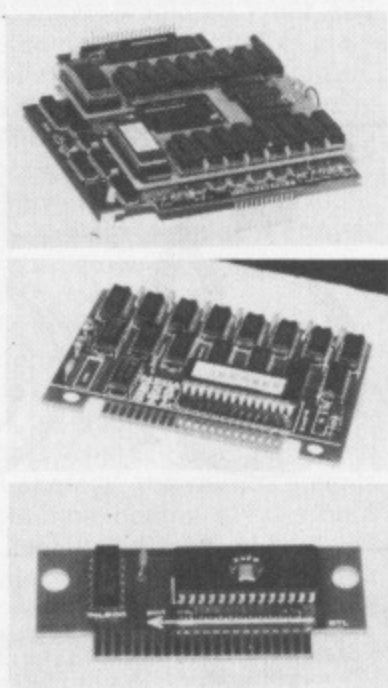
MASTERPLAN:

If you are thinking of exchanging your BEEB for a MASTER or an ARCHIMEDES, Solidisk MASTERPLAN is for you. We can quote immediately over the phone the buy-back value of your BEEB and the balance on your new system. So please give us a try!

ORDERING BY POST:

All items can be ordered by post, sending the coupon below and enclosing cheques, POs, drafts or credit card numbers or by phone. P and P is charged as follows:

- Less than 1 KG (eg software, cartridges and books): £2.00
- Up to 3 KGs (eg single disc drives): £3.00
- Up to 10 KGs (eg computer, monitors, printers, twin disc drives): you can specify either parcel post £6.00 or courier/Datapost: £12.00.
- Above 10 KGs (eg complete system), please either allow generously or give us a ring for quotation.



Please fill and send to:
Solidisk Technology Ltd
17 Sweyne Avenue
Southend-on-Sea,
Essex SS2 6JQ

Name:

Address:

.....

.....

.....


Items:

.....

Price:

P&P: £2/£3/£6/£12

Total:

Access/Barclay  

Solidisk Technology Limited
17 Sweyne Avenue
Southend-on-Sea, Essex SS2 6JQ
Tel: Southend (0702) 354674 (16 lines)

PINEAPPLE SOFTWARE

Programs for the BBC model B, B+, Master and Master Compact with disc drive

DIAGRAM II

Diagram II represents a major breakthrough in the techniques used for drawing software on the BBC micro. It works on a completely different principle to other drawing software by storing the drawing information straight to disc as coded 8*8 pixel blocks.

This technique has three major advantages. First, the size of the diagram is only limited by the amount of space on disc. Second, there is no limit to the amount of information which can be stored on a given diagram as the information is stored on disc and not in computer memory. Third, the disc storage technique allows the smooth scrolling of the screen over the whole surface of the diagram.

For people not familiar with Diagram, the basic operation of the program is to first display any part of the diagram, either by quoting an index name or screen number. At this point you are free to scroll the diagram around the screen using either cursor keys, trackball or mouse. You may stop scrolling at any point and enter the edit mode which allows you to modify or add new information to the diagram. When you have finished making alterations, the new information is stored to disc and you are free to scroll elsewhere on the diagram stopping to edit any any time.

The edit features are now very comprehensive. Text may be typed straight from the keyboard, and if other fonts are stored as user defined characters then these fonts may be printed using the normal keyboard keys.

The print routines are now completely 'scaleable' with both the horizontal and vertical scales being totally variable in 1% steps between a size that will give 18 mode 0 screens on an A4 sheet and a size that would print just one pixel on a sheet. The routines are adaptable to most types of dot matrix printer and full advantage may be made of wide carriage printers. The printouts may be rotated through 90 deg. if required.

The new editing features make DIAGRAM II suitable for all types of serious drawing application including scale drawings, flow charts, architectural, family trees, and many other subjects as well as circuit and schematic diagrams. As an example of what Diagram II can do, this complete advertisement (with the exception of the PCB drawing) has been produced with the package.

SUMMARY of DIAGRAM II FEATURES

1. Works on any model BBC computer with either DFS or ADFS, (ADFS only if Shadow memory available).
2. Will automatically take advantage of shadow memory (any make) to provide more User Definable Characters, 880 with Shadow, 381 without Shadow.
3. Rapid horizontal and vertical line drawing routine with automatic joins for circuit diagrams.
4. Full rubber band line drawing and circle drawing modes.
5. Takes advantage of the Acorn GXR rom to provide drawing of arcs, sectors, chords, parallelograms, ellipses, and flood filling. Note this rom is already fitted to Master and Compact machines.
6. Pixel cursor drawing and deleting mode allows very fine detail to be added.
7. Defined areas of screen may be moved, copied, deleted or saved to disc.
8. On-screen indication of cursor position shows either the cursor position on the overall diagram or the distance from a preset point.
9. Keyboard keys may be predefined to print User Defined Characters, enabling new character sets to be stored as user defined characters and then printed straight to the screen using the keyboard keys.
10. Wordprocessor files may be loaded to the screen and automatically formatted into any shape screen area.
11. Index names may be set up to point to given areas of a large diagram, to enable rapid access to a given point on a diagram.
12. Fully compatible with Marconi trackball and most makes of mouse.
13. All Diagram 'Utilities' are included, enabling screen ident numbers and borders to be added, and any area of diagram to be moved or copied. The whole diagram may be displayed in reduced scale (either 4*4 or 8*8 format) on a single screen, and the size of the overall diagram may be increased or decreased.
14. Completely scaleable print routines allow any area of the diagram to be printed either horizontally or through 90 deg. In scales that may be varied in 1% steps allowing up to 18 mode 0 screens to be printed on an A4 sheet (still with readable text).
15. Complete with 40 page easy to understand handbook.

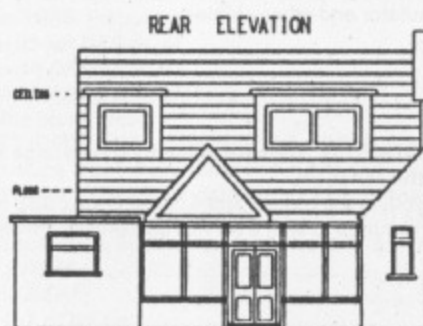
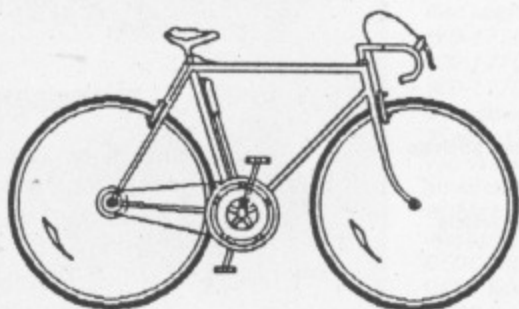


Diagram II consists of a set of disc files and a 16k Eprom. The disc supplied is formatted in 40T on side 0 and 80T on side 2. Please state if this is unsuitable for your system, or if you require a 3.5" Master Compact disc.

DIAGRAM II - £55.00 + VAT

P&P free (except overseas)

N.B. Upgrades are available to existing Diagram owners. Please contact Pineapple if you have not received an upgrade letter.

PCB

Pineapple's now famous printed circuit board draughting aid produces complex double sided PCB's very rapidly using any model BBC micro and any FX compatible dot-matrix printer.

The program is supplied on Eprom and up to 500 component and 500 ASCII component descriptions may be stored for each PCB. There is no limit to the number of tracks that may be stored for a given PCB although the maximum board size is restricted to 8" * 5.6".

Using a mode 1 screen, tracks on the top side of the board are shown in red, while those on the underside are blue. Each side of the board may be shown individually or superimposed. A component placement screen allows component outlines to be drawn for silk screen purposes and component numbers and outlines entered on this screen may be displayed during track routing to aid identification of roundels.

The print routines allow separate printouts of each side of the PCB in a very accurate expanded definition 1:1 or 2:1 scale enabling direct contact printing to be used on resist covered copper clad board. The print routines are very fast taking typically 5 minutes for a 1:1 print of a 7" * 5" board.

This program has too many superb features to describe adequately here, so please write or phone for more information and sample printouts.

PRICE £85.00 + VAT

MARCONI TRACKERBALL

This high quality device comes in three versions. Version one is for the standard BBC micro and comes with the Icon Artmaster drawing package from Micro-Draw, and Trackerball Utilities which allow the trackerball to be used with other software.

Version two is for the Master 128 computer and this comes with the Pointer Rom. This is a Rom which allows the Master to be configured for use with the Trackerball and has commands to enable the Trackerball to intercept the cursor key or joystick routines of other software. Commands are also available to reverse the axes of the trackerball and set the sensitivity. The three buttons may also be set up to produce any ASCII code.

Version three is simply the bare Trackerball which comes without software but is suitable for use with specially written software such as Diagram or Diagram II.

Trackerball adapters are also available which plug onto the end of the cable and convert the connections of the trackerball to be the same as a mouse. This enables the trackerball to drive all types of 'mouse' software.

| | |
|--|--------------|
| For Model 'B' and B+ (with Icon Artmaster) | £60.00 + VAT |
| For Master 128 (with Pointer Rom) | £60.00 + VAT |
| Bare Trackerball (no software) | £48.00 + VAT |
| Pointer Rom - available separately | £12.50 + VAT |
| Trackerball to mouse adapters | £8.00 + VAT |
| Postage & packing on Trackerballs | £1.75 |

PCB PLOTTER DRIVER

A new addition to the PCB software is the PCB plotter driver program. This enables files produced by PCB to be used in conjunction with most types of plotter to produce plotted output rather than the normal dot-matrix printer output.

In this way plots may be produced directly onto film or even directly onto copper board with an etch resistant pen if a suitable plotter is available. The program is suitable for use with most makes of plotter including Hewlett Packard, Hitachi and Plotmate M. The program can also be configured to work with other plotters by entering suitable plotter instructions.

All the features of the printer driver are included, such as the automatic thinning down of tracks between roundels. Mirror image plots are also available.

PRICE £35.00 + VAT

MITEYSPICE

Miteyspice is a very powerful AC & DC circuit analysis package with graphics suitable for use with any model BBC micro including those with 2nd processors.

As well as all the usual facilities available with this type of program, non-linear effects, small signal, noise measurements and sweeps may be performed. Component values may be swept, allowing component tolerances to be investigated as well as thermal performance etc. Comprehensive transistor modelling is incorporated using a 20 parameter Ebers Moll description. The program is supplied on disc with a very comprehensive 49 page manual.

PRICE £119.00 + VAT

ADFS Utilities Rom - ADU

ADU is an invaluable utility for all ADFS users. It adds over 20 new 'commands' to the ADFS filing system as well as providing an extensive Menu facility with over 35 sub commands covering areas such as repeated disc compaction, saving and loading Rom images, auto booting of files and many more.

Copying of DFS discs onto ADFS discs can be made in one pass with automatic creation of the required directories on the ADFS disc. All functions are fully compatible with Winchester drives including 'BACKUP' which allows backing up of Winchester onto multiple floppies.

Additional 'commands' include: 'ADU', 'BACKUP', 'CATALL', 'CHANGE', 'DFSDFS', 'DIRALL', 'DIRCOPY', 'DIRDESTROY', 'DIRRENAME', 'DISCEDIT', 'DRIVE', 'FILEFIND', 'FORMAT', 'KILLADU', 'LOCK', 'MENU', 'PURGE', 'PWRBRK', 'UNLOCK', 'VERIFY', 'VFORMAT.

PRICE £29.00 + VAT

All orders sent by return

39 Brownlea Gardens, Seven Kings, Ilford, Essex IG3 9NL. Tel: 01-599 1476



Beam it down the port, Scotty

"BEFORE dialling to the online service, ensure that DTE is connected to DCE with the RS232 cable provided. The speeds supported include 300/300, 1200/75 and 2400 baud. Your serial port should be enabled for 8:N:1 — check whether you are using software or hardware flow control..."

Does this sound familiar? What is all this mumbo-jumbo about DTE, DCE, baud rates and flow control? Is it something out of the latest Star Trek film or the Advanced BBC Micro programmers manual Volume II?

As you've probably guessed, it's neither. It's all to do with getting your BBC Micro to communicate with other computers or devices via its serial port, called the RS423 on the BBC range of micros.

RS423? Hold it, doesn't the first paragraph of this article mention an RS232 interface? Correct, BBC Micros have a reduced, but not disabled, number of RS232 connections. A typical RS232 port has 25 connections, not all of which are used at any one time.

Because of cost constraints when the BBC Micro was first launched, coupled with a sensible desire to reduce the complexity of the BBC's serial port, an RS423 (as it is technically known) was used. It has five connections, all of which are required when communicating with another device.

To understand how a serial port works, let's think of a railway. No, seriously, railways have been around for more than a century. Yet when you think of the number of motor accidents today, rarely does a train ever derail or crash. This is not due to pure luck, but is thanks to a sensible set of signals used by British Rail.

In the early days, the signals were simply painted pieces of metal that were either raised or lowered to indicate a go or no-go situation on a piece of track. More recently, traffic light systems have come into play, but the essence of the signal is still the same — an indication that it is clear or not clear to proceed.

Imagine, if you will, a single railway

Steve Gold explains the basics of serial port communication

track with a station at either end. The train runs from one end of the track to the other and back again. This is called a simplex or half-duplex link. In serial port terms, data can flow in one direction or the other, but not in both directions at once.

Most railway lines today have two tracks, so that data can flow in both directions simultaneously. Both tracks are, for the main part, separate, so that trains may pass — at will — in one direction on each side of the track. In serial port terms, data can flow in both directions at the same time. This is known as a full duplex link.

A single wire link, with data flowing — by arrangement in either direction, but in only one direction at a given time — is a simplex or half duplex link.

A two wire link, with data flowing in both directions at the same time is a full duplex link. The interface is called *serial* because each bit of data is passed down the single wire in a series.

So, for full-duplex transmissions, we need two wires — one to transmit (Tx),

the other to receive (Rx) data. If life were that simple, things would be great. But we live in a complex world, full of electrical interference, so an earth return, known as a signal ground is required.

Data can flow at high speeds between computer equipment but, as most BBC Micro owners will know, data is actually processed by the computer as it arrives, requiring the flow of data to be temporarily stopped.

In data terms, this is known as flow control. Referring back to the first paragraph of this article, you'll note that flow control can be implemented in either hardware or software. Referring to our train signal analogy, the railway signals represent the flow control signals on a serial port connection.

In hardware flow control two further links over and above the Tx, Rx and signal ground links, are used. These are known as RTS (Request to Send) and CTS (Clear to Send). As the name implies, the RTS link allows the BBC Micro to transmit an RTS signal to a device over a serial link, whilst the CTS link does the same thing in reverse — it signals that the distant device is 'clear to send' the data over the serial link.

When implemented in software, flow control is much simpler, and is signified by the issuing of data flow on (X-on) and data flow off (X-off) commands over either the Tx or Rx links of a serial interface.

In simple terms all the X-on, X-off signals are doing is saying "Please wait a moment" to other devices. Because computers and their associated devices aren't human of course, they can dispense with the pleasantries and transmit/receive the X-on or X-off signals in a fraction of a second.

And that, in a nutshell, is the BBC Micro's RS423 port — a Tx and Rx link for the data itself (and X-on/X-off flow control signals), CTS and RTS links for hardware flow control and a centre signal ground pin to protect against outside interference and where appro-

What is an RS232?

The RS232 interface is a standard for connecting business machines (including computers) with other devices using a serial data interface. The latest revision of the RS232 standard, known as the RS232-C, was formulated by the Electronic Industries Association (EIA) of Washington in the United States in 1969.

The RS423 serial interface seen on the BBC range of micros is a derivative of the RS232-C standard, and has 5, instead of 25 pins (as seen on the RS232-C connector).

Link your BBC Micro to the outside world with...

MicroLink



Electronic mail – The cheapest and fastest form of communication possible. It costs the same to send a message to one mailbox as to 500!



Telex – Link up with 96,000 telex subscribers in the UK and 1.5 million worldwide. You can even send and receive telexes after office hours or while travelling.



Telemessages – Type in your message before 8pm and delivery is guaranteed by first post the next day (except Sunday), anywhere in the UK and USA.



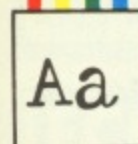
Tele-booking – Reserve train and theatre tickets, check flight details worldwide, or order from a vast range of products – from flowers to floppy discs.



Telesoftware – Download directly into your BBC Micro any program from the ever-growing library now available on MicroLink – games, educational and utilities.



Company searches – Obtain facts about any British limited company in seconds, and fully analysed financial information on over 100,000 major companies.



Typesetting – Send copy from your word processor together with details of type size and style, and you'll receive pages ready for printing within 24 hours.



News – Use the powerful search commands to pinpoint vital business information from the world's leading news services, newspapers and periodicals.



Radiopaging – If you also have a pocket radiopager you'll be alerted each time an urgent message arrives in your mailbox. So you're always in touch.



Gateways – Get through to New York in just five seconds – or key into the EEC computer in Luxembourg, which links you to 600 databases throughout Europe.

When you join MicroLink you've got the world of communications at your fingertips – 24 hours a day. You'll have immediate access to ALL the facilities offered by Telecom Gold ... and a great deal more besides.

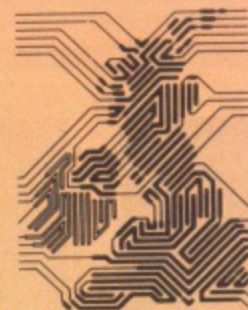


All you need – apart from your BBC Micro – is a modem, which plugs into your telephone wall socket, plus suitable communications software.

We have provided a list of possible combinations below, ranging from the very cheapest to ones which can automatically dial the MicroLink telephone number and connect you to the service – all you have to do is type in your personal security password.

Whichever equipment you use, you will be able to call MicroLink, open your mailbox, save to disc any messages waiting for you, and disconnect in as little as two minutes.

| Typical comms packages | |
|------------------------|---|
| A | Watford: Apollo V21, V23 auto-dial, auto-answer modem + Comms rom (£82.25) |
| B | Dataphone: Demon V21, V23 auto-dial, auto-answer modem + Z-ROM + Disc-Connect software (£96.49) |
| C | Pace: Nightingale V21, V23 manual dial modem + Commstar II rom (£98.90) |
| D | Beebug: V21, V23 auto-dial, auto-answer modem + Comms rom (£103.99) |
| E | Miracle: WS4000 V21, V23 auto-dial, auto-answer modem + Dialup (£285.39) |



More than 90 per cent of subscribers can connect to the MicroLink computer at local call rates.

TO FIND OUT MORE
Fill in the coupon and send it to the address below. You will receive full details of services and costs, together with an application form. Complete this and within days you and your BBC Micro will be able to use all the services of MicroLink and Telecom Gold.

Please send me full details about MicroLink, and information sheets about the following hardware and software options (please circle):

A B C D E

Name _____

Address _____

Postcode _____

Send to: MicroLink, Europa House, 68 Chester Road, Hazel Grove, Stockport SK7 5NY.

MU10

Acorn
The choice of experience.

**PEARTREE
COMPUTERS**
LTD

**Approved
Acorn dealer**

Peartree House, No 1 Blackstone Road, Stukeley Meadows Industrial Estate, Huntingdon, Cambs PE18 6EF. Telephone (0480) 50595



You ain't seen (or heard) nothing yet!

Dear Reader

To make sure that there can be no confusion between Peartree Products and products by other manufacturers we have renamed the Peartree MUSIC 7000 the Peartree MUSIC 87 synthesiser.

The Peartree MUSIC 87 is a high quality music add on for the BBC B, B+ or Master 128. It enables the production of eight voice musical compositions, and incorporating an unlimited range of instrumental sounds designed entirely by you, the user.

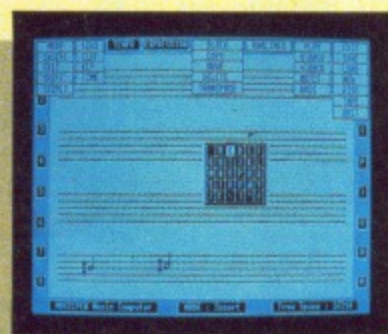
The MUSIC 87 solves all the old problems and adds these new outstanding features:

- 6502 2nd processor compatible
- Light pen driven
- Mouse driven
- High resolution (mode 0) screen graphics in most of the program to show maximum detail and minimum clutter
- Menu driven
- Facility to print out music score in standard music notation
- Creation of sounds using wave forms and sound parameters defined entirely by the user
- Music score displayed on screen in time with play back
- Functions include DFS and ADFS
- Music keyboard available soon
- Software available to upgrade your Music 500 or Music 5000 at £39.95 (PEP025)

► PEP024



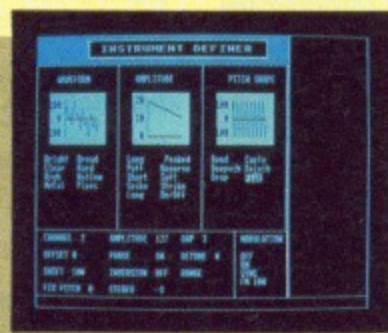
Studio Desk menu with mouse driven record, play, rewind options



Music Editor menu, light pen & mouse driven with complete menu options at top



Sound Shaper allowing you to create your own waveforms, envelopes, mouse, lightpen or keyboard driven



Instrument definer allows you to define your own instrument pitch, amplitude and wave forms

MUSIC 87
SYNTHESISER

Hardware & Software
complete at only
£79.95

PLEASE USE OUR CODES WHEN ORDERING



PEARTREE COMPUTERS LTD

Approved service centre for all Acorn products.

Peartree House, No 1 Blackstone Road, Stukeley Meadows Industrial Estate, Huntingdon, Cambs PE18 6EF. Telephone (0480) 50595

HARDWARE

| | | |
|---|---|-----------------|
| ACH001 | BBC MASTER 128 128K complete with View, Viewsheet, basic editor. ADFS 1770 DFS | £385.00 |
| ***special offer includes FREE MUSIC 500 | | |
| ACH002 | BBC MASTER COMPACT 128K computer 640K disc drive built in RGB comp video, joystick and printer port | £375.00 |
| ACH003 | BBC MASTER COMPACT TV As above with PAL TV modulator | £395.00 |
| ACH004 | BBC MASTER COMPACT MONO As above with high resolution green monitor | £445.00 |
| ACH005 | BBC MASTER COMPACT COLOUR As above with RGB medium res colour monitor with video composite | £545.00 |
| ACH011 | TURBO UPGRADE for MASTER 128 65C102 co-processor 4MHz 64K ram extra high Basic, high editor | £99.00 |
| ACH012 | 512K MSDOS for MASTER IBM compatible DOS plus 8186 processor | £189.00 |
| ACH041 | UNIVERSAL 2nd PROCESSOR Allows both the turbo upgrade and the 512K upgrade to be run on the BBC Model B or B+ | £75.00 |
| ACH015 | 1770 DFS KIT for BBC B Allows BBC to access disc drives Allows you to use ADFS as well | £41.00 |
| ACH016 | ADFS ROM for 1770 or BBC B+ Gives 720K per disc | £24.00 |
| ACH020 | 32016 CO-PROCESSOR 32 bit processor Complete with Fortran, Pascal, Cambridge Lisp, C Basic and 32016 assembler | £999.00 |
| ACH021 | ACORN CAMBRIDGE WORK STATION 4MB work station with 32016 co-processor | £3400.00 |
| ACP003 | MEGAHOUSE High quality UK manufactured Slip free rubber coated ball Fully AMX compatible | £49.00 |
| ACH034 | ACORN MUSIC 500 | £39.00 |

ECONET

| | | |
|--------|--|-----------------|
| ACH006 | ECONET BBC MASTER ET 128 No DFS Econet station with 128K memory | £300.00 |
| ACH007 | ECONET KIT Upgrades for BBC B or BBC B+ | £55.00 |
| ACH008 | ECONET STARTER KIT | £79.00 |
| ACH009 | ECONET SOCKET KIT | £29.00 |
| ACH010 | ECONET MODULE Upgrade cartridge for Master 128 | £43.00 |
| ACH022 | ECONET 10 STATION LEAD SET | £25.00 |
| ACP006 | PRINTER SERVER EPROM Allows BBC machine to be a printer server station | £39.00 |
| ACH031 | WINCHESTER 30MB (ACORN) with LEVEL 3 FILE SERVER | £1449.00 |
| ACH039 | FILESTORE E01 Stand alone twin floppy file server unit Contains clock box, terminator, etc. | £819.00 |
| ACH040 | FILESTORE E20 20MB hard disk for use with Filestore E01 | £709.00 |

DISC DRIVES

All Peartree Disc Drives have a two year warranty by Akhter Computers

| | | |
|--------|---|----------------|
| ACH026 | SINGLE 40/80 DRIVE, NO PSU 400K MITSUBISHI | £119.00 |
| ACH027 | SINGLE 40/80 DRIVE inc. PSU 400K MITSUBISHI | £135.00 |
| ACH028 | DUAL 40/80 DRIVE, NO PSU 800K MITSUBISHI | £229.00 |
| ACH029 | DUAL 40/80 DRIVE, inc. PSU 800K MITSUBISHI | £269.00 |
| ACH030 | DUAL 40/80 DRIVE IN MASTER BRIDGE MITSUBISHI | £289.00 |
| ACH032 | WINCHESTER 20MB & 400K DRIVE | £766.00 |

MODEMS



| | | |
|--------|---|----------------|
| ACS075 | COMMSTAR II Now compatible with Master 128 | £29.95 |
| ACP014 | PACE NIGHTINGALE 1200/75 75/1200 300/300 baud rates BT approved complete with cables | £99.00 |
| ACP015 | PACE NIGHTINGALE COMBO As above with Comstar software | £129.00 |
| ACP020 | WS3000V21/V23 MODEM Hayes compatible | £285.00 |
| ACP021 | WS4000 SCHOOLS MODEM Autodial, autoanswer | £159.00 |

COMPONENTS

| | | |
|--------|--|---------------|
| ACP007 | EPROM 27256 32K | £4.95 |
| ACP008 | EPROM 27128 16K | £3.95 |
| ACP010 | 8K RAM CHIP Low power ram chips used in sideways rams | £3.50 |
| ACP012 | EPROM ERASER WITH TIMER | £29.95 |
| ACP013 | EPROM BLOWER Will program 2764, 27128, 27256 and 27513 | £69.00 |
| ACP023 | ACORN BBC B KEYBOARD | £49.00 |
| ACP027 | ACORN 8271 AND TTL Complete DFS kit | £49.00 |
| ACP028 | BBC B+ AND BBC B IBM LOOKALIKE CASE | £99.00 |
| ACP033 | BBC MASTER DUST COVER | £4.50 |
| ACP034 | BBC B DUST COVER | £4.50 |



Now available from Peartree the Acorn Music 500 for the BBC, BBCB+, Master 128
£39.00 excluding VAT.
only from PEARTREE **▶ ACH034**

SOFTWARE



Computer Concepts

| | | |
|--------|---|---------------|
| ACS002 | WORDWISE PLUS Mode 7 editing, preview in mode 0 Multi document editing | £45.00 |
| ACS003 | INTER SHEET 40, 80 and 105 column mode multiple spreadsheet | £42.00 |
| ACS004 | INTER CHART Built in Epson screen dump Supports pie, line and bar charts | £30.00 |
| ACS005 | INTER WORD 80 or 105 column word processor Continuous documents | £42.00 |
| ACS006 | INTER BASE Compatible with all filing systems Card index mode, contains powerful Basic like programming language | £50.00 |
| ACS033 | SPELLMASTER | £50.95 |



ACORN SOFT

| | | |
|--------|---|---------------|
| ACS012 | VIEW 3.0 Industry's standard word processor For the BBC B, B+, 6502 compatible Including printer driver generator | £53.00 |
| ACS013 | VIEWSHEET Acornsoft standard spreadsheet | £36.00 |
| ACS014 | VIEWSTORE Complete with report generator Data can be imported from other view products | £37.00 |
| ACS015 | VIEWSPELL Spelling checker for View with 70,000 words | £32.00 |
| ACS016 | VIEWPLOT Enables you to draw lines, pie graphs Compatible with Viewsheets | £24.00 |
| ACS017 | VIEWINDEX Automatically creates indexes, notes, page numbers | £13.00 |
| ACS018 | VIEW PRINTER DRIVER GENERATOR To be used to personalise View documents with special features | £9.00 |
| ACS181 | OVERVIEW For the MASTER series only Includes Viewplot, Viewstore, Viewspell, Viewindex and the View Printer Driver Generator | £86.00 |
| ACS020 | ISO PASCAL Full implementation of the ISO standard | £52.00 |
| ACS053 | ISO PASCAL S.A.G. DISC Generate stand alone code | £29.00 |
| ACS021 | LOGO Good introduction for children with total graphics support | £52.00 |
| ACS022 | TERMULATOR Terminal emulator enables the host computer to be sent directly to the BBC's output driver | £29.00 |
| ACS023 | COMAL Programming language standard in many European countries | £39.00 |
| ACS024 | BASIC EDITOR Powerful screen basic editor | £25.00 |
| ACS025 | MICRO PROLOG | £60.00 |
| ACS026 | BCPL ROM | £49.00 |
| ACS027 | BCPL CALCULATION | £29.00 |
| ACS028 | BCPL STAND ALONE GENERATOR | £39.00 |



PEARTREE COMPUTERS LTD



Peartree House, No 1 Blackstone Road, Stukeley Meadows Industrial Estate, Huntingdon, Cambs PE18 6EF. Telephone (0480) 50595

SOFTWARE

| | | |
|--------|--|---------------|
| ACS054 | FORTH ROM | £39.00 |
| ACS055 | FORTH DISC | £14.95 |
| ACS056 | MASTER LISP C-ROM | £49.00 |
| ACS058 | MASTER LOGO C-ROM | £52.00 |
| ACS059 | 6502 DEVELOPMENT PACK DISC | £39.00 |
| ACS060 | GXR for MODEL B | £23.00 |
| ACS061 | GXR for MODEL B+ | £23.00 |
| ACS031 | DOS COPY BBC/MS-DOS BBC MSDOS copies to or from many IBM MSDOS disc formats Requires 1770 based DFS | £14.95 |
| ACS032 | CPMBEEB BBC/CPM | £14.95 |
| ACS038 | AMX MOUSE AND SUPERART | £65.00 |
| ACS039 | AMX DESK | £19.00 |
| ACS040 | AMX UTILITIES | £11.50 |
| ACS041 | AMX SUPERART | £43.00 |
| ACS042 | AMX PAGEMAKER | £43.00 |
| ACS043 | AMX 3D ZICON | £21.00 |
| ACS044 | AMX DATABASE | £21.00 |
| ACS045 | AMX XAM | £21.00 |
| ACS046 | AMX MAX | £17.00 |
| ACS047 | THE ARTIST SOFTWARE | £39.00 |
| ACS048 | ARTIST AND MEGAMOUSE | £79.00 |
| ACS050 | ADVANCED DISC INVESTIGATOR Powerful disc utility Back up most protected discs Check and repair faulty tracks Compatible with the BBC B, B+ and the Master | £22.50 |
| ACS051 | ADVANCED DISC TOOLKIT Compatible with all Acorn products 35 extra commands ADFS formatter and back up plus many more powerful utilities | £27.50 |
| ACS052 | MUSIC 500 SOFTWARE Ample software with full manual | £9.95 |
| ACS075 | ADVANCED 1770 DFS Turn our RAM cartridges into RAM disc 62 file catalogue 640K disc capacity | £27.50 |

LEADS

| | | |
|--------|--|---------------|
| LDS001 | BBC TO TV LEAD | £1.25 |
| LDS002 | BBC TO GREEN MONITOR LEAD | £2.95 |
| LDS003 | BBC TO SONY/KAGA COLOUR MONITOR | £5.95 |
| LDS004 | BBC TO MICROVITEC LEAD | £2.20 |
| LDS005 | PHONO TO PHONO LEAD | £1.25 |
| LDS006 | BNC TO BNC | £2.95 |
| LDS007 | BBC TO CASSETTE | £2.25 |
| LDS008 | BBC TO ACORN CASSETTE LEAD | £2.25 |
| LDS009 | BBC TO CENTRONICS | £9.95 |
| LDS010 | BBC TO SERIAL PRINTER | £9.95 |
| LDS011 | 4 WAY MAINS TRAILING SOCKET | £9.50 |
| LDS012 | CABLE FOR MODEM | £4.95 |
| LDS014 | MASTER COMPACT PRINTER LEAD | £15.95 |

MONITORS COLOUR

| | | |
|--------|--|----------------|
| MON001 | HANTAREX COLOUR MONITOR MEDIUM Medium to high resolution RGB interface Composite video and sound input | £239.00 |
| MON002 | MICROVITEC 1451 COLOUR MON MED Medium res monitor Metal or plastic case, please state when ordering RGB interface | £249.00 |
| MON003 | MICROVITEC 1451 A/P COL MON MED As above with audio and composite video input | £279.00 |
| MON004 | MICROVITEC 1441 MON COL HIGH Very high resolution monitor 895 pixels RGB interface | £449.00 |
| MON005 | TAXAN SUPER VISION 625 COL HIGH 12" super high resolution colour monitor 4 unique text modes Front monochrome text switch 640 x 262 line resolution | £349.00 |
| MON006 | PHILIPS CM8833 COLOUR MONITOR 14 inch medium resolution monitor RGBI RGB TTL | £273.86 |
| MON007 | PHILIPS CM8852 COLOUR MONITOR 14 inch medium/high resolution RGBI RGB | £299.00 |

MONOCHROME

| | | |
|--------|---|---------------|
| MON008 | HANTAREX GREEN MONITOR The high resolution green monitor supplied to many education departments and hospitals | £65.00 |
| MON009 | KAGA KX 117 GREEN MONITOR P31 | £89.00 |
| MON010 | KAGA KX 118 GREEN MONITOR Clarity exceptional on BBC text | £99.00 |
| MON011 | KAGA KX 119 AMBER MONITOR (PUL) | £99.00 |
| MON012 | PHILIPS GREEN MONITOR | £69.00 |

Many other monitors are in stock. We can supply, please call for prices and deliveries.

BOOKS

| | | |
|--------|--|---------------|
| MIS012 | BBC MASTER REFERENCE GUIDE PT1 | £14.95 |
| MIS013 | BBC MASTER REFERENCE GUIDE PT2 | £14.95 |
| MIS014 | VIEW MANUAL (BBC) | £10.00 |
| MIS015 | VIEWSHEET MANUAL | £10.00 |
| MIS019 | VIEWSTORE MANUAL | £10.00 |
| MIS016 | DFS OPERATING SYSTEM MANUAL | £6.95 |
| MIS017 | BBC USER GUIDE | £14.95 |
| MIS024 | BBC ADVANCED USER GUIDE | £16.95 |
| MIS018 | ADVANCED SIDWAYS RAM USER GUIDE | £9.95 |

PRINTERS

| | | |
|--------|---|----------------|
| PRT001 | EPSON LX86 PRINTER 120CPS NLQ mode Centronics Interface | £199.00 |
| PRT002 | EPSON FX800 9 pin dot matrix 180 CPS draft mode, 35 CPS NLQ mode 8K buffer Parallel interface standard 80 column | £399.00 |
| PRT003 | EPSON FX1000 9 pin dot matrix 200 CPS draft mode, 35 CPS NLQ mode 8K buffer Parallel interface standard 136 column | £499.00 |
| PRT004 | EPSON LQ800 PRINTER 24 pin dot matrix 180 CPS draft mode, 60 CPS NLQ mode 7K buffer Parallel interface standard 80 column | £499.00 |
| PRT005 | EPSON LQ1000 PRINTER 24 pin dot matrix 180 CPS draft mode, 60 CPS NLQ mode 7K buffer Parallel interface standard 136 column | £699.00 |
| PRT008 | MP 165 PRINTER 165 CPS draft mode, 40 CPS NLQ mode 2K buffer Centronics interface Built in tractor feed Epson compatible | £199.00 |
| PRT011 | JUKI 6100 PRINTER 18 CPS daisy wheel printer Standard ribbons Centronics interface | £299.00 |
| PRT021 | PANASONIC KX-P1081 DOT MATRIX PRINTER Fast draft printing at 120 CPS Excellent Near Letter Quality font at 24 CPS | £147.00 |
| PRT014 | EPSON LX TRACTOR FEED | £22.00 |
| PRT016 | EPSON LX CUT SHEET FEEDER | £59.95 |
| PRT023 | EPSON LQ1000 TRACTOR FEED FEEDER | £50.00 |
| PRT024 | EPSON LQ1000 CUT SHEET FEEDER | £130.00 |
| PRT025 | EPSON FX80+ CUT SHEET FEEDER | £129.95 |

**Please Note
We have many other makes of printers in stock such as



Always call for availability.

PRINTER RIBBONS

| | | |
|--------|---|---------------|
| MIS005 | RIBBON FOR MX FX80 & JUKI 5510 | £4.50 |
| MIS006 | RIBBON FOR LX80 LX86 | £4.50 |
| MIS007 | RIBBON FOR MP165 | £5.00 |
| MIS008 | RIBBON KAGA KP810/ CANON PW1 | £5.95 |
| MIS009 | RIBBON FOR EPSON FX RX/100 | £7.95 |
| MIS034 | RIBBON FOR EPSON LQ800 | £11.95 |
| MIS023 | RIBBON FOR CPA80 | £3.50 |

Acorn
The choice of experience.

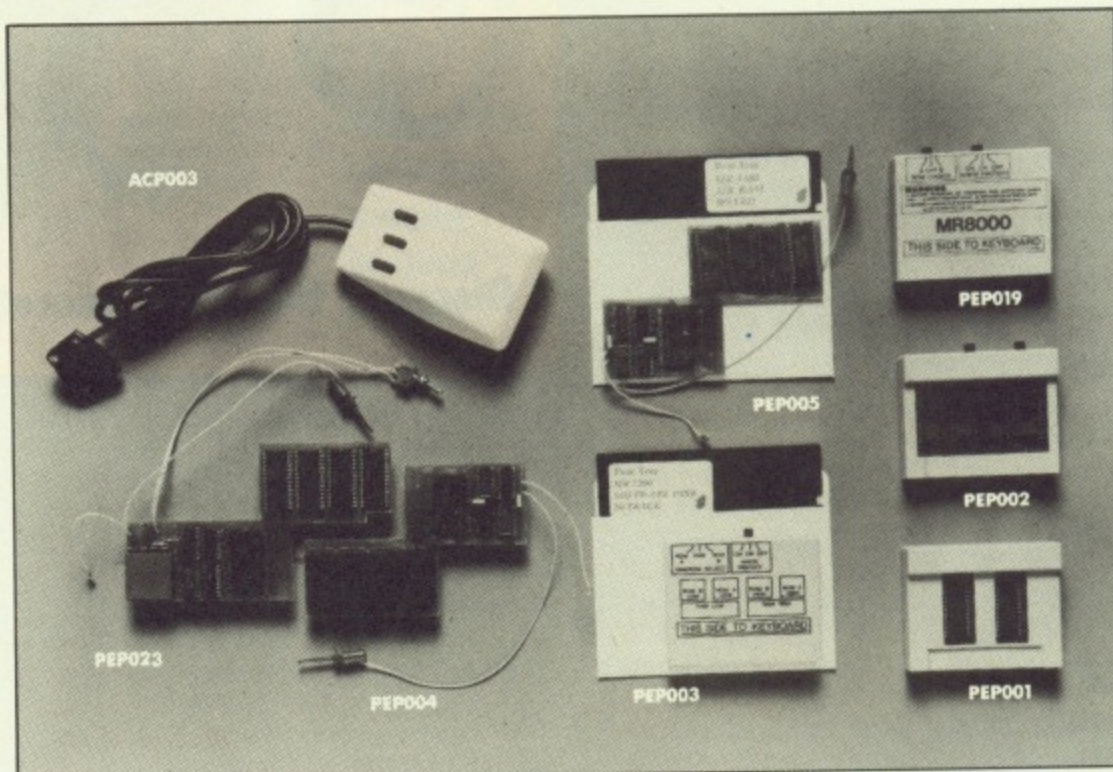
PEARTREE COMPUTERS LTD

M
BRITISH
BROADCASTING
CORPORATION
MASTER SERIES
MICROCOMPUTER

Peartree House, No 1 Blackstone Road, Stukeley Meadows Industrial Estate, Huntingdon, Cambs PE18 6EF

PEARTREE PRODUCTS

| | | |
|--------|--|---------------|
| PEP001 | PEAR 1 ROM CARTRIDGE Add 32K rom to your Master | £8.95 |
| PEP002 | MR6000 MASTER CARTRIDGE Add 64K rom to your Master | £11.95 |
| PEP003 | MR7200 MASTER RAM CARTRIDGE Add 32K ram to your Master | £29.95 |
| PEP019 | MR8000 MASTER RAM CARTRIDGE Add 64K ram to your Master Battery backed up Battery life five years | £39.95 |
| PEP023 | MR4800 RAM BOARD RAM board for the BBC Model B 128K RAM Battery backed up Small, easy to fit, complete with utility software Includes write protect switch | £59.95 |
| PEP004 | MR3000 ROM BOARD Still going strong. This has proved to be a very popular mini rom board for the BBC Model B Add 4 extra rom sockets | £15.95 |
| PEP005 | MR4200 RAM BOARD Add 32K of sideways ram and 3 extra rom sockets. Includes write protect switch | £29.95 |



| | | |
|--------|---|---------------|
| PEP010 | DISCS DS/DD 5.25 96 TPI Life time guarantee Reinforced hub | £13.50 |
| PEP011 | DISCS DS/DD 3.5 Double sided Suitable for the Master Compact | £26.00 |

Archimedes



The ARCHIMEDES High Performance Computer Systems represent a considerable lead in performance, but how has this performance been put to use in the range of products?

The ARCHIMEDES range includes the 300 Series and the more sophisticated 400 Series.

All machines have features in common:

- 32 bit RISC technology;
- ergonomically styled in a 3 box presentation;
- 'IBM enhanced' style keyboard with 3 button mouse;
- British Broadcasting Corporation Micro style operating system (ARTHUR);
- BB BASIC V;
- interfaces; printer, serial, monitor, stereo sound;
- ECONET plug-in option;
- a variety of podules can be fitted.

THE 300 SERIES

The 300 Series, identified by its red function keys,

The NEW High Performance 32 Bit Risc Processor from Acorn

consists of two models, ARCHIMEDES 305 with 0.5 Mbyte of RAM and ARCHIMEDES 310 with 1 Mbyte of RAM. These machines are the latest generation of British Broadcasting Corporation Micros. They offer, at low cost, all the basic features with expansion capabilities. Both machines have a 512 Kbyte ROM and a 1 Mbyte (unformatted) 3 1/2" disc drive.

THE 400 SERIES

The more powerful 400 Series offers considerably increased expansion capabilities. These machines are the new range of Acorn Computers.

The ARCHIMEDES 410 has 1 Mbyte of RAM; 1 Mbyte (unformatted) 3 1/2" disc drive; a hardware floating point unit option; a co-processor bus; a hard disc controller; a four socket back plane; 512 Kbytes of ROM.

At the top of the range is ARCHIMEDES 440. This machine possesses all the features of the 410 as standard, with the adoption of 4 Mbytes of RAM and a 20 Mbyte hard disc.

ARCHIMEDES is an open system and its flexibility is achieved by fitting any of the following podules (peripheral modules) via a back plane:

- hard disc controller (300 Series only);
- ROM extension board;
- MIDI music interface;
- MS-DOS co-processor;
- SCSI;
- hardware floating point unit;
- Ethernet podule.

Third party suppliers will be meeting other user requirements.

300 SERIES

| | | |
|-------------|---------------|--------------|
| A305 SYSTEM | BASIC | £799 |
| | MONO | £849 |
| | COLOUR | £999 |
| A310 SYSTEM | BASIC | £875 |
| | MONO | £925 |
| | COLOUR | £1075 |

400 SERIES

| | | |
|-------------|---------------|--------------|
| A410 SYSTEM | BASIC | £1399 |
| | MONO | £1449 |
| | COLOUR | £1599 |
| A440 SYSTEM | BASIC | £2299 |
| | MONO | £2349 |
| | COLOUR | £2499 |

We accept Barclaycard/Visa/Access/Mastercard/postal orders or cheques. We accept government and educational orders. Leasing available, please apply for written details.

You may purchase any of the items listed, by cheque made payable to **PEARTREE COMPUTERS LTD.**

All you have to do is to list your requirements on a sheet of paper, post it to us quoting ref, and we will despatch your goods within 24 hours, whenever possible.

Please add the following amounts for postage and packing:

| | |
|---------------------|------------|
| Items below £10.00 | add £1.50 |
| Items below £50.00 | add £2.50 |
| Items below £100.00 | add £3.50 |
| Items over £100.00 | add £10.00 |

Independent courier for items over £100.00

All prices exclude VAT.

Access/Barclaycard holders—call us on our new special line: **(0480) 50595**

Prices are correct at time of going to press. Peartree Computers reserves the right to change prices without prior notice.

THIS month sees me, at last, with a Master of my own. But now I realise that there are some games that I will never be able to play again.

Roger Griffiths of St Davids, Dyfed, is a B+ owner in the same boat. His favourite game, *Wizadore* by Imagine, is, as mentioned in the July column, designed to work only on the combination of Model B with OS1.2 and not on the B+.

A letter to Imagine brought only a replacement tape. When I inquired, I was met with the polite but not very useful reply that no B+/Master compatible version of *Wizadore* exists nor is one planned.

The whole idea behind the design of the BBC Micro is of upward software compatibility with future models. It is a credit to Acorn that such a radical new machine as the Archimedes – unlike the newest models from other manufacturers – will run software written for its predecessors.

Software houses should in turn be prepared to give their support to owners of newer Acorn machines. An ideal solution would be to offer B+, Master or Archimedes owners a mail-order disc-for-tape upgrade to a compatible version of their software, for a nominal sum.

The goodwill generated would vastly outweigh any inconvenience caused to the software house, not to mention a new lease of life for many excellent games, like *Wizadore*, released before the arrival of the new computers. And as for all the free mentions that would follow in *The Micro User's* letters page...

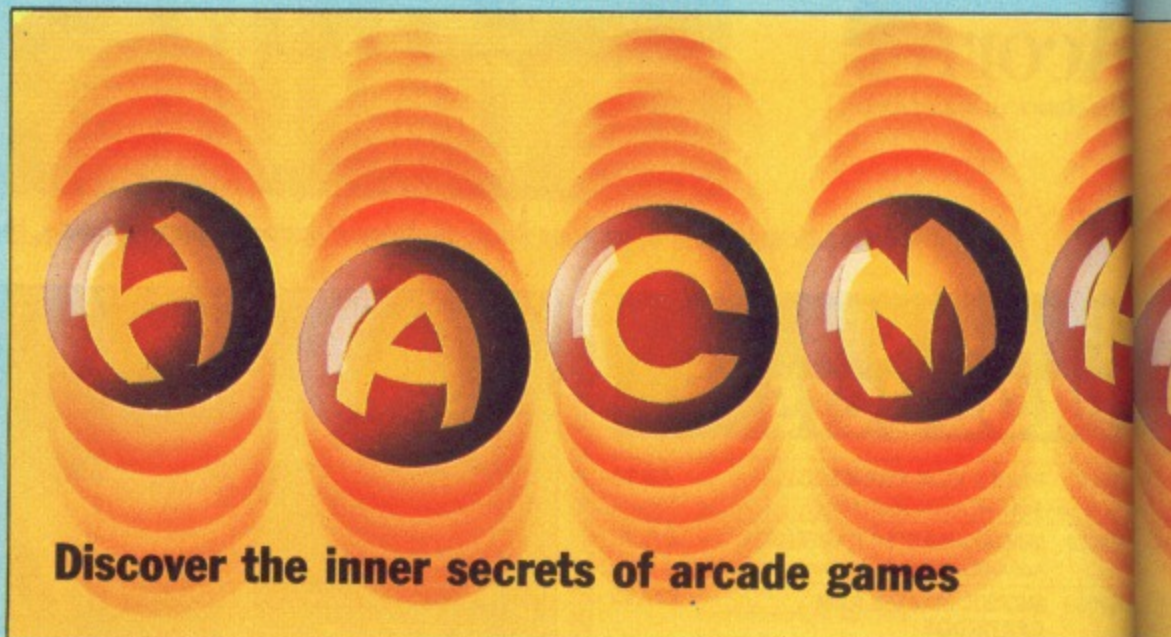
I see the latest in Acornwear is a trendy Archimedes tie-pin. Many thanks to Fiona Johnson of Acorn for sacrificing hers to a good cause – it's been pinned to my round green chest ever since.

I was most disappointed to find that *Codename Droid*, the latest escapade of Commander John Stryker, has not followed its predecessor in providing an extended version for the Master. That said, it's a great game.

Authors Martin Edmondson and Nicholas Chamberlain, of Ravenskull fame, have taken Chris Roberts's one-man-army and given him the task of destroying the Volgans on their home planet. It looks like a cross between its predecessor and *Dr Who*, but with much more depth than Stryker's Run.

Incidentally Chris Roberts is also the author of *Wizadore* and *Ocean's Match Day*, neither of which work on my new toy. Sadly, *Match Day* too has befallen the fate of *Wizadore*: Doesn't work, no upgrade.

I must, at this point, thank Superior and Tynesoft for providing me with Master-compatible versions of *Citadel*



and *Jet Set Willy II*. Both are available to owners of an earlier version of the game, simply by returning the original cassette or disc, together with a stamped, addressed envelope.

Jet Set Willy I is also incompatible with the Master, but has been included in its entirety as part of the enhanced Master version of *Jet Set Willy II*, thereby making a far bigger game.

If any B+ or Master owners are interested in other programs that take advantage of the extra memory of their machine, *Colossus Chess 4.0* by CDS is well worth considering. It features two versions, one for 32k machines and one for the B+ and Master. Either way, it's no pushover: it beat Acornsoft Chess in 16 out of 16 matches.

Kevin Blake is the author of a string of BBC Micro hits over the years, including the new *Spy vs Spy*. He's dropped me a line about a cheat mode built into his game, *Future Shock*, published by Tynesoft.

Once loaded, the game goes into a demonstration mode, showing a number of scenes from the game. When the page showing the credits to the authors is being displayed, type *TOERAG* very quickly. The ever-watching eyes turn light blue and you now have infinite lives.

Arkanoid from Imagine is a simple but incredibly addictive game based on the ancient *Breakout* theme. This actually does run on the Master (as long as you've got *CONVERT* running) and it's causing me far too many late nights. I hear that Peter Johnson, author of the BBC Micro and Atari ST versions, has a real *Arkanoid* arcade machine in his bedroom. No wonder the BBC Micro version was late...

Gary Partis, whose name seems to spring up in this column almost every month, is putting the finishing touches to *Impact!*, his *Arkanoid* basher, which should be out as you read this. It will be interesting to see which does the bashing.

Hot on the heels of the recently released *Green Beret* comes another near-legendary game: Audiogenic's

Graham Gooch's Test Cricket for the B, B+ and Master.

I've never been a fan of computer cricket. This one is probably the most comprehensive implementation but it still failed to inspire me. You can define your own teams and their field positions and choose the length of play and use either keyboard or joystick control, to name but a few options. There's a full review of both *Arkanoid* and *Test Cricket* in *Software Scene* this month.

Steve James of East Barnet (who has produced complete XOR maps) would like it known that *Cholo*, the latest in a long line of *Firebird* mega-games, does not work with the Watford Electronics DDFS. Perhaps *Firebird* has a compatible version of the disc in the pipeline.

One of the most popular games at the moment is *Imogen* from *Micro Power*. A number of readers (too many to mention) have sent in the complete set of passwords for the game:

A: BALLOONACY
 B: DRIPPING STUFF
 C: SEE-SWORD
 D: GNU-PROBLEM
 E: WHIP-IT
 F: SAXOPHOBIA
 G: DOWN-AND-OUT
 H: FOLLOW-ME
 I: DUCK-EGG-BLUES
 J: PAVLOV-WAS-HERE
 K: TENDER-HOOKS
 L: BABBOONACY
 M: APPLESOURCE
 N: HAMSTER-JAM
 O: FIRE-WORKS
 P: TIME-FLIES

A number of *Opus Challenger* owners will have found long ago that many protected games discs will not run on their systems. *Imogen* is normally no exception, but now – thanks to Jonathan Temple of Nottingham – it does. Simply type in Listing 1 and run it instead of pressing Shift+Break.

Jonathan has also sent in a cheat routine for *Imogen* that resets the remaining number of metamorphoses in a saved data file to 150, the starting

Get knitting on your micro with *Knitwear Designer*

Now you can use your BBC Micro or Electron to design perfectly-fitting knitwear – then print out the complete pattern.

It's the biggest development since the home knitting machine – and it's so simple to use. Now anyone can use a computer to design knitwear to individual measurements and then produce row-by-row knitting instructions on the printer.

YOU CAN:

- Work with any yarn, from fine cottons to chunky wools
- Enter your natural tension and the pattern adjusts to the way you knit
- Select from three preset patterns – Raglan sleeve, drop and square shoulder
- Use the Freehand program to produce custom designs

Say goodbye to badly-fitting home knitting. With one of the five programs included in the package, and using the clearly written manual, you can produce perfect results every time.

The program itself produces a plain knit, leaving you to use your own favourite stitch pattern, such as the Fair Isle design featured here.

£8.95
Cassette

Also available on disc for use on the Advanced Plus 4 and Slogger SEDFS.

£9.95
5 1/4" disc

DATABASE PUBLICATIONS



To order please turn to the form on Page 141



Read all the news on

Ceefax with Jeremy

Brayshaw's great

news program

UTILITY

B

B+

M

Computer



HOW up-to-date is your morning newspaper? No matter how efficient the presses are, you can't get a paper with more recent news than the Ceefax Daily News.

The program *News* given here will produce a printed copy of all the latest news stories from Ceefax pages. Simply run the program when you get out of bed and your newspaper will be delivered before breakfast. And it will cost just the price of the paper it's printed on.

Within minutes of a news story breaking, the Ceefax news team can have the details on air and available to millions of people nationwide. Now you can have your own printed copy of the very latest news — many hours before the most efficient newspaper can release the stories.

The program looks at the news pages from Ceefax (pages 103 to 118), gets rid of colour control codes and the like then merges alternate lines to produce rows of text suitable for a standard 80-column printer.

It has been deliberately designed for use with any printer and therefore produces only the normal Ascii characters and no printer control codes at all. This compatibility has been achieved at the loss of correct interpretation of the quarter, half and three-quarter symbols, which will appear as curly brackets and oblique stroke. However, these are not common symbols on the news pages and should rarely affect the output.

One symbol that does differ from printer to printer is the pound sign. If your printer uses a code other than 35 to print this character then remove the REM from line 960, suitably adjusting the rest of the line to give the code your printer requires.

The program does, of course, need a teletext adapter.

To achieve a tolerable speed, 17 of the adapter's page grabbers are put into action to simultaneously grab all the news pages, plus the news index page (page 102). The latter is used to provide a suitable heading to each story, which is included in the printout underlined with = characters to ensure compatibility with most printers. By

using several page grabbers, the entire Ceefax news section can be received in less than 20 seconds, whereas receiving just one page at a time would take around 6 minutes.

The stories themselves are stripped of teletext control codes. Trailing and leading spaces on each row are removed then each pair of lines joined together to produce up to 79 characters per row of text (suitable for standard printer paper or a Mode 131 display).

Because the whole news area of Ceefax is committed to computer memory, there is not enough space left for high resolution (80 column) screen modes. For those who have shadow screen memory on their machines, a good display can be obtained by selecting MODE 131 in line 170 instead of MODE 7. For those without such facilities, using MODE 3 will crash the system. However, as the program is primarily for printed copy, the screen mode is not important.

You may also produce a text file of the news, ready to be *TYPed or READ into a

word processor. Here you can really begin to play editor, adjusting the news stories as you want. Simply choose this option when prompted and you will be asked for a filename.

In order to make the procedure as versatile as possible with different filing systems, no check is made as to the suitability of the given name for the filing system in use. Such checks must be made manually in order to avoid overwriting some important file or getting the bad filename error.

Because of the hardware restrictions of certain designs of teletext adapter, the program cannot be guaranteed compatible with all adapter makes. It has been written for use with the BBC Microcomputer System adapter.

So take a copy of your very own Ceefax Daily News to work and keep really up to date with the news. If you want the late or the evening editions, just run the program and your copy will be delivered within minutes.

Turn to Page 56 ►

UTILITY

◀ From Page 55

```

100 REM *****
110 REM * A newspaper from *
120 REM * CEEFAX pages *
130 REM * by Jeremy Brayshaw *
140 REM * (c) The Micro User *
150 REM *****
160 *TV0,1
170 MODE7
180 IFFNadapater<>0 PRINT"CHRS134;"Sor
ry, not receiving teletext.":END
190 VDU23;8202;0;0;0;
200 *TELESOFT
210 DIMCX 30
220 DIMLS(40)
230 DIM UX &4400
240 *HON
250 *BBC1
260 PROCsetpages
270 FORNX=0TO16
280 PROCsetgrabber(NX,1,EVAL("&"+STR$(
NX+2)),&3F7F,UX+(NX&400))
290 NEXT
300 PROCselect
310 PROCwait_for_pages
320 PROCstop_updates
330 *HOFF
340 MODE7
350 REM MODE131
360 IFprintX:VDU2
370 IffileX:PROCCoscli("SPOOL "+fname$)
380 PROCprintpages
390 *TTXOFF
400 *SPOOL
410 VDU3
420 PROCreset_grabbers
430 END
440 DEFPROCsetpages
450 CX?0=7: CX?1=24
460 AX=&7A:XX=CXMOD256:YX=CXDIV256:CAL
L&FFF1
470 ENDPROC
480 DEFPROCsetgrabber(nX,mX,pX,spX,stX
)
490 AX=&7A: CX?0=5:XX=CXMOD256:YX=CXDIV
256
500 CX?1=nX: CX?2=mX: CX?3=pX: CX?4=spXDI
V256: CX?5=spXMOD256: CX?6=stXMOD256: CX?7=
stXDIV256
510 CALL&FFF1
520 ENDPROC
530 DEFFNcheck_got(noX)
540 AX=&7A: CX?0=2:XX=CXMOD256:YX=CXDIV
256
550 CX?1=noX:CALL&FFF1
560 IF(CX?2)AND2=2 =TRUE ELSE =FALSE
570 DEFPROCoscli(s$)
580 XX=CXMOD256:YX=CXDIV256: $CX=s$
590 CALL&FFF1
600 ENDPROC
610 DEFPROCstop_updates
620 AX=&7A: CX?0=2:XX=CXMOD256:YX=CXDIV
256
630 FORJX=0TO16
640 REPEAT
650 CX?1=JX:CALL&FFF1
660 UNTIL((CX?2)AND4)=0
670 PROCset_hold(JX)
680 NEXT
690 ENDPROC
700 DEFPROCset_hold(noX)
710 AX=&7A: CX?0=3:XX=CXMOD256:YX=CXDIV
256
720 CX?1=noX: CX?2=3:CALL&FFF1
730 ENDPROC

```

```

740 DEFPROCreset_grabbers
750 AX=&7A:XX=CXMOD256:YX=CXDIV256
760 CX?0=14
770 CALL&FFF1
780 ENDPROC
790 DEFPROCwait_for_pages
800 REPEAT: SX=TRUE
810 FORGX=0TO16: IF NOT FNcheck_got(GX)
SX=FALSE
820 NEXT
830 UNTILSX=TRUE
840 ENDPROC
850 DEFPROCprintpages
860 LOCAL CX,GX
870 PRINT"CEEFAX News ";: *TDATE
880 PRINT"=====
890 PRINT"Time: ";: *TTIME
900 PRINT"=====
910 FORGX=UX+8400 TO (UX+&4000) STEP &
400
920 FORCLX=0TO40: LS(CLX)=":NEXT
930 FORCX=GX+160 TO GX+960: ?CX=(?CX)AN
D&7F
940 IF?CX=19 AND (?CX+1)=175 (?CX+1)=A
SC"*
950 IF?CX<32 ?CX=32
960 REM IF?CX=35 ?CX=<Printer code for
f sign>
970 NEXT
980 PRINT"FNprinttitle(((GX-UX)DIV&40
0)+2)
990 LCX=0
1000 FORCX=GX+160 TO GX+880 STEP40
1010 LCX=LCX+1
1020 TEX=?CX+40: ?CX+40=&D:LS=$CX: ?(
CX+40)=TEX
1030 IF LS=STRINGS(40," ") LS(LCX)=":L
CX=LCX+1:PROCcheckline
1040 TEX=40
1050 IFMIDS(LS,TEX,1)=" :REPEAT:TEX=TE
X-1:UNTILMIDS(LS,TEX,1)<>" OR TEX=0
1060 LEX=0:REPEAT:LEX=LEX+1:UNTILMIDS(L
$, (LEX+1),1)<>" :LS=RIGHT$(LS,LEN(LS)-L
EX)
1070 LS(LCX)=LEFT$(LS,TEX-LEX)
1080 NEXT
1090 FORLCX=1TO38 STEP 2
1100 IFLCX>2: IFL$(LCX-2)+LS(LCX-1)+LS(L
CX)+LS(LCX+1)=" GOTO1120
1110 PRINTLS(LCX);" ";LS(LCX+1)
1120 NEXT
1130 NEXT
1140 ENDPROC
1150 DEFPROCcheckline
1160 IF LCXMOD2=1 LS(LCX)=":LCX=LCX+1
1170 ENDPROC
1180 DEFFNprinttitle(pnX)
1190 stX=UX+((pnX+4)*40)+10
1200 FORzX=stX TO stX+40: ?zX=(?zX)AND&7
F: IF?zX<32 ?zX=32
1210 NEXT
1220 tX=stX?40: stX?40=&D:LS=$stX: stX?40
=tX
1230 TEX=30
1240 IFLS=STRINGS(TEX," ") ="
1250 IFMIDS(LS,TEX,1)=" :REPEAT:TEX=TE
X-1:UNTILMIDS(LS,TEX,1)<>" OR TEX=0
1260 IF LEFT$(LS,1)=" :LS=RIGHT$(LS,LE
N(LS)-1):TEX=TEX-1: IFTEX<0 TEX=0
1270 =LEFT$(LS,TEX)+CHRS10+CHRS13+STRIN
GS(TEX,"=")
1280 DEFFNadapater
1290 AX=&7A
1300 XX=CX MOD256:YX=CX DIV256
1310 CX?0=17:CALL&FFF1: =CX?1
1320 DEFPROCselect

```

```

1330 PRINTTAB(5,1);:VDU141,132,157,131:
PRINT"CEEFAX News Print ";:VDU156
1340 PRINTTAB(5,2);:VDU141,132,157,131:
PRINT"CEEFAX News Print ";:VDU156
1350 PRINT"CHRS134;"Send details to fi
le? (Y/N);:CHRS131;
1360 REPEAT:Q=GET AND&DF:UNTILQ=78 OR Q
=89: IFQ=89 PRINT"Yes":fileX=TRUE ELSEPRI
NT"No":fileX=FALSE
1370 IFFileX:PRINT"CHRS134;"File name:"
;CHRS131;:INPUT"fname$
1380 PRINT"CHRS134;"Print newspaper? (
Y/N);:CHRS131;
1390 REPEAT:Q=GET AND&DF:UNTILQ=78 OR Q
=89: IFQ=89 PRINT"Yes":printX=TRUE ELSEPRI
NT"No":printX=FALSE
1400 PRINT"CHRS131;"Waiting for news p
ages ...";
1410 ENDPROC

```

This listing is included in this month's tape & disc offer. See order form on Page 141.



| | | | | | |
|-------|--------|-------|--------|--------|--------|
| 100 = | 00 | 540 = | 1C98 0 | 980 = | 7284 1 |
| 110 = | 00 | 550 = | A618 C | 990 = | 47AF F |
| 120 = | 00 | 560 = | 4AAB 1 | 1000 = | 77E5 6 |
| 130 = | 00 | 570 = | 8C8A 3 | 1010 = | 5CA9 7 |
| 140 = | 00 | 580 = | 6223 D | 1020 = | 26B 0 |
| 150 = | 00 | 590 = | EBB2 5 | 1030 = | 7B40 7 |
| 160 = | DDC0 0 | 600 = | ED0F C | 1040 = | B7F7 1 |
| 170 = | 8AFC B | 610 = | FFD7 C | 1050 = | 2107 9 |
| 180 = | DD10 B | 620 = | 1C98 C | 1060 = | 1DBF 8 |
| 190 = | F716 E | 630 = | D6F5 B | 1070 = | 1524 3 |
| 200 = | 198A 0 | 640 = | BFBA 9 | 1080 = | 2C83 3 |
| 210 = | B0F5 1 | 650 = | 2127 6 | 1090 = | 91D9 7 |
| 220 = | 8891 8 | 660 = | B3BE 5 | 1100 = | 497D 8 |
| 230 = | 34B9 1 | 670 = | 142A D | 1110 = | 74B6 8 |
| 240 = | 5F11 A | 680 = | 2C83 5 | 1120 = | 2C83 C |
| 250 = | C0CE 9 | 690 = | ED0F 2 | 1130 = | 2C83 E |
| 260 = | B5C7 3 | 700 = | 8DDA 2 | 1140 = | ED0F B |
| 270 = | 1733 E | 710 = | C96E D | 1150 = | B9A4 1 |
| 280 = | 39FA 1 | 720 = | 2739 2 | 1160 = | CC32 9 |
| 290 = | 2C83 3 | 730 = | ED0F 7 | 1170 = | ED0F 4 |
| 300 = | F89D A | 740 = | C22D C | 1180 = | DAA 4 |
| 310 = | 1221 C | 750 = | 53DB A | 1190 = | 5E5C 8 |
| 320 = | 284E 3 | 760 = | F11E 4 | 1200 = | 2D73 4 |
| 330 = | 1BB1 A | 770 = | 8B74 F | 1210 = | 2C83 4 |
| 340 = | 8AFC 6 | 780 = | ED0F 2 | 1220 = | EB43 F |
| 350 = | 06 | 790 = | 8C01 F | 1230 = | 2E60 8 |
| 360 = | 6BB7 0 | 800 = | 5E17 9 | 1240 = | 921B 5 |
| 370 = | DA28 0 | 810 = | 2D34 B | 1250 = | 2107 1 |
| 380 = | A098 1 | 820 = | 2C83 0 | 1260 = | A89C 7 |
| 390 = | 39B5 4 | 830 = | D8C6 A | 1270 = | 43A4 9 |
| 400 = | 98F7 8 | 840 = | ED0F 3 | 1280 = | 69DA E |
| 410 = | 6BC 6 | 850 = | F520 E | 1290 = | E1BD 0 |
| 420 = | 5C0D 5 | 860 = | B92F 2 | 1300 = | 4C5F 8 |
| 430 = | FD2E B | 870 = | B064 6 | 1310 = | 2D5D 2 |
| 440 = | 3F44 A | 880 = | 5187 9 | 1320 = | 981C 2 |
| 450 = | 1BBE 0 | 890 = | BD3 4 | 1330 = | 4E6D E |
| 460 = | 74B4 7 | 900 = | 2663 6 | 1340 = | 616F 7 |
| 470 = | ED0F 7 | 910 = | 2991 0 | 1350 = | 62AC 7 |
| 480 = | 944A E | 920 = | 824E 1 | 1360 = | 2984 5 |
| 490 = | 1518 B | 930 = | 4752 7 | 1370 = | 14D3 7 |
| 500 = | 5916 6 | 940 = | E38F 6 | 1380 = | F731 8 |
| 510 = | 8B74 C | 950 = | FB1F 3 | 1390 = | 247F A |
| 520 = | ED0F 1 | 960 = | 03 | 1400 = | 3F8A 3 |
| 530 = | BE2C 8 | 970 = | 2C83 C | 1410 = | ED0F 0 |

Spreading the word

IN the centenary year of the international language Esperanto, a new branch – or Grupo to be exact – has been formed in London, and MicroLink is its chosen electronic route to the rest of the world.

About 52 million people worldwide – 8 million in Europe – speak the amalgam of Anglo-Saxon and Latinate tongues invented in 1887 by Polish doctor Ludovic Zamenhov. The Sud-Londona Esperanto-Grupo has been going for five months.

Secretary Gregory Porilo said: "We believe the time is ripe for a revival of interest in Esperanto. Not just because of its centenary, but also because it has been accepted as a subject for the new GCSE exams and is now the EEC's official language for basic translation.

"The South London branch of Esperanto is using MicroLink to further spread the word about the benefits of learning the language".

Typesetting over the line

LOW-COST, professional quality typesetting for everything from business cards to magazines is now available electronically on MicroLink.

Wordstream provides a 24-hours-a-day, seven-days-a-week service for companies and individuals who want to control their own printing and save on costs.

All subscribers need do is key in the text on their micro and send it via MicroLink's electronic mail system. It is switched elec-

tronically to Wordstream in Bournemouth who typeset the material and return the finished product by first class post or special delivery.

Text for typesetting can be prepared on an ordinary word processor by inserting special codes to specify typefaces, sizes and measures. Then it is transmitted to the Wordstream mailbox on MicroLink.

Special software automatically checks the text file to ensure that codes

are correct, and initiates processing immediately. Within 30 minutes a bromide repro for plate-making or camera is produced for despatch to the customer.

The service offers 155 typefaces from 4.5 to 72 point. The range includes expanded, condensed and italic type, variable letterfit, accents and fractions, and paper-saving multi column text.

Payment is by the foot length of repro and Wordstream registration is free on MicroLink.

SPEEDING THE FACTS

NEARLY 30 of Scotland's largest local authorities and six local government trades unions are communicating electronically via MicroLink.

The Scottish Local Government Information Unit was set up two years ago as an information research and publicity service for the organisations.

"We feed facts and fig-

ures in easily digestible format to well over 1,000 key elected officials and administrators", said the Unit's director Archie Fairley.

"In addition we are a source of local government information.

"MicroLink telex and electronic mail facilities will help us move all this information a lot faster than before".

New Open University Club

LIKE many of the Open University's 70,000 plus students, electronics engineer Jim Hatton often feels a sense of isolation.

"I can't get to evening classes every week, I have little or no contact with other OU students, and though the instructors are very helpful they are also very busy and I dislike bombarding them with letters and phone calls", he said. Jim's solution – for

himself and other part-time students in the same situation – has been to form an Open University Club on MicroLink where people can communicate electronically about their courses.

"At a recent summer school I discovered that a lot of people like me can't get to the tutorials", he said. "But lots of us have micros and modems, so the technology for exchan-

ging ideas and opinions is there to be tapped.

"The Open University has a policy of encouraging self help groups where students can discuss problems and gain a greater understanding of their courses.

"I'm hoping that OU instructors will also log on to the Open University Club on MicroLink so that students can benefit from their input too".

Aid to trade

MICROLINK technology is helping improve trade links between Britain and the Third World.

Latest overseas businessman to take advantage of fast, efficient telex and electronic mail facilities is S.S.Wijayasinha.

He is managing director of Bureau-Matic, based in Abidjan, capital of the Ivory Coast, a former French colony in West Africa.

"My company imports computer accessories from various suppliers in the UK, but existing communications are not satisfactory", he said.

"Letters can take up to three weeks to arrive and the telephone service is very erratic.

"I plan to use MicroLink for all my international communications from now on because I know I can depend on its speed and reliability".

ACORNSOFT

AMAZING OFFERS

ELECTRON BONANZA

FOR THE ELECTRON VIEW ROM ~~£29.95~~
 Word Processor £14.95
VIEW SHEET ROM ~~£29.95~~
 (Spreadsheet) £14.95
ACORN PLUS 1 ~~£59.95~~
 Now in stock! £49.95

SCOOP PURCHASE ELECTRON COMPUTERS IN STOCK NOW
 3 months warranty
£59.95

*Includes user guides, power supply and introductory cassette

SAVE £££'s ELECTRON PACKS

PACKAGE 1 PLUS 1 £49.95
 VIEW £14.95
 VIEWSHEET £14.95
~~£79.85~~

OFFER PRICE £69.95

PACKAGE 2 ELECTRON COMPUTER £59.95
 PLUS 1 £49.95
 VIEW ROM £14.95
~~£124.85~~

OFFER PRICE £99.95

ELECTRON AND BBC

CUMANA DISC DRIVE INTERFACE FOR ELECTRON £69.95

ENABLES YOU TO USE MOST BBC DISCS AND CARTRIDGES UP TO 32K

VOLTMACE TWIN JOYSTICKS

for use with Plus 1 or BBC
 Normally ~~£19.95~~
 Now Only £14.95

EDUCATION SPECIALS

| | |
|------------------------------------|--------------------------------------|
| Linkword Spanish £14.95 | Maths 'O' Level I £12.65 |
| Linkword Italian £14.95 | Maths 'O' Level II £12.65 |
| IDO £12.65 | Biology £12.65 |
| | English £12.65 |

ANY TWO FOR £3.95

PRIMARY EDUCATION

*Sentence sequence
 *Word sequence
 *Talkback **£1.50 each**
 *Workshop (CASSETTE)

SPECIAL OFFER — ACORNSOFT

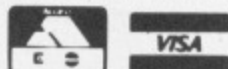
BBC Cassette and Disc
EDUCATION COMPENDIUM
 Workshop (3 + years)
 ABC (7 + years)
 SPOOKY MANOR (7 + years)
 TALKBACK (10 + years) SET **£11.96**

| | | |
|-----------------------------|--------|-------|
| Magic Mushrooms Electron | £12.95 | £2.95 |
| Me and My Micro (Book Only) | £2.95 | £1.00 |

NEW 3.5" COMPACT DISCS

| | | |
|-------------------------|-------------------|--------|
| Bug Eyes III | £9.95 | £7.95 |
| Elite | £19.95 | £15.95 |
| Repton III | £9.95 | £7.95 |
| Grand Prix Construction | £14.95 | £11.95 |
| Strykers Run | £14.95 | £11.95 |
| Acornsoft Hits Vol I | £14.95 | £11.95 |
| Acornsoft Hits Vol II | £14.95 | £11.95 |
| Superior Collect Vol I | £14.95 | £11.95 |

*BBC COMPATIBLE



SAE for comprehensive price lists
 Please state for which machine

HOME INTEREST

| | |
|-------------------------------------|--|
| Snapper £6.99 | *Desk Diary £6.99 |
| Boxer £6.99 | *Business Games £6.99 |
| *Watch your Weight £6.99 | *Graphs and Charts £6.99 |
| Theatre Quiz £6.99 | Complete Cocktail Maker £6.95 |

SELECT ANY FIVE FOR ONLY £7.95 (or £1.65 each)

RECENT RELEASES AT SPECIAL PRICES

| | |
|---|--|
| Superior Collection 1, 2 or 3 BBC/Electron £9.95 £7.95 | Cholo BBC Disk £17.95 £14.35 |
| Oxbridge BBC/Electron £7.95 £6.35 | Grand Prix Cons. BBC £9.95 £7.95 |
| Beau Jolly 5 Comp hits BBC/Electron £6.95 £5.55 | Firetrack BBC £9.99 £7.95 |
| Five Star II BBC/Electron £9.95 £7.95 | Repton III BBC/Electron £9.95 £7.95 |

NEW ACORNSOFT OVERVIEW

A sophisticated combination of Viewspell & Viewstore on Rom Cartridge and Viewplot, View index and Printer Driver Generator on Disc

BBC Disc & Rom R.R.P. £98.90
OFFER PRICE £78.45

ACORNSOFT VIEW PROFESSIONAL

Combines the functions of a wordprocessor spreadsheet and database in one program.

BBC B, & all Master Series Micros
 R.R.P. ~~£99.95~~
OFFER PRICE ONLY £79.45

SENTINEL 5.25" Coloured Discs 100% Certified

| | |
|-------------------------------------|-------------|
| BOX of 10 SS/DD | Only £12.50 |
| BOX of 10 DS/DD (Soft sector 96tpi) | Only £15.00 |

MICROPOWER AND OTHER GAMES

| | | |
|--|---|---|
| Dennis Through the Drinking Glass £6.95 | Brian Jacks £6.95 | Felix & the Evil Weevils £6.95 |
| Classic Adventures £6.95 | Rubble Trouble £7.95 | Frenzy £6.95 |
| Giroscope £6.95 | Swoop £7.95 | Plutonian Plunder £6.95 |
| Bandits at 3 O'Clock £6.95 | Croaker £7.95 | Mr. Ee! £6.95 |
| Escape from Moon Base Alpha £7.95 | Bumble Bee £7.95 | Blockbuster £6.95 |
| Ghoul £7.95 | Positron £7.95 | Microcosm £3.95 |
| Stock Car £7.95 | Felix & the Fruit Monsters £7.95 | Fatman Sam £3.95 |
| Killer Gorilla £7.95 | Cybertron Mission £7.95 | Star Drifter £3.95 |
| | Moonraider £7.95 | |

BBC & ELECTRON ANY FIVE FOR ONLY £7.95 (or £1.65 each)

MICROPOWER MAGIC COMPILATIONS I & II

IN THE CHARTS NOW 10 ORIGINAL HITS
 FANTASTIC VALUE

| | | |
|----------------------------|------------------|-------|
| BBC B/B + /MASTER CASSETTE | £7.95 | £5.95 |
| BBC B/B + /MASTER 80T DISC | £7.95 | £5.95 |
| BBC B/B + /MASTER 40T DISC | £7.95 | £5.95 |
| BBC COMPACT DISC | £9.95 | £7.75 |
| ELECTRON CASSETTE | £7.95 | £5.75 |

SCOOP PURCHASE POWERPACK

7 Great Games by Audiogenic
 BBC Cassette
~~£9.95~~ £4.95

imogen

A totally NEW Graphic Adventure for the Discerning Games Player. Your power of logic & resourcefulness will be stretched to capacity...

| | |
|------------------------------|--------|
| BBC CASSETTE | £7.95 |
| BBC 5.25" Disc (40 or 80T) | £8.95 |
| BBC Master Compact 3.5" Disc | £10.95 |

Name _____
 Address _____

 Tel. _____ MSO

SOFTWARE BARGAINS

(a division of the micropower group)
 Dept MSO 8/8A Regent St., Chapel Allerton, Leeds LS7 4PE
 Tel: (0532) 687735
 Out of Hours Answer Phone

PLEASE ADD 95p P&P and make cheques payable to Software Bargains
 Goods despatched within 48 Hours
 Subject to availability

An interesting point



**David Wilson takes
a look at loan
repayments**

HAVE you ever wondered how much you still owe on your loan? You know how much you borrowed, the interest rate and how much you are paying, but the amount outstanding is often a mystery.

This program gives a rough guide to the answer. It can only be approximate because of the different ways interest is added – monthly, quarterly, half-yearly or annually.

It is based on the interest being calculated added on quarterly with the first addition one month after the loan was taken out. This gives quite accurate results when the results of the program are compared with bank loan figures.

When you run the program you have to

give the program four values: the amount borrowed, the interest rate, the rate of repayment and the month of the first payment.

The amount borrowed should be in pounds, the interest as a percentage, the repayment in pounds and pence and the first month as a number (1 to 12). Sample figures for you to try are £1000, 12.5%, £33.39 and 4 (April) and the loan will be paid in 3 years.

Once you've entered the figures you will be presented with data for the first year. You are reminded how much you borrowed, the rate and the amount you are paying each month together with the following information:

Interest shows the amount added to what you owe. It's added each quarter and you'll notice that, providing you've entered realistic figures, it is less each time. This is because the interest is calculated on what you owe – and you're paying some off all the time.

Tot Paid lets you know how much you've paid all together. *Tot Int* gives the figure for the total interest you've paid to date. The difference between this and *Tot Paid* shows how much of your money

Turn to Page 60 ▶

Year:1
Borrowed:£5000 @ 17% Payment:£90

| | May | Jun | Jul | Aug |
|----------|---------|---------|---------|---------|
| Interest | 0.00 | 208.67 | 0.00 | 0.00 |
| Tot Paid | 90.00 | 180.00 | 270.00 | 360.00 |
| Tot Int | 0.00 | 208.67 | 208.67 | 208.67 |
| Balance | 4910.00 | 5028.67 | 4938.67 | 4848.67 |

| | Sept | Oct | Nov | Dec |
|----------|---------|---------|---------|---------|
| Interest | 208.67 | 0.00 | 0.00 | 203.35 |
| Tot Paid | 450.00 | 540.00 | 630.00 | 720.00 |
| Tot Int | 414.74 | 414.74 | 414.74 | 618.18 |
| Balance | 4964.74 | 4874.74 | 4784.74 | 4698.18 |

| | Jan | Feb | Mar | Apr |
|----------|---------|---------|---------|---------|
| Interest | 0.00 | 0.00 | 200.52 | 0.00 |
| Tot Paid | 810.00 | 900.00 | 990.00 | 1080.00 |
| Tot Int | 618.18 | 618.18 | 818.61 | 818.61 |
| Balance | 4808.18 | 4718.18 | 4628.61 | 4738.61 |

Press any key to continue

Year:2
Borrowed:£5000 @ 17% Payment:£90

| | May | Jun | Jul | Aug |
|----------|---------|---------|---------|---------|
| Interest | 0.00 | 197.57 | 0.00 | 0.00 |
| Tot Paid | 1170.00 | 1260.00 | 1350.00 | 1440.00 |
| Tot Int | 818.61 | 1016.18 | 1016.18 | 1016.18 |
| Balance | 4648.61 | 4756.18 | 4666.18 | 4576.18 |

| | Sept | Oct | Nov | Dec |
|----------|---------|---------|---------|---------|
| Interest | 194.49 | 0.00 | 0.00 | 191.28 |
| Tot Paid | 1530.00 | 1620.00 | 1710.00 | 1800.00 |
| Tot Int | 1210.67 | 1210.67 | 1210.67 | 1401.95 |
| Balance | 4680.67 | 4590.67 | 4500.67 | 4601.95 |

| | Jan | Feb | Mar | Apr |
|----------|---------|---------|---------|---------|
| Interest | 0.00 | 0.00 | 187.93 | 0.00 |
| Tot Paid | 1890.00 | 1980.00 | 2070.00 | 2160.00 |
| Tot Int | 1401.95 | 1401.95 | 1589.88 | 1589.88 |
| Balance | 4511.95 | 4421.95 | 4319.88 | 4429.88 |

Press any key to continue

Year:3
Borrowed:£5000 @ 17% Payment:£90

| | May | Jun | Jul | Aug |
|----------|---------|---------|---------|---------|
| Interest | 0.00 | 184.44 | 0.00 | 0.00 |
| Tot Paid | 2250.00 | 2340.00 | 2430.00 | 2520.00 |
| Tot Int | 1589.88 | 1774.32 | 1774.32 | 1774.32 |
| Balance | 4339.88 | 4434.32 | 4344.32 | 4254.32 |

| | Sept | Oct | Nov | Dec |
|----------|---------|---------|---------|---------|
| Interest | 180.81 | 0.00 | 0.00 | 177.02 |
| Tot Paid | 2610.00 | 2700.00 | 2790.00 | 2880.00 |
| Tot Int | 1955.13 | 1955.13 | 1955.13 | 2132.15 |
| Balance | 4345.13 | 4255.13 | 4165.13 | 4252.15 |

| | Jan | Feb | Mar | Apr |
|----------|---------|---------|---------|---------|
| Interest | 0.00 | 0.00 | 173.87 | 0.00 |
| Tot Paid | 2970.00 | 3060.00 | 3150.00 | 3240.00 |
| Tot Int | 2132.15 | 2132.15 | 2305.22 | 2305.22 |
| Balance | 4162.15 | 4072.15 | 4155.22 | 4065.22 |

Press any key to continue

Year:4
Borrowed:£5000 @ 17% Payment:£90

| | May | Jun | Jul | Aug |
|----------|---------|---------|---------|---------|
| Interest | 0.00 | 168.95 | 0.00 | 0.00 |
| Tot Paid | 3330.00 | 3420.00 | 3510.00 | 3600.00 |
| Tot Int | 2305.22 | 2474.16 | 2474.16 | 2474.16 |
| Balance | 3975.22 | 4054.16 | 3964.16 | 3874.16 |

| | Sept | Oct | Nov | Dec |
|----------|---------|---------|---------|---------|
| Interest | 164.65 | 0.00 | 0.00 | 160.17 |
| Tot Paid | 3690.00 | 3780.00 | 3870.00 | 3960.00 |
| Tot Int | 2638.82 | 2638.82 | 2638.82 | 2798.99 |
| Balance | 3948.82 | 3858.82 | 3768.82 | 3838.99 |

| | Jan | Feb | Mar | Apr |
|----------|---------|---------|---------|---------|
| Interest | 0.00 | 0.00 | 155.51 | 0.00 |
| Tot Paid | 4050.00 | 4140.00 | 4230.00 | 4320.00 |
| Tot Int | 2798.99 | 2798.99 | 2954.50 | 2954.50 |
| Balance | 3748.99 | 3658.99 | 3724.50 | 3634.50 |

Press any key to continue

Year:7
Borrowed:£5000 @ 17% Payments:£90

| | May | Jun | Jul | Aug |
|----------|---------|---------|---------|---------|
| Interest | 0.00 | 183.48 | 0.00 | 0.00 |
| Tot Paid | 6570.00 | 6660.00 | 6750.00 | 6840.00 |
| Tot Int | 4804.85 | 4108.33 | 4108.33 | 4108.33 |
| Balance | 2434.85 | 2448.33 | 2358.33 | 2268.33 |

| | Sept | Oct | Nov | Dec |
|----------|---------|---------|---------|---------|
| Interest | 96.40 | 0.00 | 0.00 | 89.83 |
| Tot Paid | 6930.00 | 7020.00 | 7110.00 | 7200.00 |
| Tot Int | 4204.74 | 4204.74 | 4204.74 | 4293.77 |
| Balance | 2274.74 | 2184.74 | 2094.74 | 2093.77 |

| | Jan | Feb | Mar | Apr |
|----------|---------|---------|---------|---------|
| Interest | 0.00 | 0.00 | 81.34 | 0.00 |
| Tot Paid | 7290.00 | 7380.00 | 7470.00 | 7560.00 |
| Tot Int | 4293.77 | 4293.77 | 4375.18 | 4375.18 |
| Balance | 2003.77 | 1913.77 | 1905.18 | 1905.18 |

Press any key to continue

Year:6
Borrowed:£5000 @ 17% Payment:£90

| | May | Jun | Jul | Aug |
|----------|---------|---------|---------|---------|
| Interest | 0.00 | 129.02 | 0.00 | 0.00 |
| Tot Paid | 5490.00 | 5580.00 | 5670.00 | 5760.00 |
| Tot Int | 3525.75 | 3654.77 | 3654.77 | 3654.77 |
| Balance | 3035.75 | 3074.77 | 2984.77 | 2894.77 |

| | Sept | Oct | Nov | Dec |
|----------|---------|---------|---------|---------|
| Interest | 123.83 | 0.00 | 0.00 | 116.78 |
| Tot Paid | 5850.00 | 5940.00 | 6030.00 | 6120.00 |
| Tot Int | 3777.80 | 3777.80 | 3777.80 | 3894.58 |
| Balance | 2927.80 | 2837.80 | 2747.80 | 2774.58 |

| | Jan | Feb | Mar | Apr |
|----------|---------|---------|---------|---------|
| Interest | 0.00 | 0.00 | 110.27 | 0.00 |
| Tot Paid | 6210.00 | 6300.00 | 6390.00 | 6480.00 |
| Tot Int | 3894.58 | 3894.58 | 4004.85 | 4004.85 |
| Balance | 2684.58 | 2594.58 | 2614.85 | 2524.85 |

Press any key to continue

Year:5
Borrowed:£5000 @ 17% Payment:£90

| | May | Jun | Jul | Aug |
|----------|---------|---------|---------|---------|
| Interest | 0.00 | 150.64 | 0.00 | 0.00 |
| Tot Paid | 4410.00 | 4500.00 | 4590.00 | 4680.00 |
| Tot Int | 2954.50 | 3105.14 | 3105.14 | 3105.14 |
| Balance | 3544.50 | 3605.14 | 3515.14 | 3425.14 |

| | Sept | Oct | Nov | Dec |
|----------|---------|---------|---------|---------|
| Interest | 145.57 | 0.00 | 0.00 | 140.28 |
| Tot Paid | 4770.00 | 4860.00 | 4950.00 | 5040.00 |
| Tot Int | 3250.71 | 3250.71 | 3250.71 | 3390.99 |
| Balance | 3400.71 | 3390.71 | 3300.71 | 3350.99 |

| | Jan | Feb | Mar | Apr |
|----------|---------|---------|---------|---------|
| Interest | 0.00 | 0.00 | 134.77 | 0.00 |
| Tot Paid | 5130.00 | 5220.00 | 5310.00 | 5400.00 |
| Tot Int | 3390.99 | 3390.99 | 3525.75 | 3525.75 |
| Balance | 3260.99 | 3170.99 | 3215.75 | 3125.75 |

Press any key to continue

FEATURE

◀ From Page 59

has gone towards actually paying off the loan. *Balance* indicates the sum you still owe.

Once you've studied the figures for the first year, pressing any key will take you to the second and you can continue until

the balance falls below zero which means the loan has been paid off.

The real value of this program lies in checking the "What if" possibilities of different repayments and interest rates for even the slightest changes can alter the time required for pay-off dramatically.



```

10 MODE7:@X=&20208
20 PRINT:PRINTTAB(10)"Loan Calculator

30 PRINT:INPUT"How much are you borrowin
g? £"principal:bal=principal
40 PRINT:INPUT"What is the annual interest
rate? "rate
50 PRINT:INPUT"How much are you paying a
month? £"repay
60 PRINT:PRINT"Which month did the loan
start? ":INPUT"Answer 1 (Jan) to 12 (Dec)."start
70 IFstart<10Rstart>12 THEN 60 ELSE start = 12-start
80 PROCsetup
90 REPEAT
100 CLS:PRINT"Year:"STR$(year):PRINT"Balance:"
STR$(principal) @ "STR$(rate) % Payment:"STR$(repay):year=year+1
110 FORcount=1 TO 3
120 PRINTTAB(0,count*7-2)"Interest"
130 PRINT"Tot Paid":PRINT"Tot Int":PRINT"Balance"
140 NEXT
150 across=1:down=3
160 FORcount=1 TO 12

170 IFcount=20Rcount=50Rcount=80Rcount=
11int=bal*(rate/400) ELSE int=0
180 totint=totint+int
190 total=total+repay
200 bal=bal-repay+int
210 PRINTTAB(8*across+3,down)month$(count)

10 = F238 8 160 = F4E2 6 310 = 2C83 B
20 = 1AC3 6 170 = A16F 2 320 = C797 4
30 = 24EE F 180 = 408 7 330 = 1A02 1
40 = 6282 2 190 = 9EE3 0 340 = 4B4D F
50 = 3F65 3 200 = 6218 0 350 = FD2E 5
60 = 5ADE C 210 = 174A B 360 = 2AA8 6
70 = A2C5 B 220 = FF3E 0 370 = 7B27 C
80 = 81CC 5 230 = 7300 4 380 = F4E2 F
90 = BFBA 4 240 = 23CE 0 390 = BC7B A
100 = 1C6E B 250 = ECC9 4 400 = 2C83 7
110 = BA82 A 260 = 6722 6 410 = 9F88 0
120 = 509 7 270 = D979 C 430 = ED0F 6
130 = 9816 A 280 = D55E 6 440 = 9A6E E
140 = 2C83 C 290 = A471 0
150 = 677 F 300 = B971 B

220 PRINT
230 PRINTTAB(8*across,down+2)int
240 PRINTTAB(8*across,down+3)total
250 PRINTTAB(8*across,down+4)totint
260 PRINTTAB(8*across,down+5)bal
270 across=across+1
280 IFcount=4 across=1:down=10
290 IFcount=8 across=1:down=17
300 IFbal<0 count=15
310 NEXT
320 PRINTTAB(5,24)"Press any key to continue";:A=GET
330 UNTIL bal<0
340 PRINTTAB(5,24)SPC(25)TAB(14,24)"LOAN REPAID";:VDU7:A=GET
350 END
360 DEFPROCsetup
370 DIMmonth$(12)
380 FORcount=1 TO 12
390 READmonth$((count+start)MOD12+1)
400 NEXT
410 totint=0:total=0:year=1
430 ENDPROC
440 DATAJan, Feb, Mar, Apr, May, Jun, Jul, Aug, Sept, Oct, Nov, Dec
    
```

SPECIAL OFFER
PANASONIC
 KX-P 1081
£149

DAISYWHEEL PRINTERS

| | |
|-------------------------------|------|
| JUKI 6100P (20 cps) | £255 |
| JUKI 6200P (30 cps) | £435 |
| JUKI 6300 (40 cps) | £685 |
| PANASONIC 3131 (17cps) | £245 |
| PANASONIC 3151 (22cps) | £489 |
| QUME Letterpro 12/20 (20 cps) | £369 |
| QUME Letterpro 12/45 (45 cps) | £625 |

LASER PRINTERS

| | |
|------------------------|-------------|
| Canon LBP-8A1 | £1695.00 |
| Canon LBP-8 Mark II | £1995.00 |
| HP Laser Jet | £1635.00 |
| HP Laser Jet Series II | £2146.00 |
| QMS K8 | £1775.00 |
| QUME Laser 10 | Please Call |

Authorised Dealer for Amstrad, Opus, Ollivetti & Zenith

MICROSOL Ltd
 1-4 Christina Street
 London EC2A 4PA

AMSTRAD OFFER
 PC 1512 D/D Mono
 DMP 3000 Printer
 Supercalc III
 Wordstar 1512
£699 ex VAT

DOT MATRIX PRINTERS

| | |
|-------------------------------|------|
| Canon PW 1080A | £245 |
| Canon A55 | £395 |
| Epson LX 86 | £195 |
| Epson LQ 800 | £515 |
| Epson EX 800 | £455 |
| Fujitsu DX 2100 | £387 |
| Fujitsu DX 2200 | £499 |
| Juki 5520 | £355 |
| Micro P MP 165 | £189 |
| Micro P MP 200 | £245 |
| Micro PMP 201 | £317 |
| Micro PMP 480 | £345 |
| Panasonic KX-P1081 | £149 |
| NEW Panasonic KX-P1082 | £245 |
| Panasonic KX-P1092 | £345 |
| Panasonic KX-P1592 | £435 |
| Panasonic KX-P 1595 | £585 |

Prices are CASH WITH ORDER and Exclude Delivery and VAT
 All Goods Covered by Manufacturers Warranty
EXPORT ORDERS WELCOMED
 Monday-Friday 10.00am-6.00pm

EPSON LX 86 £195
AMSTRAD
 DMP 3000 £156
 DMP 4000 £295

CONSUMABLES

SPECIAL OFFER LIMITED PERIOD ONLY

PRINTER RIBBONS

| | |
|-------------------------|-------|
| Diablo HyType II M/s | £1.50 |
| Epson RX-80 | £1.95 |
| Epson MX-100/105 | £2.75 |
| Qume M/s II (originals) | £1.75 |
| Qume M/s IV | £1.95 |
| Quendata 11-20 | £1.95 |
| Juki 6100 from | £1.50 |
| Juki 6200/6300 | £1.50 |

QUME PRINT WHEELS

| | |
|-------------|-------|
| Compatibles | £3.95 |
| Originals | £4.50 |

SOFTWARE

| | |
|-----------------------|-------------------------------------|
| D Base 2 | Lotus 1-2-3 V1 |
| D Base 3 | Lotus 1-2-3 V2 |
| Wordstar Professional | Symphony |
| Wordstar Framework | And many more. Call for best prices |

COMPUTER LISTING PAPER

| | |
|---------------------------------------|--------|
| 11x9.5 1pt ruled/plain 60gsm (2000) | £9.95 |
| 11x9.5 1pt plain 60gsm + perfs (2000) | £10.25 |
| 11x9.5 1pt plain 70gsm + perfs (2000) | £11.20 |
| 11x9.5 2pt ruled/plain OTC (1000) | £13.00 |
| 11x9.5 3pt ruled/plain OTC (1000) | £21.50 |
| 11x14.5 1pt ruled/plain 60gsm (2000) | £12.95 |
| 11x14.5 1pt ruled/plain 70gsm (2000) | £14.95 |

01-739 5607

MICRO MEDIA

Computer Supplies Ltd.

Freepost,
Dept. MU, Rydal Mount, Baker Street
Potters Bar, Herts EN6 3BR (NO STAMP REQUIRED)

0707 52698 (5 lines)

See you at
PCW SHOW

Stands 3044 and 4211
23rd-27th September

5 1/4" MICRO MEDIA Brand Discs

| | 10 | 30 | 50 | 100 | 250 |
|----------------|-------|-------|-------|--------|--------|
| SS/DD | 6.55 | 18.55 | 29.05 | 53.10 | 118.00 |
| DS/40T | 7.90 | 22.30 | 34.90 | 64.60 | 144.50 |
| DS/80T | 9.40 | 26.50 | 40.20 | 75.15 | 165.90 |
| DS/HD for PCAT | 20.10 | 57.20 | 90.10 | 168.60 | 385.55 |

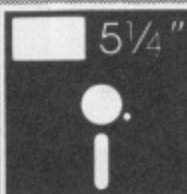
5 1/4" Reversible discs (Flippy's)

Have two write protect notches & index holes.
Suitable for 40 or 80 track drives.

| | 10.55 | 30.00 | 47.40 | 88.10 | 204.55 |
|--|-------|-------|-------|-------|--------|
| | | | | | |

3 1/2" MICRO MEDIA Brand

| | | | | | |
|-------|-------|-------|-------|--------|--------|
| SS/DD | 17.55 | 50.45 | 80.25 | 147.70 | 347.80 |
| DS/DD | 18.75 | 53.90 | 85.95 | 159.20 | 376.55 |



All discs supplied are with labels, 5 1/4" write protects, envelopes & hub rings.

Discs purchased direct from one major manufacturer. 100% certified error free - lifetime guarantee.

PRICES INCLUDE V.A.T.



5 1/4" Rainbow Discs come in five colours

| | 25 | 50 | 100 | 250 | 500 |
|--------|-------|-------|-------|--------|--------|
| SS/DD | 16.50 | 30.75 | 57.10 | 134.50 | 252.45 |
| DS/40T | 17.95 | 33.10 | 60.70 | 141.45 | 262.20 |
| DS/80T | 19.00 | 35.20 | 64.85 | 148.75 | 276.00 |

5 1/4" Unbranded Discs

| | | | | | |
|--------|-------|-------|-------|--------|--------|
| SS/DD | 9.80 | 19.35 | 36.40 | 86.55 | 163.85 |
| DS/40T | 10.95 | 20.65 | 38.20 | 89.70 | 172.50 |
| DS/80T | 13.55 | 25.65 | 47.85 | 113.55 | 216.20 |

3 1/2" Unbranded Discs

| | 10 | 30 | 50 | 100 | 250 |
|-------|-------|-------|-------|--------|--------|
| SS/DD | 15.10 | 42.60 | 65.95 | 117.70 | 264.75 |
| DS/DD | 16.20 | 45.70 | 72.95 | 128.50 | 290.00 |

PCW SHOW - STANDS 3044 & 4211 - PCW SHOW - STANDS 3044 & 4211 - PCW SHOW

Monitor Swivel Bases



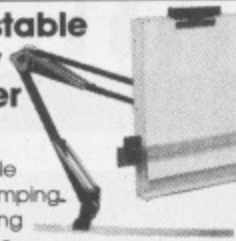
Pan tilt revolves around 360 degrees
12.5 degrees tiltable up and down
Adjustable by front mechanism.
55 x 280 x 260mm for 12" Monitors
55 x 355 x 320mm for 14" Monitors

| | | | |
|----|----------|----|----------|
| 1 | 13.25 | 1 | 16.70 |
| 3+ | 12.60 ea | 3+ | 15.90 ea |
| 6+ | 11.95 ea | 6+ | 15.05 ea |

Adjustable Copy Holder

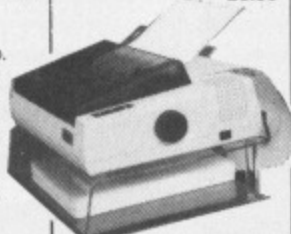
A4 adjustable desk clamping. Magnifying cursor line. Paper thickness adjustment. Paper height adjustable clip.

A4 Version 24.00
Holds up to 300g
Desk Top Version 13.69
Holds up to 1000g
A3 Version 42.45
Holds up to 1400g



Printer Stand

5mm perspex
80 Column Version 400 x 310 x 100mm 22.80
132 Column Version 600 x 310 x 100mm 28.60



Mobile Printer Stand

Rugged steel frame. Height adjustable basket for output paper & base shelf for input paper. Self assembly - includes castors.

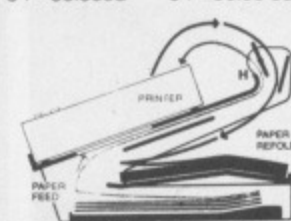
80 column £52.50
132 column £67.90



The Space Saver

Paper feed and refeed positioned one above the other. Dial controlled paper feed with adjustable deflectors ensures smooth flow and automatic refolding.

80 column 414x380x460mm 1 34.40
132 column 530x380x460mm 1 43.00
3+ 32.10ea 3+ 40.70 ea
6+ 30.50ea 6+ 38.65 ea



Printer Ribbons

Prices (£) per each ribbon

| | 3 | 6 | 12 |
|----------------------------|------|------|------|
| Amstrad 8512/8256 | 5.65 | 5.35 | 4.90 |
| R, G, BR, BL, Y | 7.50 | 7.10 | 6.55 |
| DMP 2000/3000 | 2.80 | 2.60 | 2.35 |
| Brother HR15 MS | 3.30 | 3.10 | 2.80 |
| R, BR, BL | 4.35 | 4.10 | 3.75 |
| Centronics GLP | 3.65 | 3.45 | 3.15 |
| R, G, BR, BL, Y | 4.65 | 4.40 | 4.00 |
| Canon 1080/1156 | 3.30 | 3.10 | 2.80 |
| R, G, BR, BL, Y | 4.95 | 4.65 | 4.25 |
| Citizen 120 D | 4.70 | 4.35 | 4.15 |
| Diablo HiType II MS | 2.80 | 2.65 | 2.40 |
| R, BR, BL | 3.80 | 3.55 | 3.25 |
| Epson | | | |
| FX/MX/RX 80 FX 800 | 3.55 | 3.35 | 3.10 |
| R, BR, BL, G, Y | 4.95 | 4.65 | 4.25 |
| MX 100/FX 1000/FX 105 | 4.65 | 4.35 | 4.20 |
| R, BR, BL | 5.85 | 5.55 | 5.10 |
| LX 80/86 GX 80 | 2.80 | 2.65 | 2.40 |
| R, G, BR, BL, Y | 4.70 | 4.45 | 4.05 |
| Juki 6100 MS | 3.30 | 3.10 | 2.80 |
| 6100 SS | 2.05 | 1.90 | 1.75 |
| R, BR, BL | 2.75 | 2.60 | 2.35 |
| Kaga KP810/910 | 3.30 | 3.10 | 2.80 |
| R, G, BR, BL, Y | 4.95 | 4.65 | 4.25 |
| M/Tally MT80 MS | 4.10 | 3.85 | 3.55 |
| Panasonic KXP110 | 5.50 | 5.20 | 4.75 |
| R, G, BR, BL, Y | 7.20 | 6.80 | 6.25 |
| Qume IV MS | 3.30 | 3.10 | 2.80 |
| Fabric | 3.30 | 3.10 | 2.80 |
| Star NL 10 | 5.50 | 5.20 | 4.75 |
| Shinwa CP80 MS | 4.10 | 3.85 | 3.55 |

One off if ordered with other product
Please mix colours and types for best prices
R = Red, BR = Brown, BL = Blue, G = Green,
Y = Yellow

If the ribbon you require is not listed please let us quote

The above is a small selection of the 250 different ribbons we stock. We shall be pleased to find your ribbon, however old or obscure.

MD 120

1 12.55 5 1/4" x 120
3+ 11.90 each
6+ 11.35 each



MD 50

5 1/4" x 50
1 7.80
3+ 7.40 each
6+ 7.10 each



Wire Printer Stand

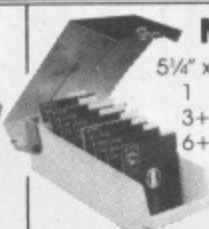
stacks print-out in document tray automatically. Suitable for most standard printers. Made of safety coated steel wire.

For 80 column £14.80



MD 100

5 1/4" x 100
1 10.80
3+ 10.30 each
6+ 9.80 each



MM 40

3 1/2" x 40
1 8.30
3+ 7.90 each
6+ 7.50 each



MM 80

3 1/2" x 80
1 10.95
3+ 10.40 each
6+ 9.90 each



Computer Labels

Continuous fanfold, sprocket fed
Price per 1,000 3,000
70 x 36 4.80 13.20
89 x 36 4.90 13.50
89 x 49 6.80 18.30
102 x 36 5.20 14.40
Please state no. of labels across the sheet (1, 2 or 3)

Computer paper

Plain fanfold, micro perf edges

| Size | Weight 1000s gm | per box | 1 box | 3 box + |
|----------------|-----------------|---------|-------|---------|
| 11x9 1/2 | 60 | 2 | 16.90 | 42.90 |
| | 80 | 2 | 20.90 | 51.00 |
| Exact A4 | | | | |
| 11 3/8 x 9 1/4 | 70 | 2 | 22.50 | 57.50 |
| | 90 | 1 | 16.90 | 44.00 |

ALL PRICES INCLUSIVE OF POSTAGE & PACKING AND V.A.T.
MICRO MEDIA
Computer Supplies
Freepost, Dept. MU, Rydal Mount,
Baker Street, Potters Bar, Herts. EN6 3BR



Access & Visa



Out of Office Hours (Answer machine)

0707 52698 (5 lines)

Orders despatched 24 hrs.
Please allow 5 days for delivery.
For next day delivery, please ring for details. Postage covers U.K. only.

A Catalogue is available with a more comprehensive range of products including - 3M & Verbatim discs - a wider choice of paper labels, ribbons and accessories.

Ring or write to obtain your copy now!

Educational and HMG orders accepted. For official orders/invoice/credit orders there is a minimum order value of £15.00 excluding V.A.T. Any order under £15.00 will be subject to £3.00 handling charge.

Personal callers welcome
Weekdays 8.30am - 5.30pm
Saturdays 9.30am - 1.00pm

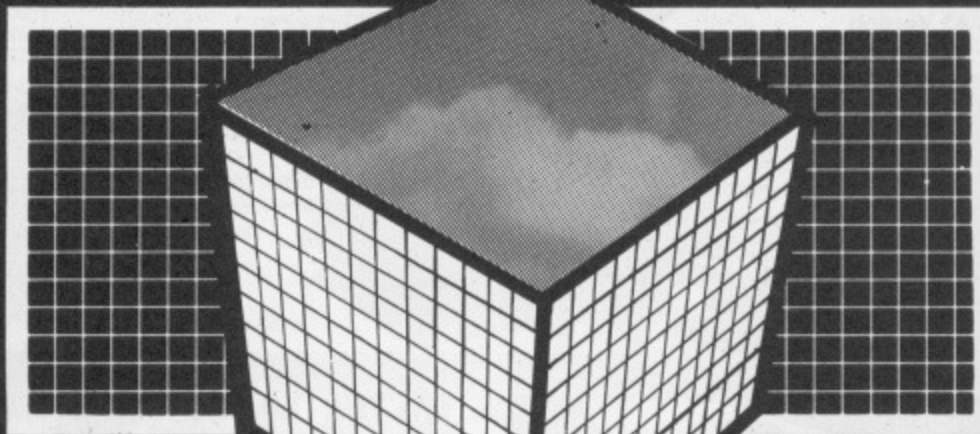
MICRO MEDIA - MICRO MEDIA - MICRO MEDIA - MICRO MEDIA - MICRO MEDIA - MICRO MEDIA -

ARM

Assembly language programming

By Peter Cockerell

This book describes in detail all aspects of programming the new Acorn Risc chip (generally referred to as the ARM). This 32-bit chip, on average 4 times faster than a 68000, will form the basis of a new generation of machines. The book explains why the chip is so fast and how to take full advantage of its power.



Topics covered include;

- First concepts.
- Inside the ARM.
- The ALU and barrel shifter.
- The instruction set.
- Instruction timings.
- The BBC BASIC assembler.
- Assembly programming principles.
- Data structures.
- Non-user modes.
- Undefined instructions.
- Interrupts and vectors.

The book is completely up-to-date covering only the new 2 micron ARM, with appendices on the floating point and co-processor instructions and with numerous example programs. A truly comprehensive reference manual for anyone who intends to program in ARM assembly language, or for those who just want to find out why the Acorn RISC chip is so special.

Price £12.95



Computer Concepts

Gaddesden Place, Hemel Hempstead, Herts HP2 6EX. Tel: (0442) 63933

Access/Barclaycard accepted. All orders despatched within 24 hours.

AVAILABLE
NOW!

Archimedes Software

**You know what we
have produced for
the BBC micro...**



WORDWISE

One of the first ROMs for the BBC Micro and for many users their first introduction to word processing. Fast, and very simple to use, this offers all the basic word processing facilities at an unmatched price.



WORDWISE PLUS

This very popular successor to WORDWISE added many unique features to the original such as its programming language. Still popular today WORDWISE and WORDWISE PLUS have amassed combined sales of over 150,000 copies.



INTER-WORD

The current best seller for the BBC machine and part of the integrated suite of application ROMs. Further enhancements over WORDWISE include on screen styles, page layout, menus and multi-columns but it is still as easy, if not easier, to use than WORDWISE.

**...and now for the
Archimedes...**

COMING NEXT

The new word processor for the Archimedes will be a considerable advance over any currently available word processor. More powerful than anything that has gone before, but still as easy to use as ever. See it for the first time at the PCW show at the end of September. Contact us for details of this and other Archimedes software.



Computer Concepts

Gaddesden Place, Hemel Hempstead, Herts HP2 6EX Telephone: (0442) 63933

Your wish is my command

EVERY so often a product is launched for the humble BBC Micro which so jolts the market that you are forced to sit up and take notice.

Such a product is Genie — a useful diary and management tool.

It's a small, flat, encapsulated plastic box about three inches square that plugs into a single rom socket. A very short disc program is run to initialise the package and is never used again.

Power consumption is quoted as being virtually comparable with a single rom, but inside the small plastic box sits 96k of memory, divided into three banks of 32k.

The first bank contains the controlling software, bank-switched so that it works on the ordinary BBC model B as well as the Master, B+ and Compact. The second bank of 32k acts as a memory store for data entered while in Genie.

Thus no access to disc or cassette ever needs to take place, and because of the battery back-up, the data is retained even after power switch off.

The third bank is extremely clever — it stores all the BBC memory. Genie itself needs to use some of the main computer ram, and to enable the package to be permanently resident, and accessible, the contents already in memory need to be protected.

Consequently Genie can be called from almost any software package, and after any work is completed, pressing Escape returns you to the place you were before Genie was called. I tried calling it from many packages, including Spellmaster going through a CHECK routine listing hundreds of words. It worked perfectly every time.

Genie can be summoned, not by rubbing the keyboard three times, but by pressing three keys simultaneously: Control+Shift+G. It is also possible to use *GENIE, but the key combination is much faster.

The screen then displays the opening menu. There is an unchanging colourful logo at the top and a function key display at the bottom which alters to show what operation each key will perform at various times.

There are nine main options which can be selected either by pressing the appropriate number, or by using the cursor keys to move a highlight bar. I'll take each of these options in turn:

The Address Book

This changes the Mode 0 screen to reveal a simple card index type database page, with five fields for surname, forenames, address, telephone, and details. The left-hand portion of the screen indicates six options, of which two, calendar and calculator, will be dealt with later.

The other four allow various operations to be carried out. They are Browse, Work, Find, and Print labels and are largely self-explanatory.

Browse allows forward and backwards movement through the entries, which are automatically indexed in surname order, no matter how they were entered. Work allows editing on the entries, using the normal cursor editing keys and the red keys which by now have been redefined for the purpose.

Find will search for any string, anywhere in the record. Thus you may look for anybody living in Leeds without worrying about whether this part of the address occurred in the third or fourth line of the address field.

The find routine is not case sensitive. "Print label" does exactly that. It prints the name and address, and then generates line feeds on the printer to make the printouts 1.5 inches apart, the normal spacing for labels.

Calendar

The Calendar reveals the current month with the cursor block on the current day. This may be moved around the dates via the cursor keys, and it is easy to move forwards/backwards a month/year with fantastic speed. This calendar is seen again when using the desk diary.

Calculator

Selecting the Calculator reveals a further set of three options: Calculator, conversion chart, and Ascii table. At first I assumed the last two had been inserted simply to fill up a bit of rom room.

They are actually quite useful, the unit conversion chart indicating the mathematical functions needed to convert temperature, weights, lengths, and volumes from metric to imperial. The Ascii chart simply displays all the Ascii characters from 0-127.

The calculator itself is very neat. The

usual facilities of memory, percent, square root, cancel last entry, and so on, are present, and a clever touch is the trapped wrong key-press.

To subtract five from seven you can either press the minus key (below the equals sign) or the underline key (below the pound sign). This shows that a good deal of care and thought has gone into the planning of the system.

Desk Diary

I think that the most useful part of Genie is the Desk Diary. The screen changes to reveal an area for making diary entries, and like the address book you can select Browse, Work, or Print, but this time it's Print Page rather than Print Label.

Using the cursor keys will enable you to move forwards and backwards through the diary, but an easier method is to press f0 which will reveal the calendar for the month. Any dates that have entries are highlighted, and the cursor block can be moved to one of these to reveal the entry for that day.

The area for diary entries (10 lines by 34 characters) is large enough for most purposes, and a nice feature about being able to move year by year using the cursor keys with Shift means that you can at a glance check on what day a particular date occurs for subsequent years.

Notepad

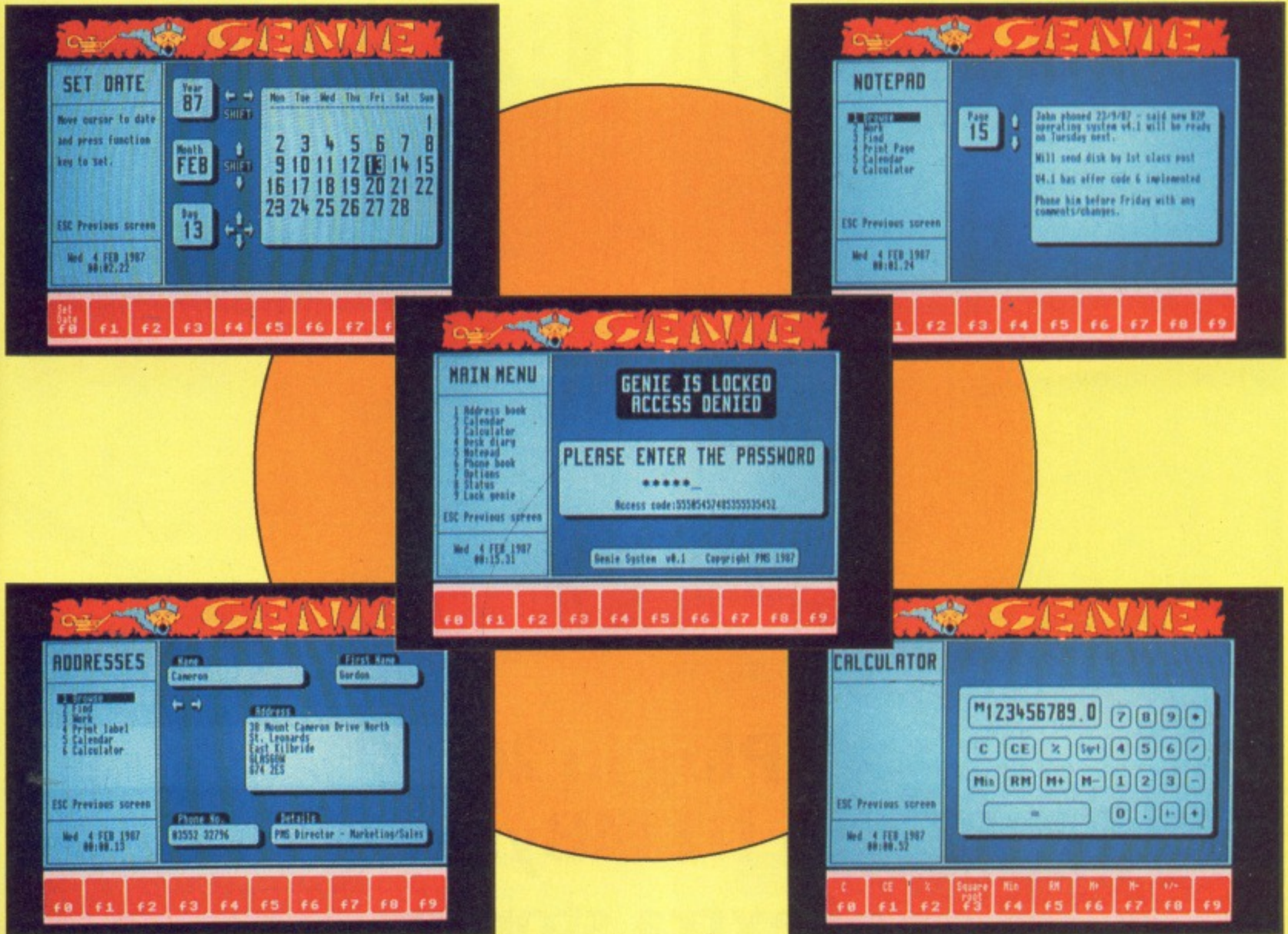
The Notepad allows jottings to be entered and stored. Like the desk diary there are options for Browse, Work, and Print Page, and there is also the facility to find a particular string.

The notes are held in pages, each 16 lines by 40 characters, and Browse allows you to move forwards/backwards through the pages. Once more the function keys alter at various times to give extra commands and the notepad concept proved extremely useful while writing this review.

As text was being entered in Inter-Word, new ideas and comments that needed to be remembered could be jotted down on the notepad ready for recall and printing later.

Phone Book

The Phone Book is derived from the



address book and displays a list containing surname, forename, and telephone number. Scrolling is achieved via the cursor keys, using Shift to move through the list at great speed.

Options

There is a general Options function which gives a further choice of six actions:

- Set Date – to set the current date for the system. Because the BBC model B has no internal real time clock, this date must be set each day you use Genie, but it literally only takes a couple of seconds to accomplish, on the Master the time and date are adjusted from the real time clock.
- There is actually a clock on the Genie display, but if you have no real time clock capability, this reveals the amount of time elapsed.
- Date stamp – within the notepad it is possible to have the current date automatically entered at the top of each Notepad page using this option.
- Interlace on/off – depending on your monitor, you may find that the display jitters slightly. Good software packages,

like Inter-Word and Genie, allow you to switch the interlace on/off to correct this.

- Set ink colour and set paper colour – these two commands allow the colours of the background and foreground to be altered for personal taste, and to improve contrast on monochrome monitors.

- Set password – Genie can be password protected, so that when exited, nobody can then enter and read the data without the password.

There is the facility for saving and loading the Genie data to disc as a final backup in case the on board ram backup battery begins to fail, and even this is stored in a garbled form for security.

- Lock Genie – protects your Genie from unauthorised entry.

The Status option tells you how much memory has been used by the system. It is detailed for the notepad, address book, and diary, showing the number of entries made, and the bytes used.

Among the associated * commands with Genie are two, *GENIE ON/OFF, to enable it to be turned on or off. The manual states that this is to cater for certain games software that do not allow

other systems to claim the keyboard vector.

*GBACKUP O/I will either output or input the Genie data to/from disc. This acts not only as a backup system but also as a means where different sets of diary entries/jottings/addresses could be stored and loaded as required.

There are always things that could be added, among them being the facility to import and export data, to a word processor and PMS are bringing out a disc of Genie utilities for this very purpose.

The system is stunningly simple to use, and after a brief amount of experimentation with the cursor keys, the easy-to-read manual is only really needed to give reminders of the * commands.

Genie is neat, well packaged, well-written, and fills a clearly identified gap in the BBC Micro software market.

Product: Genie
 Price: £79.35
 Supplier: Permanent Memory Systems, 38 Mount Cameron Drive, East Kilbride G74 2ES.
 Tel: 03552 32796

MEGA BYTES FOR MINI BUCKS



If you want to increase your storage capacity up to an incredible 112 MBytes you need a Winchester; but not just any Winchester ... the new Viglen System is 100% compatible with the Acorn Winchester, it's simplicity itself to install and it costs a lot less than you think.

The Viglen Winchester is ready to plug straight into your BBC Master or if you have a B or B plus you will simply have to fit an ADFS ROM. You can use up to two floppy disk drives in conjunction with the unit and, fitted to the B+ or Master, the floppies can double their capacity by running in double density mode.

The 112 MBytes Viglen Winchester System is equivalent in capacity to over 1000 100K floppies or 250 400K floppy disks. It takes under 2.5 seconds to save 200K bytes, making it at least ten times faster than the equivalent floppy disk options. The system is designed for virtually every application from education or business to home use.

WHAT DO I GET FOR MY MONEY

1. Winchester Unit - (winchester drive, controller boards, power supply and fan all fitted in one compact case). The fan is recommended in order to keep the winchester at the correct operating temperature.
2. Master Reference manual part 1 (for a BBC B or B plus you will require the Acorn ADFS ROM and utilities available at an extra cost).
3. Winchester user guide.
4. Additional utilities on the winchester including formatter, verifier, ADFS menu and backup program.

PLUG IN SECOND DRIVE

The Acorn ADFS can handle up to two winchester drives. These are accessed as drive 0 and 1 (the floppy disk drives being accessed as drives 4 and 5). Viglen winchesters are supplied as Drive 0 (single unit) and Drive 1 (Second drive for single unit). The Viglen drive 1 can be instantly plugged into drive 0 and used either as a backup for Drive 0 (and perhaps taken off and stored away) or for more online mass storage. This will enable you to back up 20 Megabytes in under 7 minutes.

STORAGE OPTIONS:-

| Drive 0 | Drive 1 | Total Capacity |
|---------|--------------|----------------|
| 20 Meg | 20 or 40 Meg | 40 or 60 Meg |
| 28 Meg | 28 or 56 Meg | 56 or 84 Meg |
| 40 Meg | 20 or 40 Meg | 60 or 80 Meg |
| 56 Meg | 28 or 56 Meg | 84 or 112 Meg |

Plug in 20 to 112 MBytes of extra storage with the Viglen Winchester System

Picture shows 20 and 28 megabyte units. 40 and 56 megabyte units may be slightly taller.

| | PRICE INC VAT |
|--|---------------|
| Drive 0 Single | |
| VB20 20M Winchester | 649.95 |
| VB28 28M Winchester | 699.95 |
| VB40 40M Winchester | 1045.95 |
| VB56 56M Winchester | 1119.95 |
| Drive 1 Second Drive | |
| VB120 20 M Drive 1 Winchester | 549.95 |
| VB128 28M Drive 1 Winchester | 599.95 |
| VB140 40M Drive 1 Winchester | 819.95 |
| VB156 56M Drive 1 Winchester | 899.95 |
| Acorn ADFS ROM with utilities (essential for BBC B and B Plus) | 29.95 |
| Acorn 1770 upgrade kit (BBC B) | 49.95 |

COMPATIBILITY?

Viglen winchesters are 100% compatible with the Acorn winchesters and the ADFS. Any program that will run on the Acorn winchester will also run on the Viglen winchester. The winchesters also run with the Acorn Master 512 board with DOS plus (CPM86 and MSDOS compatible operating system).

BACK OF UNIT



- 1 MHz IN:** This socket is used to connect the micro to the winchester.
- 1 MHz OUT:** This socket is used to connect any other device that is normally plugged into the 1 MHz bus on the micro.
- DRIVE I DATA:** This is a 20 way socket which is used to connect the data signals to a second winchester drive.
- DRIVE I CONTROL:** This is a 34 way socket which is used to connect the control signals to a second winchester drive.

HOW TO ORDER

Simply write off today to Viglen and remember to add £8.00 carriage, packing and insurance, and allow 7 days for delivery. Credit card holders may order by telephone. If you'd like to find out more why not come down to our West London showroom (see map for directions) or if you can't make it simply ask for our special datasheet.

Viglen

The Perfect Partners

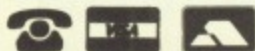
Unit 7, Trumpers Way, Hanwell, London W7 2QA. Sales Hotline 01 843 9903.



Callers by appointment

Orders from Educational Establishments, Government Departments and Plc Companies accepted. Education discounts available. please call.

Prices correct at time of going to press and subject to availability.



**£527
COLOUR MONITOR
TO BE WON**

Perfect Your Image



The top of the range Supervision 625 and its baby brother, the 620

DA VINCI, Degas, Dean – could you use your BBC Micro to create works of art? Or would you like to see your poster or page designs displayed to the best effect? For the best images you need a high resolution colour monitor.

THIS is your opportunity to use your programming design skills to win the superb Supervision 625 from Taxan. This 12in RGB colour monitor has a 668 x 312 line resolution, positive or negative sync output, text colour switchable to green, amber white reverse or white on blue, illuminated front panel test mode selector, more than 18 MHz bandwidth and a super high contrast tube. With all these features it's no surprise that it's worth £527.

What to do

In this issue of *The Micro User* you will find the listing for the Microworks Screen Designer program. This introductory art package has been written so that you can adapt it for your

needs – you could add a flood fill routine or write a routine to use a mouse.

What we want you to do is supply the original program on disc with the addition of new routines and any necessary documentation. Enclose this with the coupon below and ensure that we receive your entry no later than October 31.

The winner of Taxan's Supervision 625 will be the person who, in the opinion of the judges, supplies the best new routines for Microworks.

ENTRY FORM

Name

Address.....

.....Postcode.....

I certify that this is all my own work
Signature

Send to: Microworks Competition, The Micro User,
Europa House, 68 Chester Road, Hazel Grove, Stockport SK7 5NY.



Computaccount (UK) Ltd
21 Spring Hill
Birmingham B18 7BH
Tel 021 236 3455

We are major supplier to the educational
and health sectors

Please send an SAE for our free extensive catalogue and price list. Hundreds of products listed at excellent prices.



**HIGH PERFORMANCE
COMPUTER SYSTEM**

Call for details on 300
series & 400 series systems

ACORN

NEW MASTER COMPACT series. Standard system is 128K, single 3.5 inch drive, bundled software.

Compact entry system £349.00
Compact TV system £359.00
Compact with mono monitor £389.00
Compact with colour monitor £529.00
RS 232 interface for compact £26.00
Extra 3.5in drive for compact £99.00
PAL TV adaptor for compact £26.00

Master 128 £379.00
Master ET £305.00
Master econet module £43.47
Turbo upgrade £108.00
64K upgrade kit £34.74
Master 512K upgrade £199.00
10 Mbyte Hard disc with filesaver
£1086.95

30 Mbyte Hard disc with filesaver
£1608.95
Eprom cartridges £11.95
Acorn DNFS kit £82.60
1770 upgrade kit £43.42
ADFS ROM £26.04
ATPL Sideways RAM/ROM board £39.00
CONCEPT Keyboard £124.95
View manual £10.00
Viewsheets manual £10.00

ACCESSORIES

LISTING PAPER
All standard sizes available at very competitive prices. Single and multi-part.
LABELS
Various size, 1-across, 2-across, 3-across
RIBBONS
for most common printers, Epson, citizen, Star, Amstrad, Juki, Canon etc.
CLEANING KITS
For UDU, disc drives and keyboards

DISCS

Full range of 3", 3.5" and 5.25" discs available at very competitive prices.

AMX

Please state whether for BBC or Master
AMX mouse with Super Art ROM £78.00
Pagemaker £43.43
Paintpot £13.00
Desk £21.70
Super Art ROM £43.43
Database £21.70
3D Zicon £21.70
Utilities £13.00

ROM SOFTWARE

Acorn:
View 2.1 £45.00
View 3.0 £63.00
ViewPlot (Disc) £25.75
ViewSpell £33.50
Viewsheets £45.00
Viewstore £45.00
GXR (please state whether for B or B+) £23.00
ISO Pascal £52.00
LISP £39.00
BCPL £46.00
Logo £52.00
ADFS £26.04
Computer Concepts:
Wordwise Plus £40.00
Printmaster £25.00
Accelerator £48.00
Speech ROM £27.50
Communicator £51.30
InterWord £48.00
Intersheet £48.00
Interchart £28.50
Interbase £59.00
Spellmaster £46.00
Beebugsoft:
Toolkit Plus £33.00
Wordease £25.00
ICON master £29.00
ROMIT £29.00
Help II ROM £27.00
Slouth ROM £27.00
Exmon II £28.00
Spellcheck III £32.00
MUROM £24.00
Pace:
Commstar £29.57

COMPACT SOFTWARE

Revs 5 £16.95
Hits 1/Hits 2 £12.95
Pascal £59.00
Citadel £12.95
Repton 2 £12.95
Karate Combat £12.95
Strykers Run/Enhanced Strykers £12.95
CrataForce £12.95

FLEA MARKET

All items subject to availability
EPROM programmer £40.00
Programming software (ROM) £5.00
EPROM eraser £24.00
1200/75 Modem + Comm software £35.00
Torch Light Pen £25.00
Plannercalc. Torch CPN format £35.00
Masterplanner. Torch CPN format £85.00
IBM user manuals (installation/Basic) £15.00

MONITORS

Mono:
Sanyo DM4112 £79.95
Sanyo DM9112 £126.00
Philips green Hi-res 7502 £76.00
Philips amber Hi-res 7522 £82.61
Zenith green Hi-res 1230 £85.00
Zenith amber Hi-res 1220 £85.00
Colour:
Microvitec std-res 1431 £191.00
Microvitec med-res 1451 £229.00
Microvitec hi-res 1441 £399.00
Philips 8533 RGB Med-res + composite video £251.00
Monitor cables (state types required) £3.50
Master Monitor bridge single height £18.90
double height £25.00

PRINTERS

DOT MATRIX
Epson LX800 150cps 80 col NLQ
* NEW * £229.00
Epson FX800 £324.75
Epson FX1000 £453.75
Epson EX800 (optional colour) £457.88
Epson EX1000 (optional colour) £614.63
Epson LX80/86 tractor unit £20.00
Epson LQ 800 180 cps 24 pin matrix NLQ £479.00
Epson LQ 1000 180 cps 24 pin 132 col NLQ £659.00
Olivetti DM100 80col NLQ 120cps £225.00
Olivetti DM280 80col NLQ 160cps £349.00
Canon PW1080A NLQ 80col 160 cps £258.00
Brother 1109 Par. + Ser. 100cps + NLQ £209.00
Brother 1409 Par. + Ser. £349.00
Brother 1509 Par. + Ser. 180cps + NLQ £449.00
Brother 2024 Par./Ser. NLQ 24pin 160cps £750.00
STAR. Full range stocked. Call for prices
Star NL 10 serial NLQ 80 col 120cps £279.00
Star NL 10 parallel NLQ 80 col 120cps £239.00
Star NX15 NLQ 132 col 120 cps £330.65
Star SD10 NLQ 80 col 160 cps £330.65
Star SD15 NLQ 132 col 160 cps £415.65
Star NB 2415 NLQ 24 pin 216 cps £645.15
Star NB15 NLQ 24 pin 300 cps £806.65
Citizen 120D parallel 120 cps NLQ 80col £199.00
Citizen LSP10 120cps Eps/IBM comp NLQ £225.00
Citizen MSP10E 160cps Eps/IBM comp NLQ £296.00
Panasonic KX-P 1081 £159.00
Panasonic KX-P 1090 £233.00
Panasonic KX-P 1092 £315.00
Panasonic KX-P 1592 £405.00
Micro-P MP165 NLQ £208.70
Micro-P MP200 *NEW* £299.00
Parallel printer cable BBC £9.00
Parallel printer cable IBM, etc from £15.00
DAISY WHEELS
Sanyo PR3000 £199.00
Sanyo PR5200 £299.00
Brother HR10 £239.00
Brother HR15 £349.00
Brother HR25 £650.00
Brother HR35 £825.00
Juki 6100 £279.75
Juki 6200 £454.00
Juki 6300 £694.00
Juki 2200 typewriter/printer £238.00
Star Powertype 165col 18cps £219.00
Epson GQ3500 *LASER* £1795.00

PRINTER ACCESSORIES

Epson FX 80/85 Tractor Unit £32.00
Epson FX 80/85 Sheet Feeder £125.00
Epson FX100/105 Sheet Feeder £139.00
Brother HR sheet feeder £209.00
Epson MX/RX/FX 80 Ribbons £3.75
Epson MX/RX/FX 100 Ribbons £4.50
Canon PW1080/1156 Ribbons £5.00
Taxan Kaga KP810 Ribbons £5.00
Citizen printer ribbons £3.99
All Epson Spares available £POA
Massive range of other compatible ribbons available

AMSTRAD

NEW PC1640 all models available from stock
NEW PC 1512: Prices start at £449 for basic single drive + mono monitor system. Phone for prices of other systems.
PCW 8256 £399.00
PCW 8512 £499.00
2nd disc drive for PCW8256 £155.00
Serial interface for PCW £59.00
Modem with Chat software £169.00
Wordstar deluxe £60.00
Supercalc £43.00
SageSoft Popular Accounts Plus £130.00
Dbase II £103.00
3 inch discs for PCW's £3.50

DISC DRIVES

Opus 5802 400k DS 40/80 track £109.00
Opus 5802DB dual 400k DS 40/80 track £205.00
Opus 5802D dual 400k DS 40/80 with PSU £233.91
Opus Challenger 256k £179.00
Opus Challenger 512k £199.00
Opus DDOS kit £52.12
Pace PSD1P 100k 40T with PSU £125.00
Pace PSD3P 400k 40/80T with PSU £144.00
Pace PDD3P dual 400k 40/80T with PSU £260.00
Akhter MDR02E dual 400K DS 40/80T mounted in monitor stand £285.00
Cumana CSX100 100k SS 40T £99.00
Cumana CS100 100k SS 40T with PSU £129.00
Cumana CS400S 400k DS 40/80T with PSU £152.00
Cumana CD800S dual 400k SS 40T with PSU £295.00
Cumana CS354 SS 3.5" with PSU £121.70
Cumana CD358 DS 3.5" with PSU £210.00
Cumana CCD2000S 3.5" + 5.25" with PSU £282.17

MODEMS

Nightingale with Commstar £135.00
Voyager 11 £99.95
WS 2000 £108.69
Modem 1000 (BT approved) Special Offer £35.00

NEW TORCH RANGE

Z80 processor board with software £229.00
Twin floppy drive unit £283.00
Both above combined at £459.00
20 MB Hard plus one floppy unit £826.00
40 MB Hard plus one floppy unit £1125.00
Massive range of torch software available.

SPECIAL SOFTWARE

PORSCHE TURBO LIBRARY
Functions & Procedures for Turbo Pascal to access the power of BBC/Torch facilities
NEWNET
Powerful friendly Torchnet management software with password protection etc.

DBASE SPECIAL

dBase helper programme now available for those who do not want to learn programming in dBase, but need the powerful facilities quickly.
Price only £40.00

HOW TO ORDER

Payment by cheque to:
COMPUTACOUNT (UK) LTD

Carriage: Items less than
£50: £2.50: £50-£100: £4.50
Carriage and insurance on
items more than £100: £9.50

Send to Computaccount (UK) Ltd., 21 Spring Hill, Birmingham B18 7BH or telephone 021 236 3455

| NAME | ADDRESS | Quantity | Item | Price | £ | £ |
|-------|---------|----------|-------|-------|---|---|
| | | | | | £ | £ |
| | | | | | £ | £ |
| | | | | | £ | £ |

Please add VAT at 15% to Total, including Carriage.

TOTAL £.....

UTILITY

B

B+

M

Centra

A



HERE is a utility which will try to rescue your discs from the dreaded "Disc fault" errors resulting from using old, damaged or corrupted discs.

MOT is totally dedicated to patching up your worn out or corrupted discs and data. There is no disc that cannot be repaired unless it is physically damaged rendering the actual surface unusable.

What MOT does is to reformat a disc completely while preserving data that can be recovered. A disc treated in this way is as magnetically fresh as the day it was first formatted, and any sectors that were unreadable are patched up automatically with blank data.

There are two possible uses for the program. The first is preventative treatment for all your most valuable discs every 6 to 8 months or so. This will keep the data fresh for as long as the disc surface remains physically intact — which should be many years with care.

MOT's second function is as a cure for discs rendered unreadable because the magnetic signals have weakened through age until they are below the readable threshold of the floppy disc controller — FDC — chip.

It only takes a sector's ID header to become too weak for the whole of that sector to become unreadable, the result being the message:

Disc fault (number) at (track),(sector)

If you receive this message a quick service is indicated.

To use the program, type in the listing, check it with the checksums and save it with a suitable file name other than MOT. Now run the program and the code

Mend & Overhaul Tracks

will be assembled and saved as MOT.

Try out the program on a backup or unimportant disc first, not on an important one just in case you've made a fatal typing error.

The newly-created file can be *RUN and you are asked:

40 or 80 tracks (4/8)?

Select according to the type of drive you've got.

Next you are prompted to enter the drive number to use for the repair. Only numbers from 0 to 3 will be accepted. The repair starts immediately, so if you only have a single drive make sure the disc containing MOT has been removed

Call at Chris Nixon's
service station and give
your well worn discs a
new lease of life

before you type the drive number.

No harm would result by forgetting to do this, but you would have to wait for MOT to finish processing the disc before trying again.

You must never abort MOT halfway through a disc repair by pressing Break because the program could be halfway through formatting a track at the time resulting in loss of data.

MOT treats your disc as follows: Attempt to load a complete track into the buffer. If unsuccessful try each sector in turn to identify which is at fault and fill the corresponding part of the buffer with 256 bytes of &E5, and then increment

Turn to Page 70 ►

◀ From Page 69

the sector's patched counter. Now format the track.

Finally try to save the buffer back to the track. If unsuccessful for any reason abort with the message *Fatal disc error found* because the disc surface must be physically damaged if it prevents the saving of data on to a freshly formatted track.

You can tell when MOT has found a dodgy track because the sector number

displayed in the centre of the screen starts to climb.

Any sectors that do need patching will be filled with blank data as part of the process and if this occurs halfway through a Basic or machine code program then they may be rendered unusable. No apologies are made for this as the data was unreadable anyway and MOT would have to be psychic to be able to restore the lost data.

If the program aborts with the fatal error message you should salvage all the uncorrupted programs and throw the

disc away. Even if only one sector is causing the problem it is symptomatic of the rest of the disc following the same path sooner or later.

MOT will work on any of the BBC series machines in DFS mode because all the 8271 FDC functions are emulated by the 1770 FDC software.

Finally, remember what your dentist is always fond of telling you: Don't wait till it's too late. Prevention is always better than cure. With a regular MOT all your floppies should enjoy an extraordinarily long and healthy life.

```

10 REM *****
20 REM * Disc MOT Version #1 *
30 REM * for any 8271/1770 DFS *
40 REM * by Chris Nixon *
50 REM * Oct 1987 *
60 REM * (c) The Micro User *
70 REM *****
80 REM
90 MODE7:HIMEM=&3FFF
100 mess=&70:memory=&72:fields=&5000
110 FORPASS=@T02STEP2
120 PX=&4000
130 [OPT PASS
140 LDA #title MOD 256:STA mess
150 LDA #title DIV 256:STA mess+1
160 JSR message
170 .discloop
180 LDA #trackmess MOD 256:STA mess
190 LDA #trackmess DIV 256:STA mess+1
200 JSR message
210 .get1
220 JSR &FF00:BCS escape:CMP #52
230 BEQ track40:CMP #56:BNE get1
240 JSR &FFEE:LDA #79:STA maxtrack*
250 JMP getdrive
260 .track40
270 JSR &FFEE:LDA #39:STA maxtrack
280 JMP getdrive
290 .escape
300 LDA #126:JSR &FFF4:JMP &FFE7
310 .getdrive
320 LDA #48:JSR &FFEE
330 LDA #discmess MOD 256:STA mess
340 LDA #discmess DIV 256:STA mess+1
350 JSR message
360 .get2
370 JSR &FF00:BCS escape:CMP #52
380 BCS get2:JSR &FFEE:SEC:SBC #48
390 STA drive:JSR enforce:BCC report
400 LDA #fatalmess MOD 256:STA mess
410 LDA #fatalmess DIV 256:STA mess+1
420 JSR message:JMP ask
430 .report
440 LDA #reportmess MOD 256:STA mess
450 LDA #reportmess DIV 256:STA mess+1
460 JSR message:LDA fixnum:JSR hex
470 .ask
480 LDA #moremess MOD 256:STA mess
490 LDA #moremess DIV 256:STA mess+1
500 JSR message:JSR &FF00:BCC ok
510 JMP escape
520 .ok
530 AND #223:CMP #ASC"Y":BNE quit
540 JMP discloop
550 .quit
560 LDA #resmess MOD 256:STA mess
570 LDA #resmess DIV 256:STA mess+1

580 JMP message
590 .message
600 LDY #0
610 .messloop
620 LDA (mess),Y:CMP #42:BEQ exitmess
630 JSR &FFE3:INY:JMP messloop
640 .exitmess
650 RTS
660 .enforce
670 LDA #fixmess MOD 256:STA mess
680 LDA #fixmess DIV 256:STA mess+1
690 JSR message
700 LDA #0:STA track:STA fixnum
710 .trackloop
720 JSR readtrack:BEQ nexttrack
730 JSR checktrack
740 .nexttrack
750 JSR formattrack:JSR writetrack
760 BEQ trackOK:SEC:RTS
770 .trackOK
780 INC track:DEC maxtrack
790 BPL trackloop:CLC:RTS
800 .tab
810 LDA #31:JSR &FFEE:TXA:JSR &FFEE

820 TYA:JMP &FFEE
830 .readtrack
840 LDY #17:LDY #10:JSR tab:LDA track
850 JSR hex:LDX #28:LDY #10:JSR tab
860 LDA Tblock+8:JSR hex
870 LDA drive:STA Tblock:LDA #&53
880 STA Tblock+6:LDA track
890 STA Tblock+7:LDA #0:STA Tblock+8
900 JMP Tosword
910 .writetrack
920 LDA #&4B:STA Tblock+6
930 LDA #0:STA Tblock+8
940 .Tosword
950 LDA #&7F:LDX #Tblock MOD 256
960 LDY #Tblock DIV 256:JSR &FFF1
970 LDA Tblock+10:RTS
980 .checktrack
990 LDA track:STA block+7:LDA #0
1000 STA sector
1010 .sectorloop
1020 LDY #28:LDY #10:JSR tab:LDA sector
1030 JSR hex

1040 LDA drive:STA block
1050 LDA #0:STA block+1
1060 LDA #&20:STA block+2
1070 LDA #&53:STA block+6
1080 LDA sector:STA block+8
1090 LDA #&7F:LDX #block MOD 256
1100 LDY #block DIV 256:JSR &FFF1
1110 LDA block+10:BEQ nextsector
1120 JSR newsector
1130 .nextsector
1140 INC block+2:INC sector
1150 LDA sector:CMP #10
1160 BCC sectorloop:RTS
1170 .formattrack
1180 LDY #0:LDY #0
1190 .idloop
1200 LDA track:STA fields,X:LDA #0
1210 STA fields+1,X:TYA:STA fields+2,X
1220 LDA #1:STA fields+3,X:INX:INX
1230 INX:INY:CPY #10:BCC idloop
1240 LDA drive:STA format:LDA track
1250 STA format+7
1260 LDA #&7F:LDX #format MOD 256
1270 LDY #format DIV 256:JMP &FFF1
1280 .newsector
1290 LDA #patch MOD 256:STA mess
1300 LDA #patch DIV 256:STA mess+1
1310 LDA block+1:STA memory
1320 LDA block+2:STA memory+1:LDY #0
1330 .patchloop
1340 LDA (mess),Y:STA (memory),Y
1350 INY:BNE patchloop:INC fixnum:RTS
1360 .hex
1370 STA num
1380 ROR A:ROR A
1390 ROR A:ROR A
1400 JSR print
1410 LDA num
1420 JSR print
1430 RTS
1440 .print
1450 AND #15:STA temp
1460 CMP #10:BCS alpha
1470 CLC:LDA #48
1480 ADC temp:JSR &FFEE
1490 RTS
1500 .alpha
1510 CLC:LDA #55
1520 ADC temp:JSR &FFEE
1530 RTS
1540 .temp:BRK
1550 .num:BRK
1560 .track:BRK
1570 .sector:BRK
1580 .drive:BRK
1590 .fixnum:BRK
1600 .maxtrack:BRK

```

This is one of hundreds of programs available FREE for downloading on

MicroLink

In addition to these many BBC Micro programs in the MicroLink library will also run on the Electron.



```

1610 .patch:OPT FNblanks
1620 .title
1630 OPT FNequb(22):OPT FNequb(7):OPT F
Nequb(31):OPT FNequb(6):OPT FNequb(0)
1640 OPT FNequb(141):OPT FNequb(129):OP
T FNequb(157):OPT FNequb(131)
1650 OPT FNequs("DISC MOT Version 1 ")
1660 OPT FNequb(156):OPT FNequb(31):OPT
FNequb(6):OPT FNequb(1)
1670 OPT FNequb(141):OPT FNequb(129):OP
T FNequb(157):OPT FNequb(131)
1680 OPT FNequs("DISC MOT Version 1 ")
1690 OPT FNequb(156):OPT FNequb(31):OPT
FNequb(2):OPT FNequb(2):OPT FNequb(134)
1700 OPT FNequs("By Chris Nixon - (c) T
he Micro User")
1710 OPT FNequb(28):OPT FNequb(0):OPT F
Nequb(24)
1720 OPT FNequb(39):OPT FNequb(4):OPT F
Nequb(42)
1730 .trackmess
1740 OPT FNequb(12):OPT FNequs("40 or 8
0 tracks (4/8)?"):OPT FNequb(134):OPT FN
equb(42)
1750 .discmess
1760 OPT FNequw(&0D0D):OPT FNequs("Inse
rt a disc & enter its drive no:"):OPT FN
equb(134):OPT FNequb(42)
1770 .fixmess
1780 OPT FNequb(31):OPT FNequb(0):OPT F
Nequb(10):OPT FNequb(129)
1790 OPT FNequb(157):OPT FNequb(131)
1800 OPT FNequs("Fixing Track:_ ") :OPT
FNequb(131):OPT FNequs("Sector:_00"):OP
T FNequb(42)
1810 .fatalmess
1820 OPT FNequb(7):OPT FNequb(31):OPT F
Nequb(0):OPT FNequb(17)
1830 OPT FNequb(129):OPT FNequb(157):OP
T FNequb(131)
1840 OPT FNequs("Fatal disc error found
")
1850 OPT FNequb(156):OPT FNequb(42)
1860 .reportmess
1870 OPT FNequb(7):OPT FNequb(31):OPT F
Nequb(0):OPT FNequb(17)
1880 OPT FNequs("No. of sectors patched
:"):OPT FNequb(134):OPT FNequb(42)
1890 .moremess
1900 OPT FNequb(13):OPT FNequb(31):OPT
FNequb(0):OPT FNequb(19)
1910 OPT FNequs("Fix another disc (Y/N)
?")
1920 OPT FNequb(42)
1930 .resmess
1940 OPT FNequb(28):OPT FNequb(0):OPT F
Nequb(24):OPT FNequb(39):OPT FNequb(0)
1950 OPT FNequb(13):OPT FNequb(42)
1960 .Tblock
1970 OPT FNequb(0):OPT FNequd(&2000):OP
T FNequb(3):OPT FNequb(0)
1980 OPT FNequw(0):OPT FNequw(&2A)
1990 .block
2000 OPT FNequb(0):OPT FNequd(&2000):OP
T FNequb(3):OPT FNequb(&53)
2010 OPT FNequw(0):OPT FNequw(&21)
2020 .format
2030 OPT FNequb(0):OPT FNequd(fields):0

```

```

PT FNequb(5):OPT FNequb(&63)
2040 OPT FNequb(0):OPT FNequb(21):OPT F
Nequb(&2A):OPT FNequb(0)
2050 OPT FNequw(16)
2060 ]
2070 NEXT:$&B00="SAVE MOT 4000 "+STR$*P
%:XX=0:YX=&B:CALL&FFF7
2080 END
2090 DEF FNblanks
2100 FORLX=0 TO &FF STEP4
2110 ]OPT PASS

```

```

2120 OPT FNequd(&E5E5E5)
2130 ]:NEXT
2140 =PASS
2150 DEF FNequb(N%)
2160 ?PX=N%:PX=PX+1
2170 =PASS
2180 DEF FNequw(N%)
2190 ?PX=N% MOD 256
2200 ?(PX+1)=N% DIV 256
2210 PX=PX+2
2220 =PASS
2230 DEF FNequd(N%)
2240 !PX=N%:PX=PX+4
2250 =PASS
2260 DEF FNequs(N%)
2270 FORLX=1 TO LENNS
2280 PX?(LX-1)=ASC(MID$(N$,LX,1))
2290 NEXT:PX=PX+LENNS
2300 =PASS

```

This listing is included in this month's tape & disc offer. See order form on Page 141.



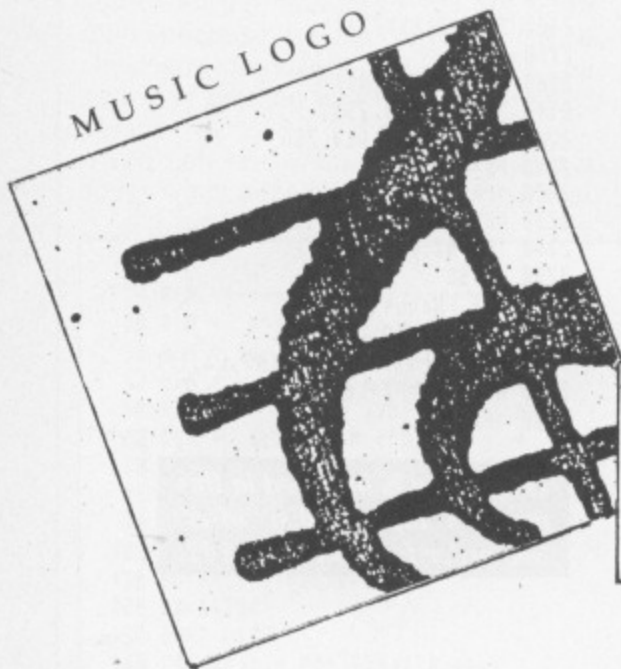
| | | |
|--------------|--------------|---------------|
| 10 = 00 | 400 = F67 F | 790 = 5D51 7 |
| 20 = 00 | 410 = B078 8 | 800 = E523 6 |
| 30 = 00 | 420 = 72E5 A | 810 = FC74 8 |
| 40 = 00 | 430 = D2E 2 | 820 = 18C9 8 |
| 50 = 00 | 440 = 6FB8 0 | 830 = EEF3 8 |
| 60 = 00 | 450 = 81C0 3 | 840 = DB9D 7 |
| 70 = 00 | 460 = A19A 2 | 850 = A70 E |
| 80 = 00 | 470 = B988 8 | 860 = 2E6C 5 |
| 90 = 6CEC C | 480 = CB0E 0 | 870 = 586 8 |
| 100 = 6EB1 E | 490 = 9767 A | 880 = 73D8 C |
| 110 = 4A5B 7 | 500 = 6196 1 | 890 = 4FA E |
| 120 = 68B0 2 | 510 = F7E1 9 | 900 = 6F83 6 |
| 130 = DD44 D | 520 = 5B1E 8 | 910 = CEBA E |
| 140 = D952 2 | 530 = F6F3 0 | 920 = 9984 C |
| 150 = 690F 8 | 540 = 4C6F E | 930 = 4DA8 C |
| 160 = CD92 C | 550 = 4F84 5 | 940 = 417C 0 |
| 170 = 76C3 1 | 560 = E478 0 | 950 = 8633 4 |
| 180 = FA52 4 | 570 = 9FEE A | 960 = 5343 E |
| 190 = 3ABA 2 | 580 = A697 5 | 970 = 4433 A |
| 200 = CD92 A | 590 = 8868 3 | 980 = F454 6 |
| 210 = 5D97 C | 600 = 9CF1 B | 990 = E0F7 7 |
| 220 = 7195 A | 610 = 79FB 4 | 1000 = 2A8E 1 |
| 230 = 4322 C | 620 = 9EBA C | 1010 = 1FEA E |
| 240 = EC4 A | 630 = 7C4A 8 | 1020 = 3F35 1 |
| 250 = 89C6 5 | 640 = 860A 4 | 1030 = CFA3 B |
| 260 = 8B19 3 | 650 = 9843 E | 1040 = B43F 1 |
| 270 = 9576 3 | 660 = 7D08 E | 1050 = 5425 8 |
| 280 = 89C6 8 | 670 = B5DE B | 1060 = 2CEA E |
| 290 = E93C 5 | 680 = 774C B | 1070 = D3CD B |
| 300 = DED2 A | 690 = CD92 3 | 1080 = 434C 6 |
| 310 = B36A 3 | 700 = 26F1 3 | 1090 = 60FC 9 |
| 320 = BE6B 5 | 710 = A3FE 9 | 1100 = 3027 B |
| 330 = A293 8 | 720 = C2D1 2 | 1110 = 802A 4 |
| 340 = 74C1 C | 730 = FE03 9 | 1120 = 5D14 3 |
| 350 = CD92 4 | 740 = E2E D | 1130 = DD8B 5 |
| 360 = 6DF4 A | 750 = F600 C | 1140 = 7680 E |
| 370 = 7195 D | 760 = 6258 4 | 1150 = 95A1 7 |
| 380 = FAB6 6 | 770 = 9046 C | 1160 = A30D E |
| 390 = 5B7 B | 780 = B33B A | 1170 = 969F A |

| | | |
|---------------|---------------|---------------|
| 1180 = F48E F | 1570 = 7D2E 8 | 1960 = 551A 7 |
| 1190 = 1F67 8 | 1580 = 9744 4 | 1970 = F137 C |
| 1200 = EA9C 8 | 1590 = 4CD3 3 | 1980 = 4424 7 |
| 1210 = 3E6F A | 1600 = 6D5F 3 | 1990 = CAFA 4 |
| 1220 = 3D6B 2 | 1610 = EB69 3 | 2000 = 89F5 A |
| 1230 = 4B9A A | 1620 = FD02 3 | 2010 = 4C7D 6 |
| 1240 = 950 D | 1630 = D52D D | 2020 = 828D F |
| 1250 = 607F 8 | 1640 = A23A F | 2030 = 5B33 9 |
| 1260 = AB98 A | 1650 = F856 9 | 2040 = 2A73 8 |
| 1270 = 3DC6 9 | 1660 = E4AE B | 2050 = 5338 F |
| 1280 = E178 E | 1670 = A23A 2 | 2060 = 8B58 F |
| 1290 = 536D 6 | 1680 = F856 4 | 2070 = 1F40 0 |
| 1300 = 5AE0 2 | 1690 = DEDF 2 | 2080 = FD2E 0 |
| 1310 = DA67 3 | 1700 = 97FA 7 | 2090 = E280 C |
| 1320 = ECEC 6 | 1710 = 2D37 2 | 2100 = 27B 5 |
| 1330 = 6ADE 3 | 1720 = 4C1A 6 | 2110 = DD44 6 |
| 1340 = 5EE9 0 | 1730 = 64F6 7 | 2120 = D3C7 F |
| 1350 = 7CF6 C | 1740 = BAB2 7 | 2130 = DA42 4 |
| 1360 = AC9E 1 | 1750 = B1CB B | 2140 = 4348 C |
| 1370 = 29A 7 | 1760 = 95D6 5 | 2150 = 54D3 A |
| 1380 = 6DB5 7 | 1770 = FC26 1 | 2160 = 21E0 A |
| 1390 = 6DB5 C | 1780 = B3DF 0 | 2170 = 4348 F |
| 1400 = AD7B 6 | 1790 = EDDE 3 | 2180 = 73DE 4 |
| 1410 = A58C 8 | 1800 = CF25 5 | 2190 = BC53 8 |
| 1420 = AD7B 0 | 1810 = A6E6 4 | 2200 = 3577 C |
| 1430 = 9843 B | 1820 = F789 A | 2210 = 650A A |
| 1440 = 14FC 8 | 1830 = 1356 A | 2220 = 4348 A |
| 1450 = B6EC 5 | 1840 = DE0F 6 | 2230 = 9956 D |
| 1460 = 5807 8 | 1850 = D5D2 8 | 2240 = 57BE 6 |
| 1470 = C2AB 7 | 1860 = A770 3 | 2250 = 4348 5 |
| 1480 = 926B 6 | 1870 = F789 B | 2260 = C9E9 4 |
| 1490 = 9843 B | 1880 = 9704 D | 2270 = EC82 A |
| 1500 = 36CA F | 1890 = C1C2 0 | 2280 = 8C53 4 |
| 1510 = 2037 5 | 1900 = 6C79 2 | 2290 = E2A7 8 |
| 1520 = 926B 3 | 1910 = E5FB 5 | 2300 = 4348 4 |
| 1530 = 9843 5 | 1920 = 5301 F | |
| 1540 = B77 7 | 1930 = ED87 F | |
| 1550 = FC2D A | 1940 = 30B 0 | |
| 1560 = C13A A | 1950 = CB56 1 | |

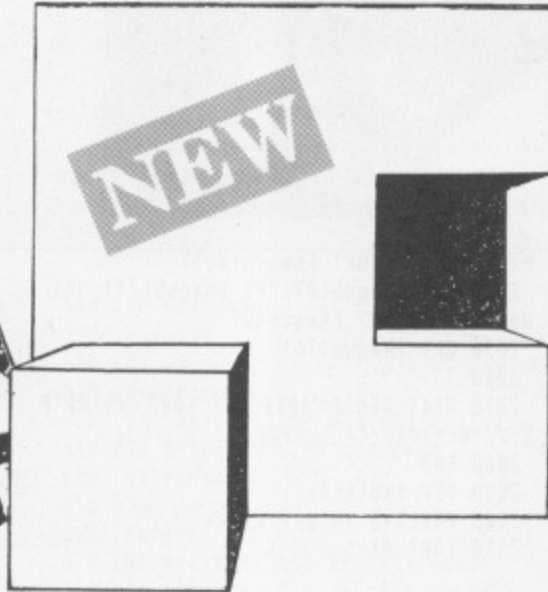
50,000 USERS SAY IT IN LOGOTRON LOGO

3-D LOGO

MUSIC LOGO



NEW



CONTROL LOGO



LOGOTRON

LOGO

- Turtle Graphics
- List Processing
- Mathematics
- 3-D Graphics
- Logo Sounds
- Sprite Graphics
- Control Technology
- Music Logo
- Science Logo
- Thinking Skills
- Problem Solving
- Logo Books
- Floor Turtles
- Databases
- Welsh Logo
- Hindi Logo
- Spanish Logo
- Network Logo
- Adventure Games
- Animation
- Robots

LOGOTRON
LOGO
PRICE
REDUCED
TO
£44.00



LOGOTRON
EDUCATIONAL
PRODUCTS

LOGOTRON EDUCATIONAL PRODUCTS, DALES BREWERY, GWYDIR STREET,
CAMBRIDGE CB1 2LJ PHONE (0223) 323656

Please send further details to:

WORK on evaluation of the major new experiment in high tech education, the Interactive Video in Schools (IVIS) project, is expected to begin in the new year.

The flexibility of the BBC Micro and its presence in almost all British schools made it the natural choice for the project.

Interactive video (IV) increases the scope of a user's on-screen manipulations, using the computer to control the sequence of action on a laser video player.

Arcade laser games like Dragon's Lair used early versions of this technology, allowing players to control an animated adventure. IV has come a long way since then.

The Domesday Project, a modern update of William the Conqueror's survey of his newly acquired Britain, chronicles huge portions of life and culture in today's UK.

The massive video library, conceived years ago by a BBC producer to celebrate the 900th anniversary of the original Domesday Book, gave impetus for new hardware and software developments forging the links between the computer and laser disc player.

It also pushed educators, producers and computer programmers into thinking of ways this powerful medium could be worked into the classroom.

As reported in the June issue of *The Micro User*, the Department of Trade and Industry has invested £1.5 million into the IVIS project so that eight teams around the UK could produce video lessons and the programming to control them.

"We picked the BBC Micro for our control system because of the number of them already integrated into the school curriculum", said Sophie Harding, an administrator at IVIS whose own program, *The Geography Disc*, helps to teach hydrology, weather and issues in third world development.

Most of the eight discs have been completed and await final refinement before they can go into schools for piloting.

"A huge amount of time and thought has been put into all eight productions", says Harding. "Corporations and libraries have donated archival footage. Actors, directors and animators have produced first rate new films".

What makes these programs more extraordinary is the power the BBC Micro gives the teacher and the student over the characters, the action and the direction of what is unfolding on the screen.

One example is the modern languages project in Shropshire which uses linear

Interactive video to be evaluated

tracking, a sophisticated version of story pathway control, to take a student on a shopping trip through a French town.

Using simple commands, students walk through animated streets into stores where live action shopkeepers ask them questions which they must answer in French.

A Life and Energy disc, created by Bulmershe College in Reading and the Open University, teaches students the profound effects of solar energy on the environment.

Animated narrators take them through normally difficult-to-reach landscapes and give them step by step instructions for laboratory experiments. The results can be fed into the BBC Micro for analysis and integration with video narration.

IV, could represent the biggest innovation in teaching technology since the computer first entered the classroom.

For students it is a whole new range of

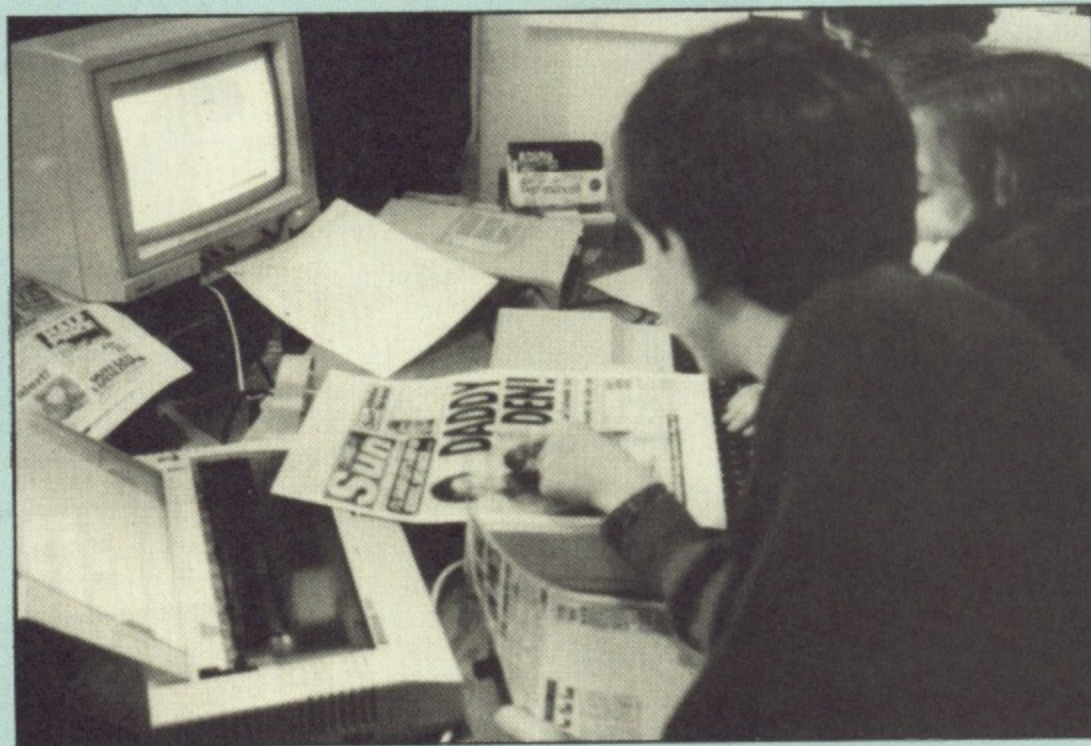
images to explore on the screen in interesting new ways.

For the teacher, the micro-video combination could replace the entire cannon of classroom AV tools, allowing instructors to program demonstration and visual lectures, mixing mediums and presenting pictures in their own choice of order.

Testing and piloting will take place in 92 schools until the end of the year. Then an evaluation group – the Centre for Applied Research in Education (CARE) – at the University of East Anglia, will see how well the system worked in the field.

If it is all as successful as preliminary use indicates, the next step will be for hardware and software producers to release commercial discs and consider schemes to get their equipment into the schools over the next decade – in the same way that the BBC Micro entered schools earlier.

John Haber



MORE than 250 pupils at the Bransholme high school in Hull are learning about the intricacies of desktop publishing with the help of a BBC Micro and AMX Stop Press.

Dorian Goring, who is head of communications at the school, first became interested in DTP last year after reading an article in *The Micro User*. "I

DTP goes to school

was so inspired by the article that I ran to the nearest stockist and bought a

Turn to Page 74 ►

EDUCATION NEWS

◀ From Page 73

copy of the AMX package", he said. "After using it for a while I realised the great educational value of the medium and started a project at the school last December".

Until then the media studies class had only talked about the theory of how newspapers and other publications went together.

Dorian's excitement for DTP spread very quickly to the children, no sooner had he got the BBC Micro set up with Stop Press than they were clamouring to use the system.

Groups of 25 pupils at a time take part in the DTP classes in which they learn about everything from gathering and writing news stories to photography and how newspapers are printed.

"The response from the pupils has been tremendous", said Dorian. "Quite a few of the children have become so involved with DTP that they have expressed a desire to enter publishing when they leave school".

As part of the research for the course a survey was carried out of the teenagers' reading matter. Once their favourite reading materials had been identified the best parts of each publication were used as examples when preparing the school magazine.

Surprisingly, the most popular publication the pupils bought regularly was not the usual teenagers magazines but the Today newspaper.

Even before desktop publishing was taught at the school, pupils were encouraged to draw lines down the centre of their exercise books and write their essays in two columns.

"The idea behind this", says Dorian, "was to get children to think about formatting a page in a newspaper type fashion".

Early learning

TWO new educational packages for the BBC Micro which work with the Concept keyboard have been released by Chalksoft (0775 69518).

The first - Movaword - has been designed for children within the age range of four to seven who are just learning to read.

Numbers and Pictures is a maths activity game for children from four to six years of age which contains exercises with numerals up to the number nine. Price £13.00

AIDS claims Hull victim
KILLER AIDS has claimed another victim.
 YOUNG Martin Moore died peacefully in his hospital bed early this morning. He had been to an all night party and returned home feeling unwell.
 The boy, who was in his early teens, was a pupil of Gordon Standton High School in Hull.
 His parents are refusing to send their children to the school. Headmaster Robert Cook was unavailable for comment.
 The mother of the dead youngster is calling for more information to be made available about the fatal virus.
 A TOP filmmaker has revealed to us "how" he made his movie.
 The "star" was also treated into making an investigation on the "star" by an investigative reporter.

BODY FOUND IN SKIP
 A body has been found by dustmen collecting rubbish. Police said that the body was found in a skip at the site of a new building. The body was found during the night by refuse collectors working a late shift.
MISSING GIRL
 A Mablethorpe Police officer said that the body was that of missing girl Cheryl Butler.
 Cheryl was last seen on Thursday at work and was in contact with her mother and father in a local pub.
 by Nancy Jessiman

JUDGE KIDNAPPED
 COUNTY COURT JUDGE Philip Hux, 56, was kidnapped by a gang of four youths on his way home from work.
 "There must have been a police officer in the area at the time", said a police spokesman. "They left a blood stained Mall City street behind on the scene", he said.
 BY REPORTER TRACY GLOAN

Frogmen Find Woman's Body
 A WELSH decomposed body was found by the police in a canal in Mablethorpe. The body is believed to be that of Mrs. Kay May. She worked at a printing press in Hull City Centre.
 Police said that the body was found in a canal during the night by police frogmen.
 Police want to interview Mrs. May's boyfriend.

DRAGONHOLME TEENAGER STABBED
 A 17-year-old teenager was stabbed in the chest in a local pub.

SEVER starbird
 Linda Lesardi has been dropped as a spokesman for TIMES newspaper announced today.

Linda slipped and broke her arm during a photographing session
 said Samantha Fox.
 "Samantha is our new starbird", a spokesman said.

LATEST...
 Bomb kills man
 by our reporter
 A man was killed, and a woman was injured in a bomb attack in a Hull street, police revealed.

REMEMBER... this...
CONIC CHARGE
 CONIC CHARGE
 The police have charged a man with the murder of a woman who was killed in a car crash in Hull last year.

Newspaper emulations using AMX Stop Press

DAILY EXPRESS
 LONDON 20th JANUARY 1987
 PRICE 10p
 PUBLISHED 3 TIMES A WEEK
 60p 3rd NEWSPAPER YOUR PRICE

Good for some! Bad for most... YES, it was...
SIBERIAN!
 THE ARCTIC WEATHER WHICH HIT BRITAIN last week was the worst since the war, according to Meteorologist Ian MacCausland.
 For the terrible cold weather brought blizzards and sub zero temperatures to most parts of the country. Britons snow and hazardous road conditions left some areas totally isolated. And in more exposed places, drifts of up to 200 feet have been recorded.
 The situation became serious when trucks carrying vital fuel oil and food stuffs couldn't get through. Small towns and villages faced the prospect of rationing and the elderly dying from hypothermia.
 The worst of the freezing effects were reported from the East coast.

THE BLIZZARD which attacked the East coast last week, left a trail of chaos in several areas.
 Several hit was particularly hard in Lancashire where several hundred households were snowed out.
 Drifting snow made conditions impossible. With freezing temperatures and icy winds caused an environmental disaster centred on a village.
 A spokesman said that some villages might become extinct.

DRUG KING HELD
 ...mean Junkie's jail threat
 MALLERBRIE drug pusher, Ian Stephenson, was caught earlier today.
 A speeding car passed a police patrol car travelling at 75 miles per hour. Stephenson was arrested and charged with possession of drugs.
 Stephenson was charged with possession of drugs and a jail threat.

FREEZING CONDITIONS BROUGHT CHADS TO BRITAIN'S ROADS...
 Experts say that the blizzard will blow itself out eventually. The trail of damage includes 21 dead due to hypothermia. And more elderly are expected to die.

CONIC CHARGE
 The police have charged a man with the murder of a woman who was killed in a car crash in Hull last year.

Mind that child

Marshall Anderson
explains what you need
to know about
educational software

IT'S been a long time since any of us believed manufacturers who claimed that we could run our central heating off their latest 16k micro or that we couldn't run normal household accounts without the aid of twin floppies and a printer.

All the time people are joining the rapidly less exclusive computer club and for more rational reasons. One of the most popular reasons goes right to the heart with advertisers pushing the seemingly logical: "If you don't buy our machine your child will spend its life sweeping floors or worse."

Now, with the central heating and household accounts myth you had little to lose. The overdraft will eventually be cleared and the electricity board will forgive you for fusing the entire street. But if the hardware and software manufacturers' claims for educational computing are as wrong then the damage will be harder to spot and more far reaching.

I am not suggesting for a moment that the computer has no place in education and the government has many different reasons for funding micros in schools. At least one of them contains educational considerations and when they spend money like that there's got to be something in it.

Although a majority of schools use computers in their curriculum they are by no means agreed on exactly how this should be done. In fact many have little if any computer policy.

There's nothing particularly horrific about that — education is continually experimenting with new methods. The fruits of this experimentation are beginning to appear in the form of training for teachers and resource centres but there's still a long way to go.

Along with all this work on the use of computers in school there has been a noticeable absence of advice to parents on how children should use them at home and I hope this article will go some way to correcting that.



One thing everyone agrees is that wrong help is worse than no help at all. Many children waste a lot of time in school unlearning the 'wrong stuff' before they can start to learn the 'right stuff'. The first rule to home education is: "Just 'cos they say it don't mean it's true".

Frankly, we are still seeing education software in which the facts and/or processes being taught are at least shaky if not completely wrong.

Some of this is easy to spot: The programs that accept the wrong answer as right, contain incorrect formula or out of date information — especially true of geography programs. But some contain more subtle faults and conceptual blunders that are harder to spot and make the software worse than useless.

Before you can discover these problems you will probably have to buy the software and, as they won't take it back because you don't like it, let's start with a few basic precautions.

First, you need to find out whether it is going to be any use to your child. For instance multiplication tables testing for 10-year-olds is probably a waste of time in most cases as they'll quickly become

bored, no matter how it is packaged.

Most seven year olds will find the greater part of division tables a complete mystery. Your child's teacher may well be able to help you as to areas for reinforcement.

Second, be very clear as to whether the software you are buying is trying to teach or reinforce. So, if you have a child taking O'level Biology a program entitled Biology Quiz may seem ideal, but is it likely to contain the right sort of questions at the right level?

Finally, remember that children are very quick to see through the most imaginative packaging of any subject. A child who finds maths difficult or boring will also find maths disguised as space-invaders difficult or boring.

Having run through this check list and bought your software there are now a series of other questions to be asked. First, try it out yourself.

Is the program self explanatory? If the child needs help will the program give it? Are the instructions within the child's reading capability? What exactly is it trying to teach or reinforce? How can you

Turn to Page 76 ►

FEATURE

B

B+

M

Compact

Compact

◀ From Page 75

test to see if it is working?

There can be little doubt, with most educational software, that you will need to guide your child through it at least once.

Once it is in use the main and most subtle danger is that the child will be learning the program instead of the content. This will often happen with multiple choice questions where a child can score a high mark through sheer luck and pay absolutely no attention to the actual questions.

In this kind of program the worst case can be that the child simply learns a series of response letters in the correct order to get to the end, learning absolutely nothing about the content. You can easily test this yourself by asking your child questions out of context of the machine, you may be surprised.

The theory that children can learn from computers is still under investigation but it has often been noticed that children have difficulty in transferring knowledge and skills from the best edu-

cational software to other situations.

Another point to look for is the visual reward part of the program. A child is naturally going to try to coax on to the screen the most interesting graphics and this is the carrot to computer aided learning.

Unfortunately, many of these programs produce the most interesting graphics when the child fails. Just watch a group of children playing computer hangman and see which ending they like best.

What we actually have here is a reward for wrong answers and to prevent this becoming a worse than useless program you will have to counteract with some sort of external reward for high correct scores.

Another series of problems arises in the teaching of mathematical processes and will need careful checking. For instance there are still some programs which ask children to enter answers to sums from left to right. This is not the way the child will normally work and can cause a great deal of confusion.

It is also worth noting that subtraction

is taught in two different ways these days (decomposition and equal addition) and it is very important that you present your child with the one he or she is used to – the school should be able to guide you here.

So in our search for good educational software we need to find a program that children can understand, teaching the right processes and knowledge at the right time in the right way. Frankly, there's not going to be much of this sort of thing about when we look at it in terms of the needs of an individual child.

Certainly there are a reasonable amount of practice programs in basic arithmetic and some good spelling programs, especially those with large, changeable databases that have words grouped by spelling rules. But the area of programs that actually teach a child something new is still very dodgy and presently to be approached with caution.

The ideal situation is one where you are able to use the same software that is used in your child's school. If you ask nicely they may even let you try it before you go out and buy. ■



EDUCATION REVIEW

Rambling a touch too much

RURAL Rambles and Seaside Strolls are two pieces of software designed to give practice in map reading skills. At the heart of each program is a map covering an area of seven by five kilometres of which one quarter can be displayed at a time. The separate sections can be called up by pressing the numbers one to four.

Both packages have the same general content. The differences between them concern the map locations and, therefore, the symbols to be found. These maps conform to the standard Ordnance Survey 1:50000 format.

This is the main type of map that children learn to use at school and is prob-

ably the most generally useful map style.

The BBC Micro has a number of problems when it comes to map drawing. To get the maximum number of colours, Mode 2 is used and this leads to the roads and paths on the maps being rather chunky. With no brown colour on the computer, no 'B' roads are displayed.

Contour lines are conspicuous by their absence as well, but Soft-Teach could claim that their omission aids clarity.

The lettering style used on the maps is clear and sharp but not perfect Ordnance Survey style. The bottom of the screen, where questions are displayed appears to be displayed in Mode 1 and uses the standard character set.

When you load the program by the normal Shift+Break process you are presented with a menu of options. These allow you to decide how many questions you wish to answer and what you want

them to be about. The five different choices are map symbols, grid references, compass directions, distances or a random mix.

With the map symbols option, you are given an instruction such as:

Go to Sutton Church passing an orchard

You then use a set of keys for the eight main compass directions to head along the roads and footpaths to reach your destination. If you can't remember the required symbols, then the 'H' key will give you the required help.

When you have completed the task Return must be pressed and the computer marks your attempt. Any errors are graphically highlighted on the map or alternatively you get an All Correct message.

The other sections operate in a similar vein, but sometimes you can leave the highways and byways for open countryside.

While the symbols and compass directions are probably suited for junior

Turn to Page 78 ►

WATCHING YOUR BBC PROGRAMS ON TAXAN'S SUPERVISION 620 OR 625 IS A FEAST FOR THE EYES. BECAUSE THEY'RE PROFESSIONAL COLOUR MONITORS THEY GIVE YOU A BETTER QUALITY PICTURE THAN EITHER A TV OR MEDIUM RESOLUTION MONITOR. AND WITH THEIR SUPER HIGH CONTRAST TUBES (FOR SHARPER TEXT AND MORE VIVID COLOURS) AND FOUR SWITCHABLE COLOUR TEXT MODES, THEY MAKE EXCELLENT VIEWING. (HOWEVER IF YOU PREFER TO WATCH IN MONOCHROME ONLY, TAXAN HAVE A RANGE OF MONITORS - THE KX117, KX118 AND KX119). TAXAN ALSO OFFER TWO BBC COMPATIBLE DOT MATRIX PRINTERS, THE KP815 AND KP915. THEY'RE QUICK AND QUIET AND BOTH PROVIDE NEAR LETTER QUALITY. SO NOW YOU'VE SEEN OUR IMPROVEMENTS FOR THE BBC,™ GIVE US A RING. WE'D LOVE TO HEAR YOUR POINTS OF VIEW.

TAXAN
A KAGA COMPANY
PERFECTING THE IMAGE



TO FIND OUT MORE ABOUT THE TAXAN RANGE OF PRODUCTS, CALL US ON 0344 484646.

◀ From Page 77

pupils, the harder grid reference questions need quite a lot of skill and are more suited to older children.

The section on distances gets in a muddle on units. The maps on screen are essentially metric in nature, with grid lines at one kilometre intervals. Some of the distance questions are set in metric units while others are in miles. It might have been a good idea to have had separate sections for each set of units.

The random sets of questions are not entirely suitable in these programs. Children who can cope with the harder questions will find others absurdly easy, while others will get frustrated by their inability to cope with difficult problems.

The instructions that come with the programs are very brief. A small chart shows which keys you may use but there is no indication as to what is expected of users.

The only way to find out is to load up the software and give it a try. Educational software needs better documentation than this.

One pleasant touch is the keyboard overlay (a simple piece of card) which means that users do not have to remember precisely which of the 20 or so keys they must use for each function though life might have been easier if less keys were needed!

The most serious problem I encountered with these programs was that



Seaside Strolls did not load and run. This was because they forgot to put the title program on the disc.

Fortunately for me, the required program was the same as Rural Rambles. That kind of mistake is really inexcusable and it could cause much frustration to parents or teachers as well as the youngsters trying to use the program.

This software could find some use in upper junior or lower secondary schools where a hard pressed teacher could occupy a child at the computer for a few minutes.

For home use, I would suggest parents buy their local Ordnance Survey map (about one third the price of these programs) and take their children out for

some real rural rambles or seaside strolls. This is one of those cases where the computer simulation is much inferior to reality both for mental and physical exercise.

Roger Frost

Programs compatible with B (OS1.2), B+ and Master with 5.25in 40 or 80 track drives.

Program: Seaside Strolls

Price: £10.95

Program: Rural Rambles

Price: £10.95

Supplier: Soft-Teach, Sturgess Farmhouse, Longbridge, Deverill, Wiltshire BA12 7EA.

Tel: 0985 40329

4MATION EDUCATIONAL RESOURCES
Linden Lea, Rock Park, Barnstaple, Devon EX32 9AQ
Telephone: (0271) 45566 Telex No: 42513 Sharet G. 4MAT
SEND A5 S.A.E. FOR CATALOGUE



Dave's been down-under!

Unfortunately, they sent him back. His father did all he could, but to no avail. Apparently David was beating the Aussies at "Hopper" (as well as cricket) and they didn't like it. Anyway, he's back, so if you come to see our full range of BBC software and hardware, disc drives, printers, monitors, cables etc, and you hear an Australian accent, it will only be David showing off. Actually, he sounds better than he used to!

NUMBER ONE IN BROMLEY

Data Store

6 Chatterton Road, Bromley, Kent. Tel.: 01-460 8991

EDUCATION LETTERS

Straying BAS 128

WE use an Econet system to run teaching and self-assessment software for undergraduate courses. So far, our software has been written in Basic and makes extensive use of text strings.

The software works perfectly in Basic IV, but if we try to run it in BAS128 to increase the number of strings the machine can hold, it crashes.

Inspection of the memory map reveals that the program becomes overwritten by its own strings.

We think that this is because BAS128 fails to switch correctly between pages of sideways ram when a string would cross a page boundary and it is only when strings are changed that it loses its way.

The problem occurs on the network ETs and on free-standing Masters, and with copies of BAS128 from different Welcome discs. We think this means there is a bug in BAS128.

Do any of your readers have a fix for it? — **Dr. Stuart Butler, Medical School, University of Birmingham.**

Switching discs

AT home I have an Acorn Electron fitted with a Rombox and Cumana disc interface connected to a Cumana disc drive and it works fine. But my discs do not work at school.

There we have a BBC Micro with a Cumana disc drive. Is there a program or a chip that will let me use my discs on the school's BBC Micro? I keep getting disc fault on both micros when I interchange discs.

If one day I can afford to get a bigger computer and change my Electron for a BBC Master, will that have the same disc problem? — **A. McPherson, Basildon, Essex.**

● There are two possible causes of the disc fault.

Keep your letters coming in — the education pages are here to reflect your interests. We want to hear your tips, ideas, experiences and suggestions. Send your contributions to:

Peter Davidson, Education Editor, The Micro User, Europa House, 68 Chester Road, Hazel Grove, Stockport, SK7 5NY.

Firstly, the Cumana interface on your Electron uses a completely different format disc to the BBC Micro.

You must use the utility disc supplied with the interface to format an Acorn DFS disc and copy your programs onto it. Both the BBC Micro and Electron will then be able to read the files.

In addition to this you must use either 40 track drives on both micros or 80 track. You can't use 40 on one and 80 on the other.

Providing you get your discs working on the school's BBC Micro you should have no problem using them on a Master.

Running commentary

I AM wondering whether there is something wrong with me or with my copy of French on the Run from Database Software.

Everything works perfectly but I do not seem able to get beyond Route 1 — despite answering all the questions correctly.

No matter what route I decide to take towards the Spanish border I am always timed out, so have never managed to get the password to Route 2. — **A. Crawford, Reading.**

● We contacted one of the authors of French on the Run about this and he made these comments:

There is nothing wrong with your copy of the program — you are just sticking too closely to what your conscience is obviously dictating.

At one point on the Spanish route you reach a "node" in the tree structure of the program, with two branches corresponding in the story line to being caught, and subsequently being offered a choice of keeping secret

information to yourself or spilling the beans.

If you do the decent thing at this point, you go apparently unpenalised. But this is the one point in the route where making the true British decision does not benefit you.

A decision to keep the information to yourself sends you out into the deep shrubbery, which loses you time. It is not impossible to recover, but you have to be very lucky.

If on the other hand you spill the beans, you incur a money penalty but stay more or less on the straight and narrow.

When you reach the other routes, if you find similar problems of time or money, try thinking of yourself occasionally rather than of others.

Publishing programs

THERE is a 15-year-old boy who is exceptionally good at Basic and also some machine code programming in my class.

He has written programs that have been very useful to the school such as the computing of sports results.

Could you please advise me of any software house which would be interested in his work, or indeed if you would like to publish it. — **D.A. Thomas, head of computers department, Emlyn comprehensive school, Emlyn.**

● We are always willing to look at programs with a view to publishing them in The Micro User. If they are good but too long for us to publish then we will advise you on what to do with them.

Listing errors

I WOULD like to point out slight errors in the Cansim

and Farm listing in the June 1987 issue of The Micro User. Lines 130(CANSIM) and 40(FARM) should read:

```
*KEY 10 OLDIMRUNIM
```

These only create an error trapping routine for when Break is pressed and re-run the program so nothing is lost. Unfortunately they only work on a tape system as Page is moved down on disc systems. Other useful *FX commands that you can include are as follows:

*FX4,1 — Disables cursor editing.

*FX14,6 — Disables Escape.

The program Farm is very useful for demonstrating a real life farm scene. I have made a few slight alterations to allow the program to cater for different people's abilities:

To change your starting amount of money change line 70 to:

```
70 c(0)=n:S%=0:st=0:Z=185
```

In this line n is the amount of money. To alter the chance factor you change line 1930 to:

```
1930 ch=n
```

The values that you insert for n are:

| | |
|----------------------------|----|
| Late frost | 4 |
| Major mechanical breakdown | 27 |
| Hail | 7 |
| Wind change | 32 |
| Wet harvest | 15 |
| No problems | 36 |

You can also change the world wheat market status by just entering line 2035:

```
2035 P$="n"
```

The possibilities for n are LOW, FAIR or HIGH

To change the actual price insert your own price in place of n in the following:

```
2060IFP$="HIGH"PRICE=n
2070IFP$="FAIR"PRICE=n
2080IFP$="LOW"PRICE=n
```

— **P.M. Smith, Dunton Basset, Leicestershire.**

Cut Price Disks from Direct Disk Supplies

from only £10.99 for 25 disks delivered to your door.



Cash 'n Carry prices on disks from Direct Disk Supplies

OFFER 1 Premium Universals One disk for all reasons!

The Premium Universal disk tested to DSDD 96tpi - suitable for all drives needing high quality media. (SSDD, DSDD 40/80 track)

| | | |
|------------|---------|---|
| 25 disks | £ 14.99 | Packed in 25's, complete with envelopes, labels, WP tabs and hub-rings. Disks individually certified and tested (on both sides) to 96tpi means no problems and higher reliability. Lifetime Warranty. |
| 50 disks | £ 27.99 | |
| 100 disks | £ 49.99 | |
| 200 disks | £ 96.99 | |
| 250 disks | £119.99 | |
| 500 disks | £229.99 | |
| 1000 disks | £399.99 | |

ALL PRICES INCLUDE VAT & DELIVERY TO YOUR DOOR! NO HIDDEN EXTRAS

OFFER 2 Rainbows

Sets of 5 colours in each pack. Universal coloured disks to code your files and programs. Without doubt the best value coloured disks on the market. (SSDD, DSDD 40/80 track)

| | | |
|------------|---------|---|
| 25 disks | £ 18.99 | Packed in 25's, complete with envelopes, labels, WP tabs and hub-rings. Disks individually certified and tested (on both sides) to 96tpi means no problems and higher reliability. Lifetime Warranty. |
| 50 disks | £ 35.99 | |
| 100 disks | £ 69.99 | |
| 200 disks | £129.99 | |
| 250 disks | £149.99 | |
| 500 disks | £279.99 | |
| 1000 disks | £499.99 | |

OFFER 3 Flippies

This is the disk for turning! Reversible disk tested both sides. 2 notches and 2 index holes. Ideal for BBC, APPLE, Commodore etc.

| | | |
|------------|---------|---|
| 25 disks | £ 18.99 | Packed in 25's, complete with envelopes, labels, WP tabs and hub-rings. Disks individually certified and tested (on both sides) to 96tpi means no problems and higher reliability. Lifetime Warranty. |
| 50 disks | £ 35.99 | |
| 100 disks | £ 69.99 | |
| 200 disks | £129.99 | |
| 250 disks | £149.99 | |
| 500 disks | £279.99 | |
| 1000 disks | £499.99 | |

OFFER 4 Higrade Doubles & PC Preformatted

| | Higrade Doubles | PC Formatted | Premium quality, individually certified to DS 48tpi. Made for the PC, giving premium quality at budget prices. Why not spoil yourself, and buy them formatted - a little extra saves a lot! There's never a disk formatted when you need it. |
|------------|-----------------|--------------|---|
| 25 disks | £ 12.99 | £ 18.99 | |
| 50 disks | £ 23.99 | £ 35.99 | |
| 100 disks | £ 45.99 | £ 69.99 | |
| 200 disks | £ 89.99 | £129.99 | |
| 250 disks | £105.99 | £149.99 | |
| 500 disks | £199.99 | £279.99 | |
| 1000 disks | £359.99 | £499.99 | |

OFFER 5 Bargain Box

| | Price per order | Approx price per disk ex-VAT (infor only) | Branded SCOTCH (made by 3M) SSDD 48tpi at prices below other people's plain label. Certified error free and tested by 3M; disks have hub-rings, tyvek envelopes and labels. Stocks are decreasing rapidly, these have been extremely popular. |
|------------|-----------------|---|--|
| 20 disks | £ 10.99 | .48 | |
| 40 disks | £ 19.99 | .44 | |
| 60 disks | £ 28.99 | .42 | |
| 80 disks | £ 36.99 | .40 | |
| 100 disks | £ 42.99 | .38 | |
| 200 disks | £ 82.99 | .36 | |
| 500 disks | £199.99 | .35 | |
| 1000 disks | £389.99 | .34 | |

OFFER 6 - 3.5" Media Life Disks

| Qty | NEW LOWER PRICES | | 3.5" disks in plastic library boxes. Made by a leading manufacturer, all our disks are individually certified to 135tpi. Don't forget the price includes VAT, delivery and library boxes! |
|------|------------------|----------|---|
| | SS | DD | |
| 10 | £ 13.99 | £ 15.99 | |
| 20 | £ 26.99 | £ 29.99 | |
| 50 | £ 64.99 | £ 73.99 | |
| 100 | £119.99 | £ 139.99 | |
| 200 | £229.99 | £ 269.99 | |
| 250 | £279.99 | £ 329.99 | |
| 400 | £429.99 | £ 519.99 | |
| 500 | £499.99 | £ 599.99 | |
| 1000 | £949.99 | £1099.99 | |

OFFER 7 3M & Verbatim

| Brand Leaders at Cash 'n Carry prices | | If these are your favourite, then don't miss our CRAZY low prices for 20 disks. Remember there's no extras, just terrific value. |
|---------------------------------------|-------------------------|--|
| 5.25" disks | 3M/Verbatim | |
| SSDD 48tpi | 744/525 20 disks £25.99 | |
| DSDD 48tpi | 745/550 20 disks £29.99 | |
| DSDD 96tpi | 747/557 20 disks £37.99 | |
| DSHD 96tpi | 799/HD 20 disks £49.99 | |
| 3.5" disks | | |
| SSDD 135tpi | 20 disks £39.99 | |
| DSDD 135tpi | 20 disks £49.99 | |
| DSDD High Density | 10 disks £49.99 | |
| Includes VAT and delivery. | | |

Same day despatch - at no extra cost

OFFER 8 HI-flyers

PC-AT High Density Disks made by one of our major manufacturers. Suitable for PC-AT and other High Density drives. Lifetime warranty.

| | |
|-------------------------|---------|
| Total price (no extras) | |
| 20 disks | £ 32.99 |
| 40 disks | £ 62.99 |
| 60 disks | £ 89.99 |
| 80 disks | £119.99 |
| 100 disks | £139.99 |
| 200 disks | £259.99 |
| 500 disks | £599.99 |

OFFER 9 3" CF2 disks

Maxell or Panasonic 3" CF2 disks

| | |
|-----------|---------|
| 10 disks | £ 25.99 |
| 20 disks | £ 49.99 |
| 50 disks | £109.99 |
| 100 disks | £209.00 |

VAT & carriage included.

OFFER 10 Box Clever

Safe! Clean! Tidy!

Sixers - 6 stylish plastic library cases for 10 disks. VAT & carriage included.

| | |
|-----------------|-------|
| 3.5" Slimpak | £8.99 |
| 5.25" Vision-10 | £8.99 |

Lockable Boxes

| | |
|----------------------------|--------|
| 3.5" TDS040 40/50 disk box | £ 9.99 |
| TDS080 80/90 disk box | £12.99 |
| 5.25" TDS050 50 disk box | £ 9.99 |
| TDS100 100 disk box | £12.99 |
| IBM parallel printer cable | £9.99 |

How to order

1. DIAL-A-DISK ON 01-979 7811, and give your ACCESS or VISA number and expiry date.
2. Send your cheque etc. to Direct Disk Supplies Ltd.
3. Official Orders, Bona-fide orders from Universities, Colleges, Schools, Charities, etc are very welcome.
4. Cash orders, no minimum value. Account orders, minimum value £30.



Direct Disk Supplies Ltd.

Dept MU 10, FREEPOST, 129 High Street, Hampton Hill, Middlesex TW12 1BR



GAME

B B+ M  



An exciting two-player game from Daniel Tang

UNABLE to decide who should use the micro on Friday nights, you decide to settle the matter once and for all. You venture into the intergalactic battle arena, climb into your FX class fighter and the battle begins . . . The fight is to the death, no mercy shown, the objective: Survival.

Armed only with photon torpedos you must annihilate your opponent. With true determination you may survive, without it you will be defeated and die.

You must control your fighter carefully, too much thrust and you will be thrown through the roof. Too little and you will plunge to the ground.

To see fair play, two judges fly up and down in HL-10s and get in your way. The first player to wipe out the other 10 times wins the match and can use the micro on Friday nights.

Space Arena is a two-player game, written largely in machine code. To get the game running type in Listing I and save it as Com.Src. Use the checksums to correct your typing errors. Then type:

```
MODE 7
PAGE=&3000
CHAIN"Com.Src"
```

The machine code is automatically saved as the file Combat.

Now type in Listing II and save it as Arena, again using the checksums to correct any typing errors. To play the game just run Arena.

If you want to alter the gravity or thrust power change the values of g and power in line 200 of Com.Src to the values that you want.

```
110 REM *   Space Arena   *
120 REM *   by Daniel Tang *
130 REM *   (c) Micro User *
140 REM *   Part 1       *
150 REM *****
160 IF PAGE<&3000 PRINT"Set PAGE to &3
000 and try again.":END
170 MODE7:PRINT"Please wait.....";
180 FORAX=&2A00TO&2B40:?AX=0:NEXT
190 FORAX=&2A40TO&2AFF:READ?AX:NEXT
200 power=80:g=10:xc=&70:yc=&71
210 x1=&72:y1=&73:x2=&74:y2=&75
220 vel=&76:vel2=&78
230 xf1=&7A:yf1=&7B:xf2=&7C:yf2=&7D
240 flag=&7E:result=&7F:num=&81
250 temp1=&82:temp2=&83:temp3=&84
260 temp4=&85:craft=&88:craftdir=&89
270 pitch=&C94:osbyte=&FFF4
280 FOR-LX=0 TO 2 STEP 2
290 PX=&2B40:[OPT LX
300 \ Converts X,Y to abs mem posn
310 .convert
320 TYA:PHA:LDA yc
330 CLC:ROR A \ Y=INT(Y/8)*2
340 CLC:ROR A:AND #&FE:TAY
350 LDA table640,Y \ M=&3000+(Y*640)
360 STA result:INY
370 LDA table640,Y
380 STA result+1
390 LDA #0:STA temp1:LDA xc
400 CLC:ROL A:ROL temp1
410 CLC:ROL A:ROL temp1
420 CLC:ROL A:ROL temp1
430 CLC:ADC result
440 STA result:LDA result+1
450 ADC temp1:STA result+1
460 LDA yc:AND #7:CLC
470 ADC result:STA result
480 PLA:TAY:RTS
490 .table640 \ 640 times table \
500 OPT FNtable640
510 .mem \ Find mem posns for sprite
520 LDX #96
530 .loop3 JSR convert
540 LDA result:STA &C00,X
550 LDA result+1:STA &C01,X
560 DEC yc:DEX:DEX:TXA
570 AND #15:BNE loop3:DEC xc
580 LDA yc:CLC:ADC #8:STA yc
590 INX:DEX:BNE loop3:RTS
600 .down \ Downloads sprite posns
610 LDY #97
620 .loop4 LDA &C00,Y
630 STA (&86),Y:DEY:BNE loop4:RTS
640 .p_craft \ craft in middle
650 LDA yc:AND #&F8:STA yc
660 JSR convert:LDA #0:STA temp1
670 LDA #&2A:STA temp2:LDX #5
680 .line LDY #63
690 .pixel LDA (temp1),Y
700 STA (result),Y:DEY:BPL pixel
710 LDA result:CLC:ADC #&80
720 STA result:LDA result+1
730 ADC #2:STA result+1:LDA temp1
740 CLC:ADC #64:STA temp1:LDA temp2
750 ADC #0:STA temp2:DEX:BNE line:RTS
760 .movecraft LDA #40:STA xc
770 LDA craft:CLC:ADC craftdir
780 STA craft:STA yc:JSR p_craft
790 LDA #231:SEC:SBC craft
800 STA yc:LDA #30:STA xc
810 JSR p_craft:LDA craft
820 CMP #207:BEQ changeup
830 CMP #24:BEQ changedown:RTS
840 .changeup LDA #255
850 STA craftdir:RTS
860 .changedown LDA #1
870 STA craftdir:RTS
880 .flag2 LDA flag:STA temp3
890 ASL A:ASL A:ASL A:ASL A
```

Listing I

Turn to Page 82 ▶

| | | | | | | | | |
|--------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|
| 580 = F3D6 3 | 830 = 8E74 9 | 1080 = 64BA 4 | 1330 = 6EAB E | 1580 = D721 1 | 1830 = 723F 5 | 2080 = ABB2 C | 2330 = 64C5 1 | 2580 = 5708 7 |
| 590 = F39D 3 | 840 = E8C8 5 | 1090 = 8B5E D | 1340 = 9C68 B | 1590 = BDD1 9 | 1840 = F0FE E | 2090 = 42F5 1 | 2340 = 8692 0 | 2590 = 136D A |
| 600 = 2826 7 | 850 = B10A C | 1100 = 36A1 2 | 1350 = 19C9 A | 1600 = E151 2 | 1850 = 65B3 6 | 2100 = 49AE 2 | 2350 = 45C8 7 | 2600 = B9C8 B |
| 610 = 4F19 1 | 860 = 3274 F | 1110 = 2E8E 9 | 1360 = 2EC6 3 | 1610 = F0FE 4 | 1860 = 1B9A 0 | 2110 = CDF9 D | 2360 = 4754 0 | 2610 = B194 A |
| 620 = 775A F | 870 = B10A F | 1120 = 139B 9 | 1370 = 6D55 9 | 1620 = B05 7 | 1870 = A614 0 | 2120 = FDB3 D | 2370 = BDBF 8 | 2620 = 5077 4 |
| 630 = B4E0 C | 880 = 3396 7 | 1130 = 8F97 D | 1380 = EE24 C | 1630 = 752C 7 | 1880 = 682F B | 2130 = 175 F | 2380 = 39B2 6 | 2630 = DD6D 8 |
| 640 = F74A 9 | 890 = 8C08 0 | 1140 = A79B D | 1390 = CFC0 2 | 1640 = 9749 8 | 1890 = 501F 5 | 2140 = 33F5 4 | 2390 = 39B2 2 | 2640 = 37A8 E |
| 650 = CCED E | 900 = 4130 0 | 1150 = A72E F | 1400 = 3BB8 0 | 1650 = 7508 5 | 1900 = EE62 7 | 2150 = F518 9 | 2400 = 52FA 8 | 2650 = 9306 7 |
| 660 = DD7A D | 910 = 6F86 D | 1160 = 8046 C | 1410 = 946D C | 1660 = 501F A | 1910 = 98EF 8 | 2160 = 2258 1 | 2410 = 31E9 4 | 2660 = C826 0 |
| 670 = 8692 9 | 920 = 2E8 B | 1170 = C18A 7 | 1420 = 248A E | 1670 = D669 6 | 1920 = 9E9B 9 | 2170 = 3011 A | 2420 = 6493 A | 2670 = 8350 1 |
| 680 = 16C 0 | 930 = BB25 7 | 1180 = 46D7 E | 1430 = 11EC F | 1680 = 133A 0 | 1930 = 6281 8 | 2180 = 90E 0 | 2430 = 4FDB A | 2680 = 6E76 F |
| 690 = FDBD 6 | 940 = A24D E | 1190 = 8497 D | 1440 = 82D2 C | 1690 = 2F9A A | 1940 = 9243 E | 2190 = F46B F | 2440 = C1BC 5 | 2690 = E22 0 |
| 700 = A49E 6 | 950 = E3BF F | 1200 = B8FC C | 1450 = BFD6 F | 1700 = F994 2 | 1950 = B38F 5 | 2200 = EAEC 7 | 2450 = A5D2 B | 2700 = C806 7 |
| 710 = 69A F | 960 = 38A7 F | 1210 = 47CD 8 | 1460 = B566 9 | 1710 = 91B9 B | 1960 = 4A16 6 | 2210 = 1EC5 5 | 2460 = CEC5 8 | 2710 = D66F D |
| 720 = E60A E | 970 = F3B1 0 | 1220 = 92 B | 1470 = 58C1 2 | 1720 = 11C8 6 | 1970 = D8C9 9 | 2220 = 8692 F | 2470 = 3B57 5 | 2720 = 7F57 7 |
| 730 = 48E2 B | 980 = 19FA 6 | 1230 = FE42 8 | 1480 = AD6F 6 | 1730 = EA19 E | 1980 = 83F3 D | 2230 = 402 E | 2480 = 5621 A | 2730 = 3A01 0 |
| 740 = 819D F | 990 = 5164 8 | 1240 = 6C80 1 | 1490 = 61B7 C | 1740 = D326 6 | 1990 = 1818 0 | 2240 = 8692 8 | 2490 = 7E0B 9 | 2740 = 5B83 C |
| 750 = 2C8D 6 | 1000 = CB09 4 | 1250 = FE71 5 | 1500 = 794E 3 | 1750 = 9AD0 8 | 2000 = 739C 0 | 2250 = DC1F 1 | 2500 = 9BB4 3 | 2750 = 210B 8 |
| 760 = 7260 B | 1010 = 4BC9 8 | 1260 = 9E70 A | 1510 = DAAF D | 1760 = 65 A | 2010 = CF56 2 | 2260 = E671 F | 2510 = DC69 D | |
| 770 = B7C5 1 | 1020 = 4BF2 3 | 1270 = DEAC F | 1520 = BF8B B | 1770 = 6ABE A | 2020 = B3D1 1 | 2270 = 64C5 3 | 2520 = F6B1 E | |
| 780 = FE50 8 | 1030 = C084 A | 1280 = 3970 B | 1530 = F531 C | 1780 = FE42 3 | 2030 = 2D1E A | 2280 = 8692 3 | 2530 = 2E6A F | |
| 790 = AE2A 0 | 1040 = 2344 D | 1290 = 5BA9 8 | 1540 = 6EB1 D | 1790 = A6C2 9 | 2040 = 1BC3 2 | 2290 = A5E0 5 | 2540 = 169F 8 | |
| 800 = 8D03 C | 1050 = E7AE 2 | 1300 = 4284 F | 1550 = 491E 5 | 1800 = 65AE C | 2050 = 6CE2 D | 2300 = C4EE 5 | 2550 = BE9B F | |
| 810 = 6021 E | 1060 = CFA8 1 | 1310 = 669C 6 | 1560 = B612 D | 1810 = F1CF 4 | 2060 = 5BDD 7 | 2310 = 25F7 3 | 2560 = 4198 F | |
| 820 = 980E D | 1070 = 12C F | 1320 = 9D37 3 | 1570 = A83 C | 1820 = B8DF 1 | 2070 = A9D7 C | 2320 = A02B 2 | 2570 = AAE4 6 | |

Listing II

```

100 REM *****
110 REM * ARENA *
120 REM * by Daniel Tang *
130 REM * (c) The Micro User *
140 REM *****
150 ON ERROR MODE7:REPORT:PRINT" at Li
ne ";ERL:END
160 PROCos("LOAD Combat")
170 REPEAT MODE7:PROCinst:MODE1
180 HIMEM=&2A00:PROCsetup
190 REPEAT PROCchars:PROCscreen
200 CALL call:IF CX=0 CX=1:GOTO200
210 IF ?&8F=3 PROCdraw:UNTILFALSE
220 PROCexplode:UNTIL n1%>9 OR n2%>9
230 PROCend(n1%>9):UNTIL FALSE
240 DEFPROCsetup:CX=0
250 call=&2D46:x1=&72:y1=&73
260 x2=&74:y2=&75:n1%=0:n2%=0
270 VDU23;8202;0;0;0;
280 ?&C70=&10: ?&C72=&F6
290 ?&C73=&FF: ?&C74=5: ?&C76=2
300 ?&C80=&10: ?&C82=&F6
310 ?&C83=&FF: ?&C84=5: ?&C86=2
320 ?&C90=&11: ?&C92=&F6
330 ?&C93=&FF: ?&C96=1:ENDPROC
340 DEFPROCchars
350 FORAX=&B00TO&C00: ?AX=0: NEXT
360 VDU23,128,&1F07;&7F3F;&FF7F;&FFFF;
370 VDU23,129,&F8E0;&FEFC;&FFFE;&FFFF;
380 VDU23,130,&FFFF;&7FFF;&3F7F;&071F;
390 VDU23,131,&FFFF;&FEFF;&FCFE;&E0F8;
400 VDU23,159,&FFFF;&FFFF;&FFFF;&FFFF;
410 c$=CHR$159:ENDPROC
420 DEF PROCscreen:CLS:VDU19,7,0;0;
430 COLOUR 1:PRINTSPC2"Player 1"SPC7"G
ames"SPC7"Player 2"
440 COLOUR 2:PRINTSPC6;n1%SPC26;n2%
450 COLOUR 7:d$=c$+c$
460 PRINTCHR$128STRINGS(37,c$)CHR$129
470 FORAX=2TO28:PRINTd$SPC35d$:NEXT
480 PRINTCHR$130STRINGS(37,c$)CHR$131
490 VDU19,7,7,0;:ENDPROC
500 DEF PROCexplode:GCOL 3,7
510 IF ?&8F=1 X%=?x1*16:Y%=1024-(?y1+4
):n2%=n2%+1 ELSE X%=?x2*16:Y%=1024-(?y2*
4):n1%=n1%+1
520 v=-15:i=0.125:s=30:d=0

```

```

530 FOR AX=220TO90STEP-5:v=v+i:d=d+s
540 PROCdots:XX=XX+4:PROCdots:XX=XX-4
550 SOUND 1,0,AX,0:SOUND &10,v,7,3
560 PROCdots:XX=XX+4:PROCdots:XX=XX-4
570 s=s-1:NEXT:ENDPROC
580 DEF PROCdots
590 PLOT69,XX,Y%+d:PLOT69,XX,Y%+d+4
600 PLOT69,XX+d,Y%:PLOT69,XX+d,Y%+4
610 PLOT69,XX,Y%-d:PLOT69,XX,Y%-d+4
620 PLOT69,XX-d,Y%:PLOT69,XX-d,Y%+4
630 ENDPROC
640 DEF PROCdraw
650 FOR AX=1 TO 3:COLOUR 2
660 PRINTTAB(17,1)"Draw!"
670 SOUND 1,-15,210,2:PROCw(.45)
680 PRINTTAB(17,1)SPC5:PROCw(.5)
690 NEXT:ENDPROC
700 DEF PROCw(t):t=t+100+TIME
710 REPEAT UNTIL TIME>t:ENDPROC
720 DEF PROCinst:FOR Y%=0 TO 1
730 VDU31,0,Y%,141,129,157,135
740 PRINTSPC14"Arena":NEXT
750 PRINTSPC13"by Daniel Tang"
760 PRINT"SPC4"Player 1 controls"
770 PRINT"SPC9"A - Thrust down"
780 PRINT"SPC9"Z - Thrust up"
790 PRINT"SPC9"X - Fire"
800 PRINT"SPC4"Player 2 controls"
810 PRINT"SPC9"+ - Thrust down"
820 PRINT"SPC9"> - Thrust up"
830 PRINT"SPC9"< - Fire"
840 VDU31,0,23,129,157,135
850 PRINTSPC6"Do you want sound?";
860 REPEAT AX=INSTR("YyNn",GET$)
870 UNTIL AX>0:VDU23;8202;0;0;0;
880 PROCos("FX210","+STR$(AXDIV2))
890 PRINTTAB(9,23)"Press space to go";
900 REPEAT UNTIL GET=32:ENDPROC
910 DEF PROCos($&700):LOCAL XX,Y%
920 Y%=7:CALL&FFF7:ENDPROC
930 DEF PROCend(AX):PROCw(3):*FX21
940 a$="You win Player "+STR$(2+AX)
950 PRINTTAB(10,15);
960 FOR AX=1 TO LEN a$
970 BX=ASCMI$(a$,AX):VDU BX
980 SOUND0,15*(BX>32),2,1:PROCw(.5)
990 NEXT:PROCw(3.5):ENDPROC

```

This listing is included in this month's tape & disc offer. See order form on Page 141.



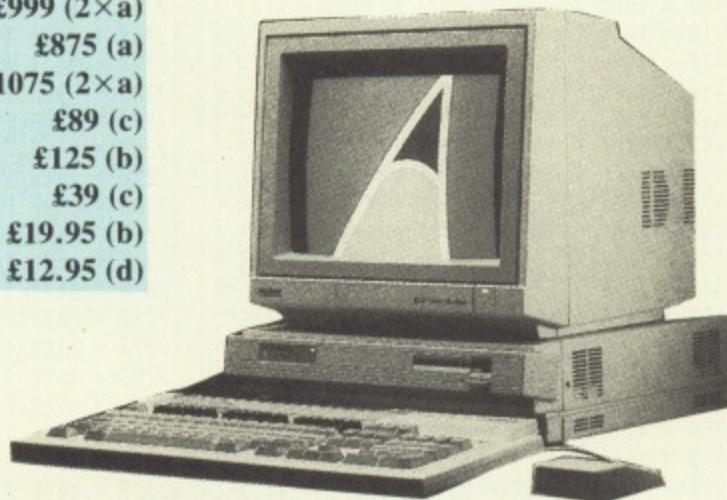
| | | |
|--------------|--------------|--------------|
| 100 = 0 0 | 400 = 9E72 B | 700 = 7559 3 |
| 110 = 0 0 | 410 = CD7A A | 710 = E9A6 D |
| 120 = 0 0 | 420 = C98F D | 720 = 214C C |
| 130 = 0 0 | 430 = 2FD2 8 | 730 = 4498 E |
| 140 = 0 0 | 440 = 841C 3 | 740 = FB79 9 |
| 150 = BC2B B | 450 = 3A94 6 | 750 = 4CE2 7 |
| 160 = 4184 7 | 460 = A653 E | 760 = 6F71 B |
| 170 = FB80 F | 470 = B09 5 | 770 = 94B1 3 |
| 180 = F939 B | 480 = 4AA1 C | 780 = C37F 9 |
| 190 = 6621 2 | 490 = 13BC 0 | 790 = 9E2F 4 |
| 200 = F97A 7 | 500 = B400 B | 800 = 178B 3 |
| 210 = 2F49 2 | 510 = 4C65 E | 810 = F61 0 |
| 220 = 1AB8 1 | 520 = 5492 1 | 820 = 88AA E |
| 230 = 138 5 | 530 = E90A B | 830 = FAE5 5 |
| 240 = B603 E | 540 = D5B9 0 | 840 = 2EC2 E |
| 250 = 6166 5 | 550 = 9C9 1 | 850 = F2BC E |
| 260 = 5FCC 5 | 560 = D5B9 4 | 860 = AEE6 9 |
| 270 = F716 F | 570 = B643 C | 870 = 488D 8 |
| 280 = 7D01 8 | 580 = 4BA9 B | 880 = 1A6C F |
| 290 = D6E7 6 | 590 = 12FB A | 890 = 8542 A |
| 300 = C118 D | 600 = 3112 9 | 900 = BF3A 0 |
| 310 = 5E60 D | 610 = F5D9 A | 910 = 61B0 F |
| 320 = F4D5 B | 620 = 7437 7 | 920 = 50E0 E |
| 330 = B07F D | 630 = ED0F 5 | 930 = 6211 2 |
| 340 = 1613 F | 640 = F699 9 | 940 = 3971 B |
| 350 = 4F80 D | 650 = C96 F | 950 = 9106 2 |
| 360 = 55EA 8 | 660 = 7F40 4 | 960 = FC54 D |
| 370 = A156 D | 670 = 43D 0 | 970 = A765 5 |
| 380 = FF31 F | 680 = 3CB1 A | 980 = AB3F 8 |
| 390 = 90AB 8 | 690 = E531 B | 990 = 8444 1 |

TECHNOMATIC

BBC COMPUTERS & ECONET CENTRE
17 Burnley Road, London NW10 1ED Tel: 01-208 1177
305 Edgware Road, London W2 Tel: 01-723 0233

ARCHIMEDES

| | |
|------------------------|--------------|
| Archimedes 305 Basic | £799 (a) |
| Archimedes 305 Colour | £999 (2x a) |
| Archimedes 310 Basic | £875 (a) |
| Archimedes 310 Colour | £1075 (2x a) |
| 0.5Mb upgrade for 305 | £89 (c) |
| 2nd Floppy Drive | £125 (b) |
| Podule Backplane | £39 (c) |
| Archimedes Ref. Manual | £19.95 (b) |
| ARM Assy Lang Prog. | £12.95 (d) |



(Please enquire about the availability of some of the above packages)

BBC MASTER COMPACT

See page 6 for free bundled software

| | |
|---|------------|
| SYSTEM 1 128K, Single 640K Drive & bundled software. | £329 (a) |
| SYSTEM 2 System 1 with a 12" Hi Res Monochrome Monitor. | £369 (a) |
| SYSTEM 3 System 1 with a 14" Med Res RGB Monitor. | £509 (a) |
| Second Drive Kit. | £99 (c) |
| Serial Kit. | £29 (d) |
| T.V. Modulator | £29 (d) |
| Extension cable for external 5.25" 80T Drive. | £12.50 (d) |
| Mertec Adaptor (Upgrades to almost master level) | £35 (c) |

FILE STORE

| | |
|---|-----------|
| Acorn's new file server system | |
| Filestore E01 | £828 (a) |
| Filestore E20 | £710 (a) |
| Full details on request | |
| Acorn 30Mb Winchester (incl FS III Software) | £1530 (a) |

ECONET ACCESSORIES

| | | | |
|------------------------|------------|---------------------|----------|
| Econet Starter Kit | £85 (b) | Econet Bridge | £174 (b) |
| Econet Socket Set | £29 (c) | Printer Server Rom | £41 (d) |
| File Server Level II | £75 (b) | 10 Station Lead Set | £26 (d) |
| Master FS Utility Disc | £17.25 (d) | | |

UPGRADE KITS

| | | | |
|--------------|------------|--------------|------------|
| 1.2OS ROM | £15 (d) | ADFS ROM | £26 (d) |
| DNFS ROM | £19 (d) | 1770 DFS Kit | £43.50 (d) |
| BASIC II ROM | £22.50 (d) | Econet Kit | £55 (d) |

SECOND PROCESSORS

| | |
|---|----------|
| Universal 2nd Processor Adaptor | £75 (b) |
| TORCH ZEP100 | £229 (a) |
| MULTIFORM Z80 TECHNOMATIC's multi format Z80 system includes a FREE Pocket Wordstar + MS/DOS Read/Write Utility | £249 (b) |

ACW/CO-PROCESSOR

| | |
|-----------------------------------|-----------|
| For full specification see page 5 | |
| 32016 Co-processor | £949 (a) |
| Cambridge Workstation | £3450 (a) |
| X25 Gateway | £2175 (b) |

ACORN IEEE INTERFACE

| | |
|--|----------|
| Allows BBC computer to control any scientific and technical equipment that conforms to the IEEE488 standard. The interface can link upto 14 compatible devices. Typical applications are in experimental work in academic and industrial labs. | £265 (a) |
|--|----------|

EPROMS/RAMS

| | |
|-----------|-----------|
| 2764-25 | £2.80 (d) |
| 27128-25 | £3.60 (d) |
| 6264LP-15 | £2.60 (d) |
| 27256 | £5.00 (d) |
| 27512 | £9.90 (d) |

RAM/ROM EXPANSION

| | |
|--|---------|
| ATPL Board for Model B. Simple to instal, no soldering. Allows expansion to 15 Roms + 2 8K Rams | £37 (c) |
| ATPL Battery backup kit | £16 (d) |
| ATPL Board for BBC + | £31 (c) |

BBC MASTER SERIES

| | |
|---|----------|
| AMB15 MASTER (see page 6 for details of bundled software included in the price) | £375 |
| AMB12 MASTER ET | £315 |
| AMCO6 Turbo 65C02 Module | £99 |
| ADC08 512 Processor | £195 |
| ADF14 ROM Cartridge | £13(d) |
| ADF10 Econet Module | £41(c) |
| ADJ22 Ref Manual Part I | £14(c) |
| BBC Master Dust Cover | £4.75(d) |
| ADJ23 Ref Manual Part II | |
| ADJ24 Adv Ref Manual | £19 |
| View User Guide | |
| Viewsheet User Guide | |
| MASTER ROM/RAM CARTRIDGE | |
| TRC1 Two rom cartridge | £8.95 |
| TRC4 Four rom cartridge | £11.95 |
| TRC 32K Cartridge inc RAM | £29.95 |

LEARN ARABIC WITH YOUR COMPUTER

ساعد تعليم العربية

Convert your BBC or Master computer to bilingual operation with the BABEL Arabic Package. Beautiful Arabic text. Software developed and tested in the classroom for 2 years to help the young read and understand Arabic.

The package comprises: an easy to install EPROM, a set of keycap labels, an instructional booklet and a disc with absorbing program. Mastering the Arabic alphabet, Arabic grammar exercises, English to Arabic and Arabic to English translation exercises.

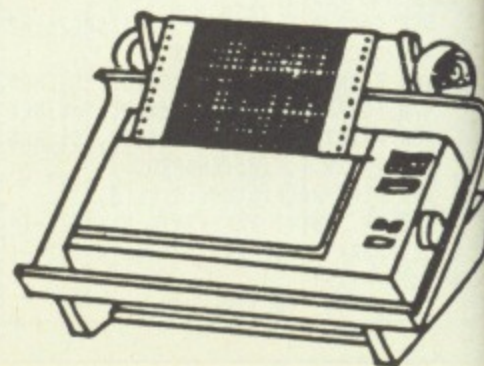
The BABEL Arabic Package £70
Other Arabic educational software for the converted micro; each disc £15
(Please specify 40 or 80 tracks). Send for details.

Master Operating System (book by David Atherton)

£12.95

PRINTER STAND

A new style printer stand with easy paper feed, paper separation, provides complete access to paper. Can be used with both top and bottom paper feed. Very space efficient. £34



TECHNOLINE
24 hr viewdata system)
Tel:01-450 9764

MAIL ORDER
7 Burnley Road
London NW10 1ED
Telex:922800

RETAIL SHOPS
15 Burnley Road, London NW10 1ED
Tel:01-208 1177 Telex:922800
(close to Dollis Hill ☺)
West End Branch
305 Edgware Road, London W2
Tel:01-723 0233
(near Edgware Road ☺)

For fast delivery telephone
your order on 01-208 1177
using VISA/Access Card



Orders welcome from
government depts &
educational establishments

All prices ex VAT.
Prices are subject to
change without notice
Please add carriage
(a) £8.00 (Datapost)
(b) £2.50
(c) £1.50
(d) £1.00

PRINTERS

- EPSON LX800** £209 (a)
50 cps, variety of fonts, including
NLQ, bit image graphics, IBM char/
graphics compatible, centronics
interface and tractor feed as
standard
- EPSON FX800** £229 (a)
An enhanced version of FX85.
Call for details.
- EPSON FX1000** £315 (a)
An enhanced version of FX105.
Call for details.
- EPSON EX800** £439 (a)
£409 (a)
£595 (a)
£59 (b)
£439 (a)
Colour option for EX800/EX1000.
- EPSON EX1000** £609 (a)
As LQ800 but wider carriage for 136
columns.
- TAXAN KP815** £269 (a)
Enhanced KP810 with 160cps and
all IBM compatibility.
- TAXAN KP915** £369 (a)
Enhanced KP910 with 180cps and
all IBM compatibility.
- NATIONAL PANASONIC
KX P1081** £159 (a)
Includes free Wysiwyg + Rom
and Printer Lead
- STAR NL 10 (Parallel Interface)** £190 (a)
- STAR NL 10 (Serial Interface)** £219 (a)
- INTEGREX Multicolour Inkjet
printer.** £549 (a)
£15 (d)
Ideally suited for high res colour VDU
screen dumps. Quietness & consistent
output are major characteristics.
BBC Screen dump for Integrex.
- BROTHER HR20** £349 (a)
2K buffer standard expandable to
16K. Parallel & Serial ports as
standard.
- NAT PANASONIC KX P3131** £249 (a)
Daisy wheel printer with 38K buffer,
17 cps, bi-directional, parallel
interface
- HUKI 6100 Daisy wheel printer** £310 (a)
15 cps, 2K buffer, switchable 10/12/15
cpi proportional spacing, underlining.
Parallel interface.
- Parallel Printer Lead (1.2m)** £6 (d)

MODEMS

- All modems listed below will be supplied with BBC
Publications ModemMaster comms package and a
BBC data lead.
- MIRACLE WS4000 V21/23** £140 (b)
- MIRACLE WS3000 V21/23** £265 (b)
- MIRACLE WS3000 V22** £445 (b)
- MIRACLE WS3000 V22 bis** £585 (b)
(All modems are BABT approved)
- BBC Data Cable for WS3000/4000** £7 (d)
- MIRACLE WS2000V21/23 &
TELEPHONE** £92 (c)
- WS2000 Auto Dial Card** £27 (d)
- WS2000 Auto Answer Card** £27 (d)
- WS2000 SK1 Kit** £5 (d)
- WS2000 User Port Lead** £5 (d)

TIME WARP

Real Time Clock. Plugs into the user
port, battery back up as standard,
includes manual, demo software
including a diary/planner application
program

£31 (d)

PLOTTERS

- HITACHI 672** £495 (a)
- LINEAR GRAPHICS**
- Full range of accessories available
for plotmate plotters
- A4S PLOTMATE** £282 (a)
- A4SM PLOTMATE** £342 (a)
- A3 PLOTMATE** £299 (a)
- A3M PLOTMATE** £431 (a)

PRINTER SHARERS & BUFFERS

- BUFFALO PB Buffer** £89 (c)
Parallel buffer for internal fitting to
most Epson printers. Simple to instal.
PB128 (128K)
- PERIPHERAL & COMPUTER SHARERS**
- High quality switches to allow the user to switch
between computers, printers, modems etc. Fully
shielded metal cases. all lines fully switched.
- | | Parallel | Serial |
|---------------------------------------|----------|----------------|
| 2 Computers to 1 Printer 36v36-2 | £25(c) | 25v25-2 £25(c) |
| 3 Computers to 1 Printer 36v36-3 | £39(c) | 25v25-3 £39(c) |
| 4 Computers to 1 Printer 36v36-4 | £45(c) | 25v25-4 £45(c) |
| 2 Computers 2 Printers X-over 36v36-x | £49(c) | 25v25-x £49(c) |
| BBC Cable set 3 to 1 (1m ea) | £24(c) | |
| BBC Cable set 4 to 1 (1m ea) | £30(c) | |
- BBC Computer Sharer: TCS26** £22 (c)
1 computer to 2 printers fitted with
BBC cable
- Paper & Labels**
- Plain fanfold paper with microperforation:
- | | |
|---------------------------|----------------|
| 2000 sheets 9 1/2" x 11" | £12 (£3.50) |
| 2000 sheets 14 1/2" x 11" | £18.50 (£4.50) |
| 1500 sheets A4 90gsm | £18.00 (£4.00) |
- Labels/1000**
- | | |
|------------------------------|--------|
| Single Row 3 1/2" x 1 7/16" | £5 (d) |
| Triple Row 2 7/16" x 1 7/16" | £5 (d) |

PROGRAMMING ACCESSORIES/SOFTWARE

- Compatible with B, B+ and Master
- EpromRyter (Epromer II)** £119 (b)
Eprom Ryter is compatible with
BBC Master only
- Upgrade of Epromer II to Eprom Ryter
(Please return your Epromer II) £49 (b)
- EPROMER II** £89 (b)
- MPROMER** £49 (c)
- META ASSEMBLER** £145 (b)
- PORTAL EPROM
EMULATOR 512K** £245(b)
- TEAM Disassembler** £145 (b)
- EPROM ERASERS**
- | | |
|-------------------------------------|---------|
| UVIB 6 eproms, safety cutout | £47 (b) |
| UVIT 6 eproms, timer, safety cutout | £59 (b) |

MONITORS

BBC lead incl with all monitors

- MICROVITEC 14" RGB Monitors**
Please specify plastic or metal case.
- Microvitec 1431** £179 (a)
Standard Resolution 453 pixels
- Microvitec 1431AP** £199 (a)
As 1431 + composite video and sound
input
- Microvitec 1451** £225 (a)
Medium Resolution 653 pixels
- Microvitec 1451AP** £255 (a)
As 1451 + composite video and sound
input
- Microvitec 1441** £359 (a)
High Resolution 895 pixels
14" Medium Res Colour monitor
with RGB TTL and Linear input,
sound input. Front panel for brill-
iance, contrast, volume and mono/
colour options. Compatible with
BBC and PC Compatibles
- Microvitec 20" RGB/PAL/
Audio Monitors** £199 (a)
- Microvitec 2030CS** £380 (a)
Standard Resolution RGB/Comp
Video
- Microvitec 2040CS** £685 (a)
High Resolution RGB/Comp Video
- TOUCHTEC-501** £239 (b)
Brings genuine touch screen operation
on metal cased Microvitec monitors,
incl utilities disc with starter and
development programs
- TAXAN SUPER VISION 620** £269 (a)
12" Hi Res/Hi Contrast
Option to switch to green/amber
BBC/IBM Compatible
- TAXAN SUPER VISION 625** £319 (a)
12" Super Hi Res and contrast RGB
Monitor with option to switch to mono
BBC/IBM compatible.
- 12" MONOCHROME MONITORS**
- TAXAN KX 117** £85 (a)
Hi Res green etched screen
- TAXAN KX 118** £90 (a)
Hi Res Long Persistence (P39)
- TAXAN KX 119** £90 (a)
Hi Res amber etched screen
- PHILIPS BM 7502** £69 (a)
Hi Res green screen.
- PHILIPS BM7522** £75 (a)
Hi Res amber screen.
- PHILIPS BM 7542** £79 (a)
Hi Res White screen.
- MONITOR ACCESSORIES**
- | | |
|--|-----------|
| Microvitec Swivel Base (14" plastic monitors) | £17 (c) |
| Philips Swivel Base | £10 (c) |
| Monitor Stand Models B & B+ | £10 (c) |
| Monitor Stand Master | £13 (c) |
| Double Tier stand Models B, B+ or Master | £24 (b) |
| Taxan RGB Lead | £5 (d) |
| Microvitec Lead | £3.50 (d) |
| Monochrome BNC/Phono Lead | £3.50 (d) |

TECHNOMATIC

BBC COMPUTERS & ECONET CENTRE

17 Burnley Road, London NW10 1ED Tel: 01-208 1177

305 Edgware Road, London W2 Tel: 01-723 0233

CAD/DRAWING PACKAGES

| | |
|--|------------|
| NOVACAD Cad Package for B, B+ & MASTER. (See page 5 for specification) | |
| Tracker Ball/Mouse Version (TM) | £79 (d) |
| TM Version plus Tracker Ball | £119 (c) |
| TM Version plus Mouse | £105 (c) |
| Plotter Driver Generator | £25 (d) |
| MOUSE | |
| AMX MOUSE with SUPER ART (pse specify B, B+ or Master) | £63 (d) |
| PAGEMAKER | £32 (d) |
| EXTRA/EXTRA (utility for the Pagemaker) | £19 (d) |
| MAX | £17 (d) |
| STAND ALONE MOUSE (includes horizontal scroll lock) | £34 (c) |
| RB2 TRACKER BALL RB2 Tracker Ball with Icon Master (for B, B+ & Master) | £59 (c) |
| RB2 Tracker Ball with Cursor Control Rom (for Master only) | £59 (c) |
| RB2 Tracker Ball 'Stand Alone' for use with NOVACAD & other software) | £47 (c) |
| Cursor Control Rom for Master | £12.50 (d) |
| MIRRORSOFT FLEET STREET EDITOR | £35 (d) |

CP/M SOFTWARE

Send for details on our full range of CP/M & PC DOS packages for Business, Communications & High Level Languages.

Please send for details on our range of CP/M software for Acorn/Torch Z80 2nd Processors

BBC SOFT/FIRMWARE

All software supplied by us is known to operate with the appropriate Acorn Disc filing systems. We cannot comment on their use with other DFS systems.

DATABASE MANAGEMENT SYSTEMS

| | |
|---|---------|
| VIEWSTORE | £37 (d) |
| STARdataBASE | £39 (d) |
| MASTERFILE II | £17 (d) |
| ACORN OVERVIEW PACKAGE Special Offer (RRP £86) | £57 (b) |
| WORD PROCESSORS | |
| ACORN VIEW PROFESSIONAL | £85 (c) |
| VIEW 2.1 | £37 (d) |
| VIEW 3.0 | £49 (c) |
| VIEW INDEX | £12 (d) |
| VIEW PRINTER DRIVER GENERATOR | £7 (d) |
| VIEWSPELL | £29 (d) |
| DOT PRINT PLUS | £28 (d) |
| WORDWISE | £24 (d) |
| WORDWISE PLUS | £38 (d) |
| WYSIWYG PLUS | £21 (d) |
| SPELLMASTER | £47 (d) |

| | |
|-----------------------|---------|
| INTERWORD | £39 (d) |
| WORDEASE | £24 (d) |
| SPELLCHECK III | £31 (d) |
| EDWORD II | £43 (c) |

SPREADSHEETS

| | |
|--------------------|---------|
| VIEWSHEET | £37 (d) |
| WINDOWMATIC | £15 (d) |
| VIEWPLOT | £22 (d) |
| INTERSHEET | £37 (d) |
| INTERCHART | £26 (d) |
| ULTRACALC | £29 (d) |

| | |
|---|------------|
| MINI OFFICE II DISC Version For B & B+ 40T or 80T | £14.50 (d) |
| For Master 80T | £17.30 (d) |
| For Compact | £19 (d) |

| | |
|--|---------|
| MINI OFFICE II ROM Version For Master, Compact, B+ & B | £48 (c) |
|--|---------|

LANGUAGES

| | |
|---|----------|
| META ASSEMBLER | £145 (b) |
| TEAM DISASSEMBLER | |
| MACROM | £33 (d) |
| ACORN MICRO PROLOG | £62 (d) |
| ISO-PASCAL | £51 (c) |
| ISO-PASCAL STAND ALONE GENERATOR | £30 (d) |
| OXFORD PASCAL (40 or 80T) Specify B or B+ | £36 (d) |
| OXFORD PASCAL for Master | £52 (d) |
| ACORN LOGO | £46 (c) |
| LOGOTRON LOGO | £55 (c) |
| BBC PUBLICATIONS OPEN LOGO | £59 (c) |
| ACORN LISP ROM | £43 (d) |
| ACORN FORTH ROM | £39 (d) |
| ACORN COMAL ROM | £43 (d) |
| MICROTEXT | £52 (c) |
| MICROTEXT PLUS | £229 (b) |

COMMUNICATIONS

| | |
|--------------------------|------------|
| TERMULATOR | £25 (d) |
| COMMSTAR II | £28 (d) |
| COMMUNICATOR | £49 (d) |
| MODEM MASTER | £11 (d) |
| COMMAND | £34 (d) |
| MASTER TERMULATOR | £34.75 (d) |

UTILITIES

| | |
|--|---------------------|
| ACCELERATOR | £49 (d) |
| ACORN BASIC EDITOR | £24 (d) |
| MONITOR (BBC Pub) | £19 (d) |
| BROM PLUS | £26.50 (d) |
| SLEUTH | £23 (d) |
| TOOLKIT PLUS | £31 (d) |
| TOOLBOX 2 (BBC Pub) Manual Cassette | £9.50 (d) £9 (d) |
| ACORN GXR GRAPHICS ROM specify B or B+ | £24 (d) |
| PRINTMASTER | £24 (d) |
| PRINTWISE | £24 (d) |
| DUMPMASER | £26 (d) |
| FONTWISE PLUS | £17 (d) |
| HERSHEY FONT CHARACTER GENERATOR | £18 (d) |
| ICON MASTER | £29 (d) |
| MOVIE MAKER Two Roms + Cassette | £26 (d) |
| ADV TELETEXT UTILITIES ROM | £7.95 (d) |

COMPACT (all on 3 1/2" disc)

| | |
|--|--------|
| ARTROOM | £27 |
| FONTWISE+ | £22 |
| FONT EDITOR | £22 |
| RAMROD | £37 |
| BROM PLUS | £32 |
| MACROM | £37 |
| BETABASE | £27 |
| WHITE KNIGHT MKII | £16 |
| BBC PUBLICATIONS BUNDLED SOFTWARE | £18.50 |

BBC PUBLICATIONS EDUCATIONAL SOFTWARE

A series of programs developed in many cases alongside Radio & TV programmes by BBC's Education Department which supplement the classroom by moving and colourful displays helping in understanding of a variety of subjects. Some packages also include audio cassettes.

PRIMARY EDUCATION

| | |
|--------------------------------------|-------|
| ASTRONOMY | £11 |
| COMPUTERS AT WORK Aud/EC/disc | £16 |
| PICTURE CRAFT Disc | £17 |
| INTRODUCING GEOGRAPHY Disc | £16 |
| MATHS WITH A STORY 1 Cass | £8 |
| MATHS WITH A STORY 2 Cass | £8 |
| NUMBER GAMES Cass/EC | £7.50 |
| USING YOUR COMPUTER Cass | £24 |

SECONDARY LEARNING

| | |
|---|--------|
| TECHNOLOGY & DESIGN Pt1 | £21.50 |
| ELECTRIC FIELDS | £10.50 |
| ADVANCED LEVEL | |
| STUDIES: STATISTICS Disc | £23 |
| ADVANCED STUDIES: GEOGRAPHY Cass | £10 |
| INSIDE INFORMATION Prog Cass | £10 |
| Book | £8 (d) |
| Audio Cass | £5 |
| SCIENCE TOPICS (ST) | |
| S.T.: WAVES Disc | £14 |
| S.T.: RELATIONSHIPS Disc | £14 |
| S.T.: BONDING Disc | £14 |
| S.T.: ELECTROMAGNETIC SPECTRUM Disc | £14 |
| S.T.: ELECTRONICS IN ACTION Disc | £14 |
| S.T.: NEWTON & THE SHUTTLE Disc | £19 |
| S.T.: ECOLOGY Disc/EC | £19 |
| S.T.: POLYMERS Disc/EC | £19 |
| S.T.: CLASSIFICATION & PERIODIC TABLE Disc | £20 |
| S.T.: FOOD & POPULATION Disc | £20 |
| SEC. SCIENCE | |
| MICROTECHNOLOGY Cass | £7 |
| SEC. SCIENCE: THE MOLE CONCEPT Disc/Aud/EC | £16 |

GENERAL

| | | |
|--|-----------|-----|
| VU-TYPE PROFESSIONAL | Disc | £19 |
| WHITE KNIGHT MK II (for compact) | Disc | £16 |
| BATTLEFIELDS Cass | £8.50 | |
| A VOUS LA FRANCE Cass/EC | £17 | |
| Book | £5.25 | |
| Audio Cassettes | (2) £7.50 | |
| size | £9.00 | |
| DEUTSCH DIREKT Disc/aud/EC | £16 | |
| Book | £5.95 | |
| MODEM MASTER | £11 | |

Cassette based programs listed above can be supplied on disc at an extra charge of £1.50 per disc and please specify the format required 40 or 80T.

TECHNOLINE
24 hr viewdata system)
Tel:01-450 9764

MAIL ORDER
17 Burnley Road
London NW10 1ED
Telex:922800

RETAIL SHOPS
15 Burnley Road, London NW10 1EI
Tel:01-208 1177 Telex:922800
(close to Dollis Hill ☺)
West End Branch
305 Edgware Road, London W2
Tel:01-723 0233
(near Edgware Road ☺)

For fast delivery telephone
your order on 01-208 1177
using VISA/Access Card



Orders welcome from
government depts &
educational establishments

All prices ex VAT.
Prices are subject to
change without notice
Please add carriage
(a) £8.00 (Datapost)
(b) £2.50
(c) £1.50
(d) £1.00

BOOKS

No VAT Carriage Code (c)

LANGUAGES

| | |
|-----------------------------------|--------|
| 6502 Assy Lang Prog..... | £19.95 |
| 6502 Programming..... | £13.95 |
| 6086 Book..... | £23.95 |
| Acorn BCPI User Guide..... | £15.00 |
| Acorn FORTH..... | £7.50 |
| Acorn LISP..... | £7.50 |
| Acorn ISO Pascal Ref Manual..... | £10.00 |
| Intro to COMAL..... | £10.00 |
| Intro to LOGO..... | £7.50 |
| Micro Prolog Ref Manual..... | £10.00 |
| Introduction to Turbo Pascal..... | £14.95 |
| Prog the Micro with Pascal..... | £8.50 |
| The Supervisor's BBC Micro..... | £10.95 |

BBC MICRO GUIDE BOOKS

| | |
|---------------------------------|--------|
| Inside Information..... | £8.95 |
| Maths Prog in BBC Basic..... | £7.95 |
| The Friendly Computer Book..... | £4.50 |
| Toolbox 2..... | £10.95 |

PROGRAMMING/UTILITY

| | |
|--|--------|
| Advanced Sideways Ram User Guide..... | £9.95 |
| Advanced User Guide (BBC)..... | £15.95 |
| Applied Assembly Language on the BBC..... | £9.95 |
| BBC Micro Advance Programming..... | £9.95 |
| BBC Micro Ref Guide (B Smith)..... | £10.95 |
| BBC Micro Sideways ROM's RAM's..... | £9.95 |
| Guide to the BBC Rom..... | £9.95 |
| Beginners Guide to W.P..... | £7.95 |
| Mastering Assembly Code..... | £8.95 |
| Mastering Interpreters & Compilers..... | £14.95 |
| Mastering View, Viewsheet & Viewstore..... | £12.95 |
| View by B. Smith..... | £12.95 |
| View 3.0 User Guide..... | £10.00 |
| Viewstore User Guide..... | £10.00 |
| Viewsheet User Guide..... | £10.00 |
| Wordwise Plus..... | £9.95 |

SOUND & GRAPHICS

| | |
|---|-------|
| Computer Graphics & CAD Fundamentals..... | £9.95 |
| Mastering Music..... | £6.95 |

DISC DRIVE SYSTEMS

| | |
|-------------------------------------|--------|
| Advanced Disc User Guide..... | £16.95 |
| Disc Book..... | £3.50 |
| Disc Programming Techniques..... | £7.95 |
| Disc Systems..... | £6.95 |
| File Handling on the BBC..... | £6.95 |
| Discovering Disc Drives..... | £POA |
| Practical Disc File Techniques..... | £5.95 |
| Mastering the Disc Drive..... | £12.95 |
| Mastering DOS plus..... | £12.95 |

APPLICATIONS

| | |
|-------------------------------|-------|
| Interfacing Proj for BBC..... | £6.95 |
| BBC and Small Business..... | £5.75 |
| The Software Business..... | £5.50 |

Mastering Operating System

(David Atherton)£12.95

WYSIWYG PLUS

WYSIWYG PLUS is a printer and screen utility for Wordwise Plus, View, Interword, and Basic users, supplied on a 16K Eprom. To obtain a particular printer effect, such as enlarged text, it used to be necessary to discover the appropriate 'printer control code' from your manual and incorporate it into your text. Secondly, you had to print several trial copies in order to position the effect correctly in relation to the rest of your text.

WYSIWYG PLUS simplifies this trial and error approach using easily remembered *commands. For example, *ENLARGED not only selects enlarged text on your printer, but

uniquely shows you double width characters on your screen, even from within Wordwise Plus!

WYSIWYG PLUS incorporates a logo editor. Just draw your design on screen using the arrow keys, and save the results. Use the *GRAPHICS command to incorporate your design anywhere in your text; position and see your design in your text before faithfully reproducing a hard copy.

There is also special help for daisy wheel users. The *WHEEL command will prompt you to change daisy wheels whenever a change in type style is about to occur.

WYSIWYG PLUS is designed to work with the following systems:

| | |
|----------------|------------------------------|
| BBC Model B | 6502 Second processor, |
| BBC Model B + | Turbo coprocessor |
| BBC Master 128 | All printers (Except lasers) |
| BBC Compact | |

WYSIWYG PLUS workspace is relocatable.

WINDOWMATIC

All users of Acorn's VIEWSHEET spreadsheet program will be aware of its powerful windowing facility which allows the screen and/or printer to be configured in up to 10 separate windows taken from anywhere in the sheet. They will also be painfully aware of how difficult and time consuming it is to set up a required display. Although VIEWSHEET allows configurations to be saved to the media, it does not have provision for deciphering them.

WINDOWMATIC has been produced with the intention of rectifying these shortcomings and to bring out the very best from VIEWSHEET.

WINDOWMATIC provides a quick and easy

way to configure screen and printer allowing complicated documents and reports to be set up much more easily. It displays complete text information on all 20 windows and accurate graphic representation of the screen and printer output.

The package includes a screen dump routine for Epson printers and allows use of other printer dump packages.

WINDOWMATIC is compatible with BBC Master and BBC B+. A 6502 2nd processor must be fitted to a model B to run Windowmatic. Windowmatic is fully compatible with Turbo and 6502 2nd processor.

The program is supplied on disc with a comprehensive manual.

VU-TYPE

Do you have finger trouble when typing?
Do your letters look like this?

Dear Sor,
I wuold like to

then you need:

VU-type, a complete touch typing program produced by BBC/Pitman.

It allows you to learn at your own pace and has a wide range of exercises. Screen displays show the keys you have pressed and it will report on your speed and accuracy.

Supplied on a 40T Disc with a manual.

Available at a special price of £7.50(d)

instead of the usual £15. Offer valid while stocks last

EDUCATIONAL/FUN SOFTWARE BUNDLE

| | | |
|-----------|---------------|------------|
| Wordmover | Pantry Antics | Drawstick |
| Wordplay | | Locomotion |

These programs are supplied from the BBC Publications Educational Software range and will be supplied on a 5.25" disc for BBC Master, B+ and B and on a 3.5" disc for the Compact.

| | |
|-----------------------|-----------|
| 5.25" Disc | £17.50(d) |
| 3.5" Disc | £18.50(d) |
| (Normal RRP over £40) | |

PRINTER ACCESSORIES

EPSON ACCESSORIES:

| | |
|---|----------|
| Interfaces | |
| 8143 RS232..... | £30 (d) |
| 8148 + RS232 + 8k..... | £65 (d) |
| 8177P NLO for FX80 +/FX100 +..... | £99 |
| Parallel & Serial Buffers of various size also available. | |
| LQ800 Tractor Feed..... | £47 (b) |
| LQ1000 Tractor Feed..... | £52 (b) |
| SHEET FEEDERS: | |
| LQ800..... | £135 (b) |
| LQ1000..... | £179 (b) |
| EX800..... | £135 (b) |
| EX1000..... | £309 (b) |
| FX800..... | £135 (b) |

| | |
|-----------------------------------|------------|
| FX1000..... | £179 (b) |
| Ribbons: | |
| RX/FX100/100 +, FX105..... | £7 (d) |
| RX/FX80/80 +, FX85..... | £4 (d) |
| LX80/LX800..... | £4.50 (d) |
| LQ800..... | £8.50 (d) |
| LQ1000..... | £10 (d) |
| EX800/1000..... | £7.50 (d) |
| H180 Pen Set (Aqueous/Ball point) | |
| | £8.25 (d) |
| HITACHI 672 Plotter | |
| Aqueous Pen Set six pens..... | £18.50 (d) |
| Oil Based Pen Set six pens..... | £25.00 (d) |
| TAXAN CANON Accessories: | |
| Ribbon, KP810/815/910/915..... | £6 (d) |
| Star Printer | |

| | |
|---------------------------------|-----------|
| NL10 Sheet Feeder..... | £52 (b) |
| NL10 Ribbon..... | £4.50 (d) |
| National Panasonic KX P1080/81 | |
| Spare Ribbon..... | £4.50 (d) |
| KXP3131 Tractor..... | £90 (a) |
| KXP3131 Sheet Feeder..... | £189 (a) |
| JUKI 6100 | |
| Tractor Feed..... | £149 (a) |
| Ribbon (Carbon)..... | £2.00 (d) |
| Sheet Feeder..... | £219 (a) |
| BROTHER HR20 | |
| Tractor Feed..... | £116 (a) |
| Spare Ribbon Nylon..... | £3.00 (d) |
| Spare Ribbon Carbon..... | £4.50(d) |
| INTEGREX INK JET COLOUR PRINTER | |

| | |
|--|----------------|
| Spare Ink Cartridge Black..... | £9 (d) |
| Spare Ink Cartridge Colour..... | £15 (d) |
| Paper Roll..... | £7 (d) |
| Printer Leads: | |
| BBC Parallel Lead (1.2m)..... | £6 (d) |
| PAPER & LABELS | |
| Plain Fanfold paper with micro perforations: | |
| 2000 sheets 9½" x 11" 60 gsm/sq m..... | £12 (£3.50) |
| 2000 sheets 14½" x 11" 60 gsm/sq m..... | £18.50 (£4.50) |
| 1500 sheets A4 90 gsm..... | £18 (£3.50) |
| Labels/1000: | |
| Single Row 3½" x 1¼"..... | £5.25 (d) |
| Triple Row 2¼" x 1¼"..... | £5 (d) |

TECHNOMATIC

BBC COMPUTERS & EUNET CENTRE

17 Burnley Road, London NW10 1ED Tel: 01-208 1177

305 Edgware Road, London W2 Tel: 01-723 0233

NOVACAD

Computer Aided Draughting for the BBC Micro

“Novacad can drive a plotter to provide drawings of a high quality... Novacad is excellent. It is flexible, genuinely easy to operate without much practice, and a pleasure to use.” **Beebug December 1986**

“Novacad is a professional package, well worth the £90 for the ROM and disc and is expandable to suit your own particular requirements. I would have no reservations if I heard Novacad called, ‘the best on the market’.” **A&B Computing August 1986**

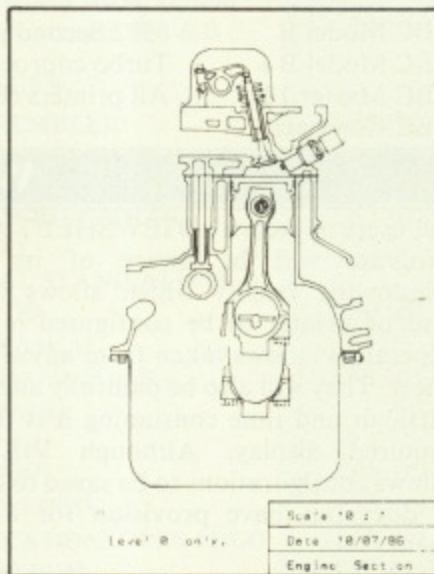
A sophisticated CAD package with unique facilities which are generally confined to the professional CAD packages costing thousands of pounds.

NOVACAD is being used in widely differing fields ranging from leading British industries for producing engineering drawings to Accountants' offices for producing flow charts. Architects,

engineers, plumbers, kitchen planners and many other professions requiring easy to use facilities for producing professional quality output are making extensive use of NOVACAD's unique features. NOVACAD is proving to be an invaluable teaching aid in technical schools and colleges simply because of the ease with which it can be used.

NOVACAD'S MAJOR FEATURES

- * Simple and easy to use with logical command sequence.
- * A large drawing area (approx 15 screens).
- * The ability to create complex icons (upto 500 lines instead of the usual 15 to 20 pixels), store them in a library and recall them at different scales and orientations.
- * A zoom facility allowing magnification of up to 20 times to insert finer details.
- * Block copy of shapes on the screen for repetitive use.
- * Text entry at any 90° orientation at any position on the screen.
- * Create multi layer drawing with 8 levels available.
- * Full compatibility with the BBC range with minimal hardware requirements, yet having the capability of exploiting the potential of the extra shadow memory or the second processor's memory and speed.
- * Printer routine for Epson 80 and 136 column printers.
- * A unique optional facility to output to any BBC compatible plotter.
- * Cursor control from keyboard, tracker ball or mouse.



NOVACAD package includes a 16K ROM, Utility disc and a comprehensive manual.

MINIMUM HARDWARE REQUIREMENTS

- Any BBC range computer with Acorn DFS.
- 40 Track single sided single drive.
- Epson compatible dot matrix printer.

With basic BBC B, NOVACAD operates in mode 4 allowing use of any 2 colours. With shadow memory of the BBC+ or the Master, it can also operate in mode 0 for higher resolution or mode 1 for allowing use of any 4 colours, and it will provide additional user memory for more complex drawings.

6502 second processor or the Turbo on the Master will also increase the drawing speed considerably.

OPTIONAL EXTRAS

Plotter driver generator is available as an optional extra to configure a plotter routine for any BBC compatible plotter. Pre-configured programs for the popular plotters like Epson HI 80, Hitachi 672, Plotmate, Penman and HP GL. This program allows the drawing to be scaled to the maximum plotter size thus enabling drawing of A2 and A3 sizes to be produced with equal ease. The zoom facility will enable inaccuracies of drawing on the screen to be eliminated. ROUTCAD, an optional software package for our Graphics Workstation allows for production of shapes drawn using NOVACAD in 3D on suitable material and is ideal for a range of applications including template making and model building.

EpromRyter

A powerful eeprom programmer for use with the BBC Master. It offers the latest 'state of the art' programming techniques to provide fast and efficient operations.

The software is totally menu driven and on screen help messages make the programming simple for both specialists and novices alike.

The EPROMRYTER interfaces with the Master through 1 MHz bus. It is mains powered with its own psu. 3M Textool zif socket has been fitted to ensure consistent and reliable service over long periods.

The single rail eeproms handled by the EpromRyter are:

- 2716 2732 2764 27128 27256 27512 27513 27011 2516 2532 2564 (NMOS & CMOS)
- One time eeproms P27XXX, 87CXXX etc.
- Also A suffix eeproms such as 27XXXXA

EPROMER II

A proven Eeprom programmer for BBC Model B and B+ with thousands in use in industry, educational and R&D establishments. It offers many of the powerful features of the EpromRyter and can program all single rail eeproms upto 27256. Full details on request.

The main features of the programming software are:

- * Device, function and voltage selection from the computer keyboard.
- * Continuous display of the options selected.
- * All eeproms upto 27512 (64K) programmed in single pass.
- * Automatic Intelligent identifier support for eeproms able to respond.
- * Selectable programming voltage 25/21/12.5V
- * 3 programming methods: Normal, Intelligent & Pulse (20 sec for a 27128)
- * Serial port protocols supported.
- * DFS, NFS, ADFS and Rom Filing System Supported.
- * BASIC/Machine Code programming using RFS.
- * Powerful editor with input in HEX or ASCII. * Full editable 64K file.
- * Block move of data within the address range.
- * User can select any section of the eeprom from single byte to the full address range to blank check/burn/verify. Facility to program single bytes makes program development/amendment simpler.
- * Multiple loading for ROM Filing System

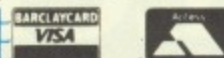
Some of the above features apply to Master Computers only

TECHNOLINE
24 hr viewdata system)
Tel:01-450 9764

MAIL ORDER
17 Burnley Road
London NW10 1ED
Tel:01-922800

RETAIL SHOPS
15 Burnley Road, London NW10 1ED
Tel:01-208 1177 Telex:922800
(close to Dollis Hill ⊕)
West End Branch
305 Edgware Road, London W2
Tel:01-723 0233
(near Edgware Road ⊕)

For fast delivery telephone
your order on 01-208 1177
using VISA/Access Card



Orders welcome from
government depts &
educational establishments

All prices ex VAT.
Prices are subject to
change without notice
Please add carriage
(a) £8.00 (Datapost)
(b) £2.50
(c) £1.50
(d) £1.00

Technomatic's 20Mbyte Winchester Drive



**Only
£499 (a)**

(This offer valid whilst current stocks last)

Special Adaptor for S.J. Research File Server **£28**

- * Cased with power supply and cooling fan
- * 1 MHz bus extension cable
- * Fully compatible with Acorn ADFS and FS III
- * Fully compatible with S.J. Research file server
- * 12 months warranty
- * Special front end utility for BBC Master

FREE MASTER OFFER

Every Master and Master Compact purchased at our usual price will include the following:

An educational/fun bundled software package comprising of:

**VU-Type, Wordmover, Wordplay, Drawstick,
Locomotion and Pantry Antics**

3 1/2 DISC DRIVES

- * 400K/640K capacity per drive in DFS/ADFS modes
- * Mitsubishi 80 track double sided ultra low power, fast access mechanisms
- * The drives are supplied fully cased and with cables ready for connection to a BBC Computer
- * Drives powered from the computer * 2 years warranty

Single Drive £75(b) Dual Drive £134(b)

META Version III

"All the good features you would expect to find in a good source code editor are present . . . Meta assembler lives in a different world. It is structured to work with any new processor . . . as new instruction sets can be added . . . as needed . . . has a well featured editor with colour highlighting, a sound modular approach."

Acorn User October 1986

- Assembles for over 30 popular processors, including Z80, 6800/01/02/04/05/09/11 etc — and 68000 — using native mnemonics for each processor, eg. LD A, (HL) for Z80 and MOV AO, \$1000 for 68000 etc.
- Fully integrated Editor: four field, all search, search/replace, block copy, delete, move, marked save, load etc.
- Compatible with Portal Eprom Emulators and Team Disassemblers.
- Send object code in Intel Hex, S-Record, straight binary etc. down to discs, RS232, parallel port, Eprom Emulators etc — all **during Assembly**.
- Over 50 directives included as standard: handling nestable macros, conditional assembly and twenty types of table definition directives.
- 32 bit labels; 31 character names. Arithmetic and Boolean arithmetic to 32 bits.
- Modular source code with numeric and string parameter passing.
- Serial communicator area with eight options lines: echo, control code trap, LF supression/addition etc.
- Over 500 in use throughout the world in universities and many different industries.
- Two 16K Roms, two 80 track discs, A4 ring-band manual, function-key strip.

PORTAL EPROM EMULATORS

- Emulates 2716, 2732, 2764, 27128, 27256, 27512 eproms at 150ns Access time.
 - Load at 4Kbytes/second — No "erase" time.
 - 28 pin header plugs into Eprom socket on target system — status monitored on 13 Leds.
 - Fully software controlled from Meta Assembler.
 - 100 times faster than standard EPROM program/erase cycle.
 - Fully CMOS compatible; draws no power from target system.
 - Four portals may be independently programmed off same user-post cable.
 - Complete with all cables, manual and disc.
- PORTAL 512 (2716, 2732, 2764, 27128, 27256, 27512).**

TEAM DISSASSEMBLER

The third part of the Universal Development System: a Meta labelling disassembler.

Supports 1802, 8080, 8085, HD64180, Z80, 65XX (includes 65 col, 6511 etc), 68XX (includes 00, 01, 02, 03, 08 etc):

- Up to 64K of object code translated back into META compatible source code modules: labels automatically inserted on all jump targets, memory references etc.
- Pre-editing stage allows marking of object code areas as byte, string, word, long word etc, tables. These areas disassembled into appropriate directives instead of garbage mnemonics.
- Reconstituted source code ready for immediate re-assembly by META.
- Omniversal search/replace for re-naming arbitrary label names with meaningful ones.

THE TECHNOMATIC BBC CATALOGUE REVISED AUTUMN CATALOGUE

This advertisement can only show an example of the range of products stocked by Technomatic. So send for our latest Autumn BBC catalogue providing detailed information and prices on BBC Computer Systems, Peripherals, Software and Books. **Inside you'll find a £10 voucher discount offer on orders worth over £200.** Technomatic is a BBC Computer and Econet Referral Centre providing a professional and reliable service to the BBC user. To obtain your free copy please complete and return the coupon below.

NAME.....

ADDRESS.....

.....Post Code.....

Return to Technomatic Ltd, 17 Burnley Road, London NW10 1ED

10/87

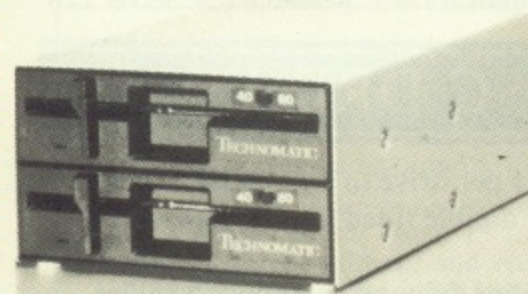
TECHNOMATIC

17 Burnley Road, London NW10 1ED Tel: 01-208 1177
305 Edgware Road, London W2 Tel: 01-723 0233

TECHNOMATIC DISC DRIVES



TS 400



PD 800

A range of high quality high performance drives to meet the needs of all BBC Micro Users.

All drives fitted with high quality, slim line Japanese drive mechanism and necessary cables.

*All drives are fitted with high quality slim line ultra low power mechanisms capable of single and double density operation and offering fast track access and head setting times. Our confidence in their quality enables us to offer a two year warranty on these mechanisms without any extra charge.

*5.25" floppy drives are fitted with 40/80 track switches as standard at no extra cost. The switches are located in the front and clearly marked to indicate the status at a glance.

*The mechanisms are set inside attractively styled, sturdy metal casings painted in BBC beige colour.

*All drives fitted with all necessary leads and are ready for operation on unpacking. The drives with the mains power supply are supplied with a mains lead fitted with suitably fused 13A moulded plug.

5.25" Single Drives 40/80 switchable:

TS400 400K/640K £105 (b)

PS400 400K/640K with integral mains power supply £115 (b)


5.25" Dual Drives 40/80 switchable:

TD800 800K/1280K £185 (a)

PD800 800K/1280K with integral mains power supply £209 (a)

PD800P 800K/1280K with integral mainspower supply and monitor stand £229 (a)

3.5" 80T DS Drives:

TS351 single 400K/640K  £75 (b)

PS351 single 400K/640K with integral mains power supply £99 (b)

TD352 Dual 800K/1280K £134 (b)

PD352 Dual 800K/1280K with integral mains power supply £169 (b)

PD853 Combo Dual 5.25"/3.5" drive with psu. £209 (a)

DISC DRIVE MULTIPLEXER

TDM2 Dual Unit: 2 computers/one drive unit £75 (b)

TDM4 Quad Unit: 4 computers/one drive unit £135 (b)

TECHNOMATIC WINCHESTERS

Technomatic offer one of the most popular Winchester drives for the BBC Micro. We will include a front end utility for the BBC Master at no extra charge. Complete contents of the drive are displayed in icon format indicating the type of data in each file. Any file can be loaded by formatting the cursor to its icon.

P20HD TECHNOMATIC 20 Mbyte Winchester Drive £499 (a)

P40HD TECHNOMATIC 40 Mbyte Winchester Drive with Acorn ADFS ROM £749 (a)

P204HP TECHNOMATIC 20 Mbyte Winchester and a 80T DS floppy Drive built in a monitor stand. Includes ADFS Rom. £769 (a)

P2041HT As P204HP but also with a 10 Mbyte tape streamer backup unit and backup utilities. Includes ADFS Rom. £1295 (a)

TS10 10 Mbyte Tape Streamer Backup unit with utilities. £599 (a)

TFC10 10 Mbyte Pre-formatted Cartridge for use with P2041HT and TS10. £19 (d)

Special adaptor for S.J. File Server £28 (d)

Enquire for larger capacity Winchester. These Winchesters are compatible with the S.J. File Server.

WINCHESTER Drive Multiplexer TWM2 for two computers. £99 (b)
TWM4 for four Computers. £159 (b)

3M FLOPPY DISCS

New low prices plus Winter Olympic Competition

5.25" Discs in packs of 10
744 40T SS DD £8.50 (d)
745 40T DS DD £10.50 (d)
746 80T SS DD £11.50 (d)
747 80T DS DD £13.25 (d)

(Add £1 for library case packing)

3.5" Discs in packs of 10
80T SS DD £15 (d)
80T DS DD £19.50 (d)

Thousands of instant prizes to be won with 3M Discs. A draw for a trip to the Winter Olympics. Five 2nd Prizes of £1000 of recording instructs.



BULK DISCS

50 5.25" 40 T single sided discs with sleeves in lockable box. £25 (b)

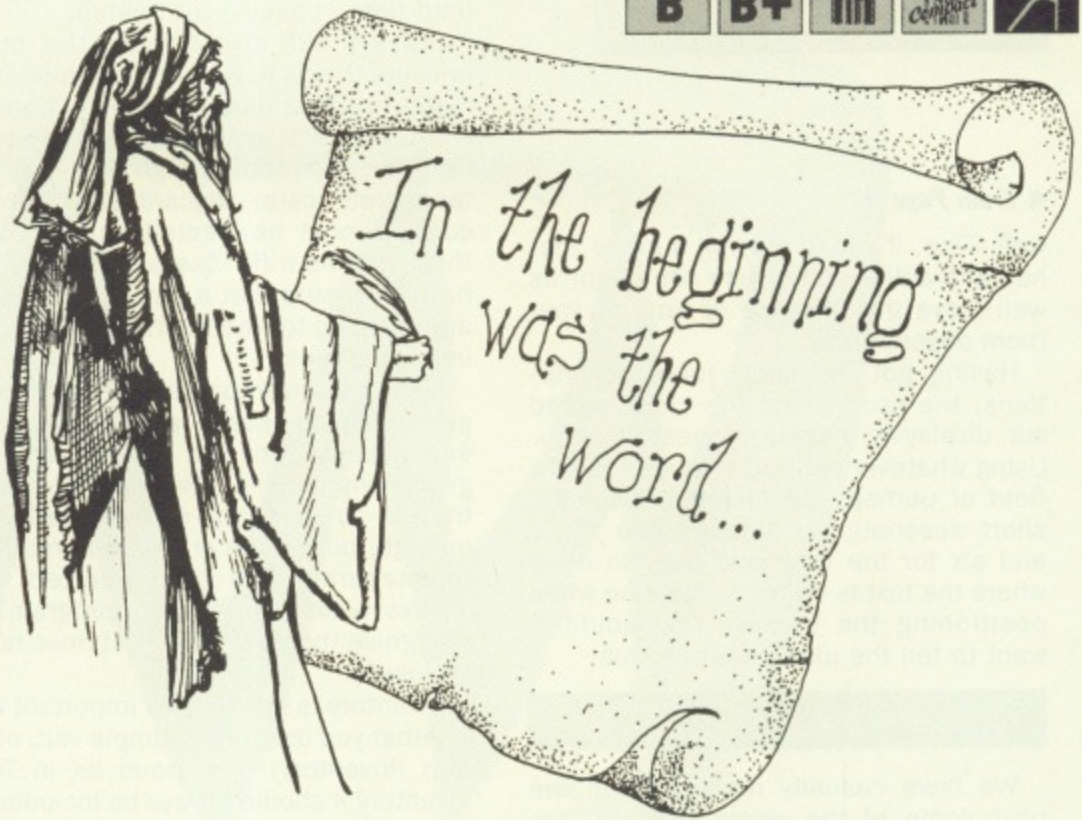
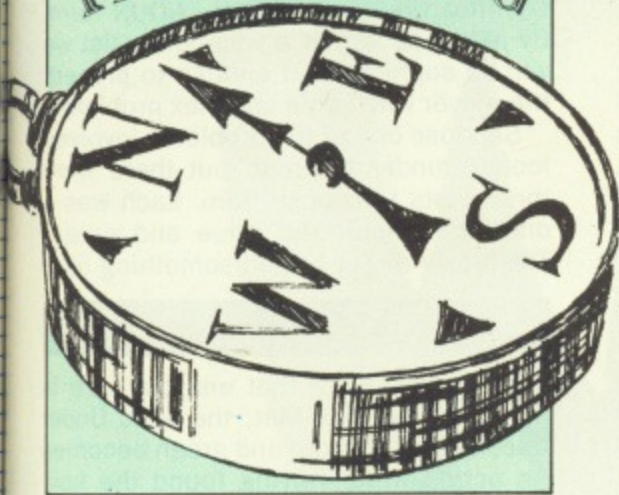
50 5.25" 80 T double sided discs with sleeves in lockable box. £36 (b)

50 3.5" 80 T double sided discs with sleeves in lockable box. £60 (b)

FLOPPICLENE DRIVE HEAD CLEANING KIT
5.25" Kit with 20 disposable discs £12.50 (d)
3.5" Kit with 20 disposable discs £14.00 (d)

DISC STORAGE BOXES
DB340 Lockable 40 x 3.5" £8.50 (c)
DB550 Lockable 50 x 5.25" £9.00 (c)
DB570 Lockable 70 x 5.25" £11.00 (c)
DB5100 Lockable 100 x 5.25" £13.00 (c)

ADVENTURE PROGRAMMING



**Pete Gerrard continues
his quest into writing
adventures**

AFTER our excursion into the realms of programming and text compression, most of you will be relieved to know that we're not going to be doing much programming this month. Instead, we'll take a look at screen layout.

You might have the cleverest adventure program in the world in your computer, but it will be to no avail if the display on the screen drives the player shrieking into a corner.

Look at the way masters do it, think of your favourite adventures and what attracts you to play them. Obviously the structure of the game and the atmosphere created will play a great part, but an attractive screen layout can help to make all the difference.

At the top of the screen you sometimes see what is referred to as a Status Line, which tells you a number of things about the state of the game.

First, you are usually informed of your current position in the game, useful if you happen to have been stuck in a location for several moves trying to solve a seemingly impossible problem. One can always redescribe a location description of course, but a quick glance to the left hand corner of the screen is a lot easier.

Second, you are also usually told of your current score (in depressing terms like 3 out of 400 or something like that) and if the game requires a set of problems to be solved in a given amount of time, you might also notice the passing time up in the top right hand corner of the screen.

So, how might we go about emulating this status line, leaving the rest of the

screen free for the usual display of room descriptions, what now prompts and answers to the player's input.

First let's look at the problem of the room descriptions displayed in the top left hand corner of the screen. Obviously we aren't going to be able to display the entire description but a location which might greet the player with the words:

You are standing outside the old stables. The battered wooden door bears silent testimony to your barbaric entrance and the dusty straw lying in heaps on the floor would suggest that no one has visited here for quite some time. An all-pervading smell reminds you of the country around your home and you long for freedom and liberty.

This can reasonably be reduced to:

You are just inside the old stables.

Or even better:

Just inside the old stables.

In many games you will want to print up the detailed room descriptions when the player first enters and only use it again if the player specifically requests it. On a subsequent visit you simply print up the message "You are" followed by the short description.

Other characters may be blundering about, so one could use that same short room description to something like:

Wyatt Earp is (wherever)

Should Wyatt Earp choose to visit there for his own nefarious purposes.

Taking the Western adventure as our example, you might recall that we had

some 64 locations. So we need 64 short room descriptions, which might be read in like this:

```
10 DIM sd$(64)
20 FOR I%=1 TO 64:READ sd$(I%):NEXT
   (rest of program)
1000 DATA"at the edge of town."
1001 DATA"approaching town."
   (rest of short descriptions)
```

sd stands for Short Description. You could then file all these descriptions onto tape or disc, using:

```
30 Y%=OPENOUT"SHORTS"
40 FOR I%=1 TO 64
50 PRINT#Y%,sd$(I%):NEXT
60 CLOSE#0:END
```

These could then all be read in by the main program, replacing PRINT# with INPUT# and whenever the player reached a current position of CP, the short room description sd\$(CP) could be used to tell the player where he is. To save space you could even include the short description in the compressed text file in a block of messages from, say, 65 to 128.

In a quest that simply requires the collection of treasures, scoring is easy. Most games nowadays however, do not rely on a simple treasure hunting expedition so if you're going to include scoring it is probably best to award a certain number of points for each problem that is correctly solved.

Never ignore the aspects of humour when keeping track of the score. Instead of behaving sensibly, I've seen adventure games that keep track of a football match, so that every time you type in SCORE you were told how well the game was going, your own progress having been completely forgotten.

Apart from scoring, you might want to display the time on the status line as

◀ **From Page 91**

well. Fine, if you're playing a game that has a deadline, otherwise you might as well leave the passage of time to your room descriptions.

Having got the short room descriptions, the scores and the clock sorted out, displaying them is no great problem. Using whatever method you like, allow a field of perhaps 25 characters for the short descriptions, nine for the score and six for the time and bear in mind where the text is on the status line when positioning the cursor. You wouldn't want to tell the player that he was:

In front of a gaping quarter to six

We have casually mentioned in the past some of the words that you are likely to encounter when playing or writing adventures, so let's now look at this in more depth.

Common words serve more than one purpose: They make life a lot easier for the writer if you include a dozen or more words that are the same in each of your adventures.

This gives you a good few k's worth of code before you start and a grand excuse to slope off to the pub after five minutes, saying grandly to yourself "Well, that's today's work done!"

It also gives the player of your (and other) adventures a sense of familiarity. One often-voiced complaint about adventure games is that a lot of time is spent searching for exactly the right word to use.

Most adventures rely on the four compass points North, South, East and West, along with Up and Down, for movement in the game. You may care to use things like port and starboard, rimwards, anything, but if you're going to use something out of the ordinary do remember to tell the player. We're not all expert navigators.

Putting out an adventure without Save and Restore is one of the few crimes still punishable by death, being treason as far as the adventurer is concerned.

Restore is a much better word than Load, since (particularly in a Western adventure) players will want to Load Gun and few of us call a saved position by the name Gun even if we're allowed.

Get and drop are used for the manipulation of objects, but be very careful here. Someone might use the word Take rather than Get and to them Take Medicine would only imply picking the bottle up but to you it might mean swallow everything and reduce the player's size to that of an undernourished microbe.

Consequently, I try to use both Take and Get, with the code for the two being almost but not quite identical. Drop is

much easier, although again you might like to use Discard or Place, since anyone who drops a Ming vase on to a hard floor is asking for trouble.

Players will try to wear the most unusual things in adventure games. You might find that their patience is wearing thin, so with words like Wear and Remove, essential though they may be, take great care. Discard and Remove could almost be treated as the same thing, but as with Take and Get you will have to ensure that a number of checks are included to weed out the anatomical impossibilities.

Help and Inventory are found in most games. Help I usually leave till the bitter end because I'm not a great one for giving any help in adventure games. If there's some spare memory left, fair enough, put in one or two help routines to encourage the faint hearted. But always make sure that your program will recognise the word, even if it does nothing useful.

Inventory is much more important and whether you use it as a simple verb of its own (Inventory) or a noun as in Take Inventory it should always be included. If the player's wearing the suit of armour, tell him. If he's wearing the tin of beans, fetch the men in white coats, but do include some way of displaying whether things are being worn or carried.

Always try to put in as many different versions of the same thing as you can. Some people may like to use the word break, others may prefer smash, yet others might like to try to kill, maim, destroy, or whatever.

But at the risk of repeating an old warning, cater for swear words by all means but do not have them printed out as part of your program. Recognise them, but don't use them. You never know who might be playing the game.

Verbs are usually suggested more by the problems that you see than by the room descriptions, which tend to set up the various nouns in the game. If, for example, you had a problem that required the player to type:

Look under the mat

The word Mat would obviously become one of your nouns.

This choosing of verbs and nouns is terribly important. Some companies may boast that their games have a vocabulary of 800 words or more but there's no need to include every possible alternative of GET in order to have a large vocabulary.

Words like THE and A, as we saw before, are eliminated anyway so we are dependent to a great extent on the room descriptions and the problems set.

Anything else is, really, just the icing on the cake. If the player can look at everything mentioned in a description and can type in exactly what he needs in order to solve the problems and complete the adventure, what more does he need? He needs that which makes the difference between a bad and a good adventure.

From the descriptions and problems, you will get most of your verbs and nouns. However, as we saw in the article on parsers we are not just limiting ourselves to a simple VERB ... NOUN input. Although we are not going to approach the so-called sophistication of some games, we will nevertheless advance significantly from VERB ... NOUN form. By judicious use of a vocabulary list we will be sophisticated enough to present the player with some complex problems.

Suppose one of the problems involved looking under the mat, but there were three mats to choose from. Each was a different colour, red, blue and green. The player might type in something like:

Look under the green mat

We can cope with that and our verb is Look, the noun is Mat, the word Under becomes a link word and green becomes an action word. Having found the key, the player would naturally want to open a door and so he might type in something like:

Turn the key in the lock

Discarding the two the's, we would have the word Turn as a verb, the word Lock as a noun while Key becomes a link word and In becomes an action word.

Link words are a little more complicated and need to be understood properly if we're going to get the best out of our parser. Generally, for every noun and action word you will have a corresponding link word. In other words, if you had 120 nouns and 25 action words, you would probably have at least 145 link words.

A player could:

Crawl under the door

In this case we don't have an action word, merely verb ... link ... noun, but since Under is an action word it will also have to be a link word as well. In other words, at the very least you will have to duplicate every action and noun into a link word. You may also find a few links of their own creeping in but that will depend on you and your adventure.

It will also depend on the problems that you set the player. When first devising your finished (it never will be!) vocabulary list it is worth printing out all the room descriptions and all the problems in order of correct solution.

By now, you should be in the position of having all your room descriptions and your map neatly drawn up. You should know what all the problems are and what all the solutions are as well. We cannot proceed until that vitally important area has been sorted out.

Now you are in a position to draw up your complete vocabulary list. It, like the map and the problems, will expand before we're finished. You can also sort out all those short room descriptions as well, since they are going to be needed in the finished game.

● So, be prepared for a return to programming next time.



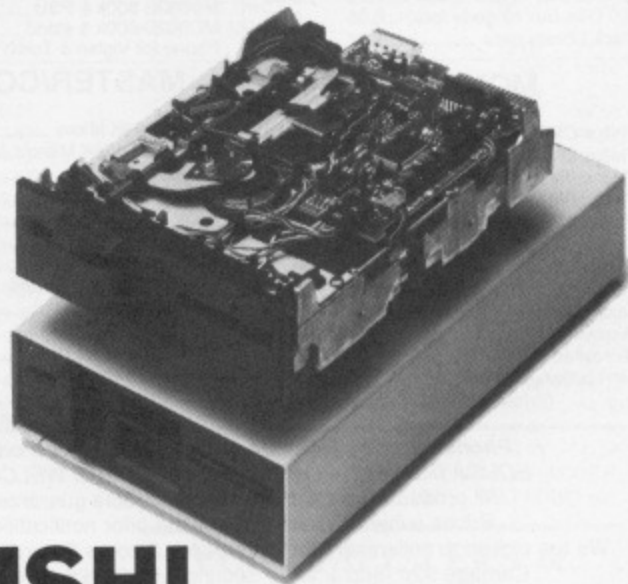
You may get a nasty result without a Mitsubishi Disk Drive

Using second-rate components can make your hardware bite back. Over the past three years we at Mitsubishi have sold over a million disk drives; a record that makes us very much number one in the market. But we don't impress just on quantity. There's quality too.

Both our 3½" and 5¼" floppy drives perform with the proven reliability that's made us one of the world's largest manufacturing companies. Within the units you'll find high compliant heads that ensure less wear on the diskette. If the power is switched off or interrupted, our circuitry prevents data from being corrupted. The units themselves are tough and durable, so they'll stand up to a lot of rough treatment and last longer. And because of their remarkably high precision, they enable far safer data interchange, even if the diskettes are worn or there's interference from nearby monitors.

So it's hardly surprising that the list of companies using our disk drives reads like a who's who of personal computer manufacturers. So don't get a mega-bite, ask for Mitsubishi by name.

Another example of Electronics from Mitsubishi.



 **MITSUBISHI**
DISK DRIVES

Panasonic KXP1081 with BBC cable & paper
 £169.00 (£146.96 +VAT)



above with Screen Dump & 2m cable
 £175.00 (£152.17 +VAT)

| | Exc VAT | Inc VAT |
|-----------------------------|---------|---------|
| KXP1080 Fabric Ink ribbon | 3.00 | 3.45 |
| KXP1080 View Printer Driver | 8.65 | 9.95 |
| KXP1080 Control/Dump Rom | 13.00 | 14.95 |

Panasonic KXP1082
 (as 1081 but 160cps)
 with BBC cable & paper
 £219.00 (£190.43+VAT)

Panasonic KXP3131
 (17cps Daisy Wheel)
 with BBC cable & paper
 £279.00 (£242.61+VAT)

Canon PW1080A
 with BBC cable & paper
 £239.00 (£207.83+VAT)

Kaga/Taxan KP810
 With BBC cable and paper
 £239.00 (£207.83 +VAT)

STAR NL10
 with BBC cable & paper
 £219.00 (£190.43+VAT)

Kaga/Taxan KP815
 With BBC cable & paper
 £299.00 (£260.00 + VAT)

CITIZEN 120D
 with BBC cable & paper
 £175.00 (£152.17+VAT)

EPSON LX 800
 With BBC cable & paper
 £229.00 (£207.83 + VAT)

JUKI 6100
 with BBC cable & paper
 £299.00 (£260.00+VAT)

VOLTMACE JOYSTICKS
 Delta 14B single 11.26 12.95
 Delta 3B single 9.52 10.95
 Delta 3B twin 15.61 17.95

PRINTER ADD ONS

| | Ex VAT | Inc VAT |
|---------------------------|--------|---------|
| Universal Printer Stand | 13.00 | 14.95 |
| LX Tractor Unit | 19.96 | 22.95 |
| LX Sheet Feeder | 47.83 | 55.00 |
| LX Print Ribbon | 3.00 | 3.45 |
| FX/LQ Sheet Feeder | 106.96 | 123.00 |
| NL-10 Sheet Feeder | 47.83 | 55.00 |
| NL-10 Print Ribbon | 4.80 | 5.52 |
| 120D Sheet Feeder | 86.09 | 99.00 |
| 120D Print Ribbon | 4.00 | 4.60 |
| KP/PW Print Ribbon | 3.39 | 3.90 |
| Juki 6100 Dust Cover | 5.60 | 6.44 |
| Printer Dust Covers other | 4.00 | 4.60 |

PRINTERS/CABLES

| | Ex VAT | Inc VAT |
|-------------------------|--------|---------|
| Epson EX800 | 404.35 | 465.00 |
| Epson LQ800 | 469.00 | 539.35 |
| Epson FX800 | 313.04 | 360.00 |
| Epson FX1000 | 413.04 | 475.00 |
| Juki 2200 Daisy | 225.22 | 259.00 |
| Juki 5520 Colour | 369.57 | 425.00 |
| Kaga/Taxan KP910/15 | 350.00 | 402.50 |
| MP 165 | 173.04 | 199.00 |
| 1.5m (4 foot) BBC cable | 5.70 | 6.60 |
| 2.0m (6 foot) BBC cable | 7.74 | 8.90 |
| Compact printer cable | 7.74 | 8.90 |
| IBM PC printer cable | 9.57 | 11.00 |

EPROMS, 8271

| | Ex VAT | Inc VAT |
|---------------------|--------|---------|
| 1-9 27128 250nS | 3.83 | 4.40 |
| 10+ 27128 250nS | 3.43 | 3.95 |
| 1-9 2764 250nS | 3.00 | 3.45 |
| 10+ 2764 250nS | 2.74 | 3.15 |
| 1-9 27256 250nS | 4.22 | 4.85 |
| 10+ 27256 250nS | 3.83 | 4.40 |
| 1-9 TTL/Cmos set | 3.91 | 4.50 |
| 1-9 8271 controller | 32.17 | 37.00 |
| 1-9 6264 LP 150nS | 2.56 | 2.95 |
| Acorn 8271 DFS | 41.74 | 48.00 |
| Acorn ADFS Upgrade | 25.22 | 29.00 |

ROMS

| | Ex VAT | Inc VAT |
|-----------------------|--------|---------|
| Inter-Word | 37.39 | 43.00 |
| Inter-Sheet | 36.52 | 42.00 |
| Inter-Base | 48.70 | 56.00 |
| Wordwise Plus | 37.39 | 43.00 |
| Spell Master | 40.87 | 47.00 |
| ACP Disc Investigator | 22.61 | 26.00 |
| ACP 1770 DFS | 26.96 | 31.00 |
| ACP Disc Toolkit | 26.96 | 31.00 |
| View 2.1 | 33.91 | 39.00 |
| ViewStore | 36.52 | 42.00 |
| OverView I & II | 77.39 | 89.00 |
| View Professional | 77.39 | 89.00 |

DISKETTES
 (lifetime warranty)

| | Ex VAT | Inc VAT |
|---------------------------|--------|---------|
| 10 Banana Reversible | 8.65 | 9.95 |
| 10 96tpi D/S D/D + case | 13.90 | 15.99 |
| 10 96tpi D/S D/D + case | 7.39 | 8.50 |
| 10 96tpi D/S D/D in box | 6.52 | 7.50 |
| 50 96tpi D/S D/D in box | 21.70 | 24.95 |
| 100 96tpi D/S D/D in box | 39.13 | 45.00 |
| 50 Disc Box hinged + lock | 7.78 | 8.95 |
| 100 Disc Box hinged+ lock | 8.65 | 9.95 |
| Black Library case | 1.21 | 1.39 |

DISC DRIVES

| | ExVAT | IncVAT |
|-------------------------------------|--------|--------|
| Toshiba 400k 80T chassis | 65.22 | 75.00 |
| Toshiba 400k + case etc | 82.61 | 95.00 |
| Cumana CSX100 | 91.30 | 105.00 |
| Cumana CSX400 | 124.35 | 143.00 |
| Cumana CD800S | 260.00 | 299.00 |
| MD400A 400k No PSU | 101.74 | 117.00 |
| MD400B 400k + PSU | 116.52 | 134.00 |
| MD802C 800k No PSU | 190.43 | 219.00 |
| MD802E 800k + PSU | 216.52 | 249.00 |
| MD802D 800k + stand | 225.21 | 259.00 |
| Phone for Viglen & Torch Winchester | | |

MONITORS

| | Ex VAT | Inc VAT |
|------------------------|--------|---------|
| Philips CM8833 | 230.43 | 265.00 |
| Philips CM8852 | 251.30 | 289.00 |
| Philips BM7502 Green | 68.70 | 79.00 |
| Philips BM7522 Amber | 73.91 | 85.00 |
| Philips BM Tilt stand | 7.78 | 8.95 |
| Taxan KX P31 Green | 77.39 | 89.00 |
| Taxan KX P39 Green | 86.09 | 99.00 |
| Taxan KX Amber | 86.09 | 99.00 |
| Taxan Super Vision 625 | 317.39 | 365.00 |
| Microvitec 1451 | 221.74 | 255.00 |
| Microvitec 1451 AP | 260.00 | 299.00 |
| 14" Tilt/Swivel Stand | 13.87 | 15.95 |

MASTER/COMPACT

| | Ex VAT | Inc VAT |
|-------------------------------|--------|---------|
| Master 128K Micro | 346.96 | 399.00 |
| Master ET 128K Micro | 338.00 | 388.70 |
| 512 Co-processor | 185.00 | 212.75 |
| Turbo Upgrade | 98.78 | 113.50 |
| Acorn Z80 2nd Pro | 317.39 | 365.00 |
| Acorn Cartridges | 10.87 | 12.50 |
| ARM Assembler Book | 12.00 | 12.00 |
| Understanding Interword | 6.50 | 6.50 |
| Reference Manuals | 14.50 | 14.50 |
| View 3 User Guide | 9.00 | 9.00 |
| View Sheet User Guide | 9.00 | 9.00 |
| Master & B Dust Covers | 3.00 | 3.45 |
| Monochrome Compact | 373.04 | 429.00 |
| Second user BBC B's available | | |

Phone for our best price before placing your order
 EDUCATIONAL & GOVERNMENT ORDERS WELCOME

All products have a 12 month no quibble guarantee
 Prices subject to variation without prior notification

We are closed to callers all day Wednesday & some Saturday afternoons
 Carriage 92p (80p + VAT) Securicor £6.90 (£6.00 + VAT)

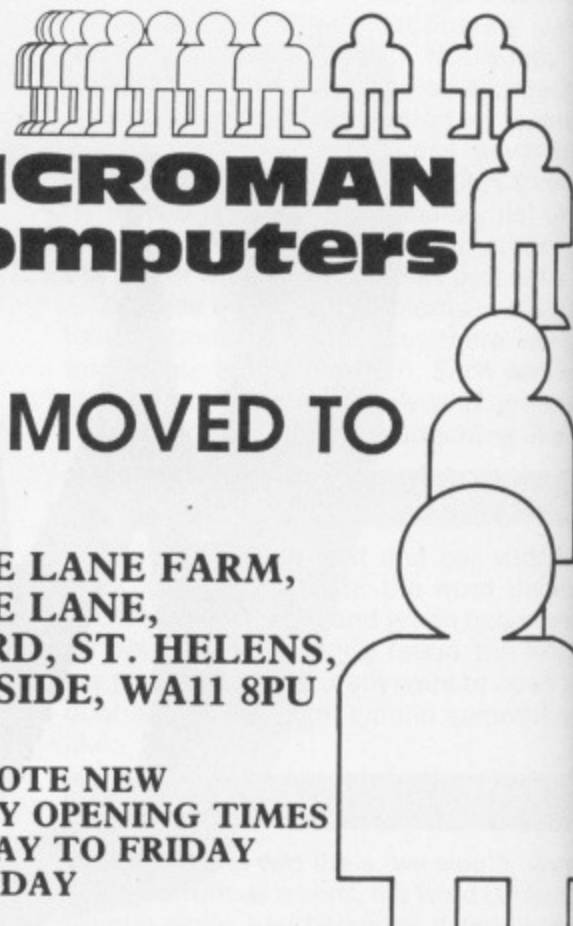
WeServe



Larger items
 delivered
 by Securicor



Micro Dept.
 128 West Street,
 Portchester,
 Hants.
 PO16 9XE
 Tel: 0705 325354

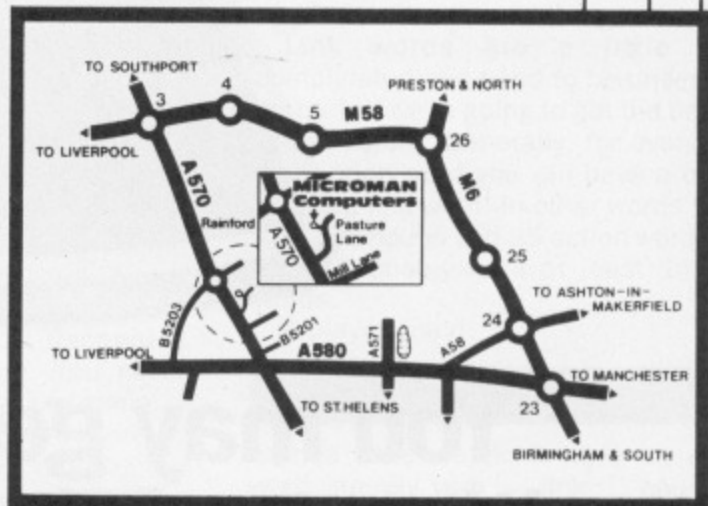


**MICROMAN
 Computers**

HAVE MOVED TO

**PASTURE LANE FARM,
 PASTURE LANE,
 RAINFORD, ST. HELENS,
 MERSEYSIDE, WA11 8PU**

**PLEASE NOTE NEW
 SATURDAY OPENING TIMES
 9-6 MONDAY TO FRIDAY
 9-1 SATURDAY**



Our new premises provides an unusual setting for a computer showroom set in the green belt area of Rainford and converted from an old stone barn. The property is close to the main motorway links and provides ample car parking. The premises has two showrooms allowing us to display a larger range of products plus greater facilities for the demonstration of Acorn computers, peripherals and software. This is particularly relevant with the launch of the new range ARCHIMEDES COMPUTERS from Acorn, with which we enter a new era of low cost RISC computing and as an Acorn Dealer Microman will be supporting the new technology to the full providing systems for the enthusiast, education, business and industry.

We would like to extend a welcome to customers old and new to call in and see us at our new premises

**OUR PHONE NUMBER
 WILL REMAIN**

074488 3667



MICROMAN Computers

PASTURE LANE FARM,
PASTURE LANE, RAINFORD,
ST. HELENS, MERSEYSIDE, WA11 8PU

PHONE 074488 3667

| | |
|---|--|
| SHOWROOM | MAIL ORDER |
| SHOWROOM OPENING 9-6 MONDAY TO FRIDAY 9-1 SATURDAY | PHONE 074488 5242 We accept both Access and Visa credit cards. Simply telephone your order, giving card number, expiry date, name and address, or send your order with cheque or postal order to the address opposite. DELIVERY CHARGES INCLUDING VAT Computers/Printers/Drives: Next day £8.00, Trackback £4.00 Small Items: £1.00 |
| | |

ACORN DEALER : ECONET : SERVICE CENTRE

Archimedes

| ARCHIMEDES 300 SERIES: | Ex VAT | Inc VAT |
|---------------------------|---------|---------|
| Archimedes 305 Base | 799.00 | 918.85 |
| Archimedes 305 Monochrome | 849.00 | 976.35 |
| Archimedes 305 Colour | 999.00 | 1148.85 |
| Archimedes 310 Base | 875.00 | 1006.25 |
| Archimedes 310 Monochrome | 925.00 | 1063.75 |
| Archimedes 310 Colour | 1075.00 | 1236.25 |

Phone for prices and details of Archimedes 400 Series.

| BBC MASTER SERIES: | Ex VAT | Inc VAT |
|---------------------|--------|---------|
| Master 128 | 379.00 | 435.85 |
| Master Turbo Module | 108.70 | 125.00 |

MASTER 512 UPGRADE SPECIAL OFFER

£199.00

Price includes VAT.

This offer includes: FREE MICROMAN 512 DISC UTILITIES SOFTWARE WORTH £12.95.

| MASTER 512 SOFTWARE: | Ex VAT | Inc VAT |
|------------------------------|--------|---------|
| Microman 512 Disc Utilities | 11.26 | 12.95 |
| Words & Figures | 99.00 | 113.85 |
| Ability (Integrated Package) | 99.00 | 113.85 |
| VP Info | 86.09 | 99.00 |
| Volkswriter | 39.09 | 44.95 |

| BBC MASTER COMPACT SERIES: | Ex VAT | Inc VAT |
|---------------------------------|--------|---------|
| Master Compact | 349.00 | 401.35 |
| Master Compact + TV Modulator | 363.00 | 417.45 |
| Master Compact + Green Monitor | 399.00 | 458.85 |
| Master Compact + Colour Monitor | 549.00 | 631.35 |
| RS232 Kit | 26.00 | 29.90 |
| Additional Floppy Disc Drive | 99.00 | 113.85 |
| Pal TV Adaptor | 26.00 | 29.90 |

| ECONET NETWORKS: | Ex VAT | Inc VAT |
|---------------------------------|--------|---------|
| Master Econet Terminal | 329.00 | 378.35 |
| Archimedes/Master Econet Module | 43.47 | 49.99 |
| Filestore E01 | 828.00 | 952.20 |
| Filestore E20 | 721.00 | 829.15 |

OPUS DISC DRIVES

Opus 5802 400K 40/80T

£109.95

Opus 5802DB 800K 40/80T

£209.95

Opus 5802D 800K 40/80T

+ Power Supply

£239.95

Prices include VAT.

| BBC MONITORS: | Ex VAT | Inc VAT |
|------------------------------------|--------|---------|
| Microvitec 1431 Std/Metal | 199.13 | 229.00 |
| Microvitec 1451 Med/Metal | 240.00 | 276.00 |
| Philips CM8833 Med/RGB/CV | 250.00 | 287.50 |
| Philips TV Tuner (Composite Video) | 69.52 | 79.95 |
| Philips Green 7502 | 73.91 | 85.00 |
| Philips Amber 7522 | 77.39 | 89.00 |
| Philips White 7542 | 77.39 | 89.00 |

| BBC DISC INTERFACES/UPGRADES: | Ex VAT | Inc VAT |
|-------------------------------|--------|---------|
| Acorn 1770 Disc Interface | 43.44 | 49.95 |
| Acorn ADFS ROM | 26.08 | 29.99 |
| Watford 8271 Disc Interface | 60.00 | 69.00 |

| BBC B CO-PROCESSOR ADAPTERS: | Ex VAT | Inc VAT |
|------------------------------|--------|---------|
| Acorn Co-Pro Adapter | 75.00 | 86.25 |
| Watford Co-Pro Adapter | 50.00 | 57.50 |

| | Ex VAT | Inc VAT |
|--|--------|---------|
| BBC B ROM BOARDS: | | |
| Watford Solderless ROM Board | 32.00 | 36.80 |
| Watford Battery Backup | 3.00 | 3.45 |
| Aries B12 Sideways ROM Board | 40.00 | 46.00 |
| Aries B12c Adapter | 5.00 | 5.75 |
| ATPL Sideways ROM Board | 38.00 | 43.70 |
| BBC B SIDEWAYS ROM/RAM EXPANSION: | | |
| Watford 16K Sideways RAM Module | 29.00 | 33.35 |
| Watford ROM/RAM Card + 32K DRAM | 39.00 | 44.85 |
| Watford ROM/RAM Card 64K DRAM | 52.00 | 59.80 |
| Watford ROM/RAM Card + 128K DRAM | 80.00 | 92.00 |
| Watford Sideways ZIF Socket | 15.00 | 17.25 |
| BBC B SHADOW BOARDS: | | |
| Watford 32K Shadow RAM Board | 59.00 | 67.85 |
| Aries B32 RAM Extension Board | 80.00 | 92.00 |
| BBC EPROM PROGRAMMERS/ERASERS | | |
| Control Telemetry EPROM Prog | 95.00 | 109.25 |
| Uviprom EPROM Prog | 18.22 | 20.95 |
| Uviprom EPROM Prog + ZIF | 22.57 | 25.95 |
| Multiprom Programmer | 39.09 | 44.95 |
| Uviprom & Multiprom programmers require either SWR or ROM software listed below. | | |
| Uviprom ROM Software | 4.35 | 5.00 |
| Uviprom SWR Disc Software | 1.74 | 2.00 |
| Watford EPROM Eraser GT | 30.00 | 34.50 |
| Uvipac EPROM Eraser | 18.22 | 20.95 |
| Uvipac EPROM Eraser + Timer | 22.57 | 25.95 |
| EPROMS/RAM CHIPS: | | |
| Eproms 2764 8K | 3.00 | 3.45 |
| Eproms 27128 16K | 3.00 | 3.45 |
| Eproms 27256 (12.5v) | 5.00 | 5.75 |
| Eproms 27512 | 9.00 | 10.35 |
| RAM 6264LP-15 8K | 3.00 | 3.45 |
| BBC MODEMS: | | |
| Pace Linnet + Commstar II | 139.00 | 159.85 |
| Pace Nightingale + Commstar II | 86.09 | 99.00 |
| Watford Apollo Modem | 75.00 | 86.25 |
| BBC SPECIAL KEYBOARDS: | | |
| Concept Keyboard A4 | 109.50 | 125.93 |
| Concept Keyboard A3 | 139.50 | 160.43 |
| BBC DIGITISERS: | | |
| Graphpad II (BBC) | 65.65 | 75.50 |
| BBC VIDEO DIGITISERS: | | |
| Watford BEEB Video Digitiser | 109.00 | 125.35 |
| Watford Magazine Maker | 129.00 | 148.35 |
| BBC MOUSE/TRACKERBALL PRODUCTS: | | |
| Watford Quest Mouse | 35.00 | 40.25 |
| Watford Quest Mouse + Paint | 59.00 | 67.85 |
| AMX Mouse + Super Art | 69.52 | 79.95 |
| AMX Mouse Mat | 5.00 | 5.75 |
| AMX Pagemaker | 43.44 | 49.95 |
| AMX Extra Extra (Pagemaker) | 21.70 | 24.95 |
| AMX Super Art ROM: BBC B | 43.44 | 49.95 |
| AMX Super Art: Master | 43.44 | 49.95 |
| AMX MAX | 17.35 | 19.95 |
| Fleet Street Editor | 34.74 | 39.95 |
| Fleet Street Editor Fonts/Graphics | 13.00 | 14.95 |
| Fleet Street Editor Admin Xtra | 13.00 | 14.95 |
| Fleet Street Editor Disney | 13.00 | 14.95 |
| Trackerball RB2 + ICON Soft | 59.00 | 67.85 |
| Trackerball + Pointer (Master) | 59.00 | 67.85 |
| BBC/MASTER CONSOLE UNITS: | | |
| Viglen Console | 43.44 | 49.95 |
| Viglen Master Console | 52.13 | 59.95 |
| BBC CAD SYSTEMS: | | |
| Bitstik 2 (Master Compatible) | 694.78 | 799.00 |
| Bitstik 2 Upgrade | 400.00 | 460.00 |
| Pineapple Diagram | 25.00 | 28.75 |
| Pineapple Diagram Utilities | 10.00 | 11.50 |
| Pineapple PCB Designer | 85.00 | 97.75 |
| AMX Design | 60.83 | 69.95 |

| | Ex VAT | Inc VAT |
|--------------------------------|--------|---------|
| Microman Plotter ROM | 26.04 | 29.95 |
| PRINTERS: | | |
| Star NL10 + BBC/Cent Interface | 209.00 | 240.35 |
| Star NX15 Wide Carriage | 339.00 | 389.85 |

PANASONIC KXP1081

Printer + Free BBC Lead

£179.00

Price includes VAT.

| | | |
|------------------------------------|--------|--------|
| Epson LX800 | 239.00 | 274.85 |
| NEC Pinwriter P660 (80) Parallel | 449.00 | 516.35 |
| NEC Pinwriter CP660 (80) Parallel | 519.00 | 596.85 |
| NEC Pinwriter P760 (136) Parallel | 529.00 | 608.35 |
| NEC Pinwriter CP760 (136) Parallel | 619.00 | 711.85 |
| Juki 6100 Daisywheel | 299.00 | 343.85 |
| Panasonic Serial Interface | 41.00 | 47.15 |
| Star NL10 Sheet Feeder | 55.00 | 63.25 |
| Star NX15 Sheet Feeder | 140.00 | 161.00 |
| LX800 Sheet Feeder | TBA | |
| Print Sharer 2 Way Switch | 39.00 | 44.85 |

| | | |
|---------------------------|--------|---------|
| PLOTTERS: | | |
| Roland DXY880A A3 Plotter | 694.78 | 799.00 |
| Roland DXY980A A3 Plotter | 999.00 | 1148.85 |

We are a Roland Main Dealer and stock the complete range of plotter, pens and paper.

| BBC WORDPROCESSING SOFTWARE: | Ex VAT | Inc VAT |
|-------------------------------|--------|---------|
| View Professional | 86.91 | 99.95 |
| Interword ROM | 42.61 | 49.00 |
| Wordwise Plus ROM | 42.61 | 49.00 |
| View 3.0 ROM | 45.22 | 52.00 |
| Spellmaster | 51.31 | 59.00 |
| Viewspell | 34.74 | 39.95 |
| View Index | 13.00 | 14.95 |
| View Printer Driver Generator | 10.00 | 11.50 |

| BBC DATABASE & SPREADSHEET SOFTWARE: | Ex VAT | Inc VAT |
|--------------------------------------|--------|---------|
| Master Overview | 86.00 | 98.90 |
| Interbase ROM | 60.00 | 69.00 |
| Viewstore ROM | 45.22 | 52.00 |
| Intersheet ROM | 43.44 | 49.95 |
| Interchart ROM | 29.52 | 33.95 |
| Viewsheet ROM | 45.22 | 52.00 |
| Viewplot Disc | 26.04 | 29.95 |

| BBC LANGUAGES: | Ex VAT | Inc VAT |
|----------------------------|--------|---------|
| Master C | 78.00 | 89.70 |
| BCPL ROM | 52.00 | 59.80 |
| BCPL Calculations | 30.00 | 34.50 |
| BPCL Stand Alone Generator | 43.39 | 49.90 |
| ISO Pascal ROM | 52.13 | 59.95 |
| ISO Pascal Stand Alone Gen | 30.00 | 34.50 |
| Comal ROM | 43.35 | 49.85 |
| Acorn LOGO ROM | 60.00 | 69.00 |
| Logoton LOGO ROM | 60.00 | 69.00 |
| Micro-Prolog ROM | 69.52 | 79.95 |
| Microtext | 52.00 | 59.80 |

| BBC UTILITIES: | Ex VAT | Inc VAT |
|-----------------------------|--------|---------|
| Master Termulator | 34.74 | 39.95 |
| System ADE + BBC Version | 46.00 | 52.90 |
| System ADE + Master Version | 49.00 | 56.35 |
| Advanced Disc Investigator | 25.00 | 28.75 |
| Advanced Disc Toolkit | 30.00 | 34.50 |
| Vine Replay ROM's | 30.44 | 35.00 |
| Vine Master Replay | 36.48 | 41.95 |

We stock a large range of utility software by ACORN, CLARES, COMPUTER CONCEPTS, WATFORD etc.

PC COMPUTERS & SOFTWARE:

We stock the OPUS PCII & AMSTRAD PC1512 range of PC Computers along with a large selection of add-ons and books. Full Price List available.

GOVERNMENT, NHS AND EDUCATIONAL ORDERS ACCEPTED

C & F ASSOCIATES

Quality Service at
Competitive Prices

| | Cass | Disc | Comp | | Cass | Disc | Comp | | Cass | Disc | Comp | | Cass | Disc | Comp |
|----------------------------|-------|-------|-------|---------------------------|-------|-------|-------|-------------------------|-------|-------|-------|-----------------------|-------|-------|-------|
| ADDICTIVE | | | | DR. SOFT | | | | ROBICO | | | | Palace of Magic | 7.75 | 10.95 | 12.95 |
| Football Manager | 2.99 | - | - | Phantom Combat | 7.50 | 10.95 | - | The Hunt | 7.95 | 10.95 | - | Acornsoft Hits 1 | 7.75 | 10.95 | 12.95 |
| ALTERNATIVE | | | | ELECTRIC DREAMS | | | | Rick Hanson | 7.95 | 10.95 | - | Acornsoft Hits 2 | 7.75 | 10.95 | 12.95 |
| Video Pinball | 1.99 | - | - | Firetrack | 7.75 | 12.95 | - | Project Thesius | 7.95 | 10.95 | - | Elite | 10.95 | 12.95 | 17.50 |
| Red Arrows | 1.99 | - | - | ELITE | | | | Myorem | 7.95 | 10.95 | - | Revs | 10.95 | 12.95 | 17.50 |
| ASL | | | | Paperboy | 7.75 | 12.95 | - | Rick Hanson Trilogy | 18.95 | 19.95 | - | TYNESOFT | | | |
| Graham Gooch | 7.75 | 10.95 | - | Airwolf | 7.50 | 12.95 | - | Island of Xaan | 7.95 | 10.95 | - | Spy Vs. Spy | 7.75 | - | - |
| Thunderstruck | 6.75 | 10.95 | - | FIRETRACK | | | | Banjax | 2.95 | 4.95 | - | Phantom | 6.75 | 10.95 | - |
| Thunderstruck 2 | 6.75 | 10.95 | - | Star Drifter | 1.99 | - | - | Beeline | 2.95 | 4.95 | - | Mousetrap | 6.75 | - | 10.95 |
| Sphere of Destiny | 6.75 | 10.95 | - | Sentinal | 7.75 | 12.95 | - | Enthar 7 | - | 14.95 | - | Winter Olympics | 6.50 | - | 10.95 |
| Power Pack | 7.75 | - | - | GREMLIN | | | | SUPERIOR | | | | Ian Botham | 6.50 | - | 10.95 |
| BEAU JOLLY | | | | Footballer of the Year | 7.75 | 10.95 | - | Crazy Rider | 7.75 | 10.95 | 12.95 | Oxbridge | 6.75 | - | - |
| 5 Star Games | 7.75 | - | - | IMAGINE | | | | Codename Droid | 7.75 | 10.95 | 12.95 | Jet Set Willy | 6.50 | - | - |
| 5 Star Games 2 | 7.75 | - | - | Konam's Coin Op. Hits | 7.75 | - | - | Around the World | 5.95 | 6.75 | 7.75 | Jet Set Willy 2 | 6.50 | - | - |
| BUBBLE BUS | | | | Yie Ar Kung Fu 2 | 7.20 | - | - | Strykers Run | 7.75 | 10.95 | 12.95 | The Big KO | 6.75 | - | - |
| Starquake | 7.75 | 10.95 | - | Mickie | 6.95 | - | - | Superior Collection 1 | 7.75 | 10.95 | 12.95 | Future Shock | 6.75 | - | - |
| BUG BYTE | | | | INCENTIVE | | | | Superior Collection 2 | 7.75 | 10.95 | 12.95 | Goal | 6.75 | - | - |
| Dunjunz | 2.95 | 6.95 | - | Graphic Adventure Creator | 19.95 | 22.95 | - | Grand Prix Construction | 7.95 | 10.95 | 12.95 | US GOLD | | | |
| Plan 8 | 2.95 | - | - | Adventure Creator | 12.95 | - | - | Ravenskull | 7.75 | 10.95 | 12.95 | Spy Hunter | 7.75 | - | - |
| CDS | | | | Ket Trilogy | 7.75 | 10.95 | - | Speech | 7.50 | 10.95 | 12.95 | Impossible Mission | 7.20 | 12.95 | - |
| Colossus Chess 4 | 7.75 | 12.95 | - | LEISURE GENIUS | | | | Citadel | 7.50 | 10.95 | 12.95 | Crystal Castle | 7.75 | 12.95 | - |
| Steve Davis Snooker | 6.95 | 10.95 | 10.95 | Scrabble | 10.95 | 12.95 | - | Repton 3 | 7.75 | 10.95 | 12.95 | Unbelievable Ultimate | 7.75 | - | - |
| Brian Clough Football | 12.95 | 15.95 | - | Monopoly | 10.95 | 12.95 | - | | | | | | | | |
| DATABASE | | | | LOGOTRON | | | | | | | | | | | |
| Mini Office 2 | 12.45 | 14.95 | 19.50 | XOR | 7.75 | 10.95 | - | | | | | | | | |
| Mini Office 2 (Master 80T) | - | 17.50 | - | XOR Designer | - | 12.95 | - | | | | | | | | |
| French on the Run | 7.75 | - | - | LOTHLORIAN | | | | | | | | | | | |
| DESIGN PEOPLE | | | | Roundheads | - | 10.95 | - | | | | | | | | |
| Sink the Bismark | - | 9.95 | - | MICRO-POWER | | | | | | | | | | | |
| Tanks! | - | 10.95 | - | Micro-Power Magic | 6.75 | 6.75 | - | | | | | | | | |
| Battle of Britain | 7.75 | 10.95 | - | Micro-Power Magic 2 | 6.75 | 6.75 | - | | | | | | | | |
| DOMARK | | | | Imogen | 7.20 | 7.75 | 10.95 | | | | | | | | |
| Trivial Pursuit | 12.95 | 17.50 | - | | | | | | | | | | | | |

ALL PRICES INCLUDE VAT AND POSTAGE & PACKING
(Overseas Orders add £1.00 per order or Airmail £2.00 per item)

Cheques/PO payable to:



C & F ASSOCIATES

and send to

C & F ASSOCIATES (MU) CRANFORD HOUSE,
WOOLSEY, BIDEFORD, N. DEVON EX39 5QW

Telephone: (023 73) 619

Orders normally despatched within 24 hours of receipt but allow maximum of 7 days
For our comprehensive range of BBC and Electron Programs Please send for list

AT LAST THE DEMON II IS LAUNCHED

from **DATAPHONE** Ltd.
AUTO DIAL AUTO BAUD AUTO ANSWER
for ONLY £79.95 + VAT

- V21 & V23 Speeds
- Front Panel MAINS SWITCH
- 3 Metre Telephone Lead
- Built In Power Supply

- 25 Pin D socket
- 6 LED Indicators
- Custom Moulded Case
- Fitted Mains Plug

Introductory Offer - FREE Disc Connect - FREE Computer Lead

DISC - CONNECT

The easiest way to use a modem from a BBC

- Auto dials voice and data lines
- Fully automatic modem baud rates on Demon
- Auto redial of engaged Data numbers
- Call timing

- 300 Number store with Full Logon Sequence
- Displays details of speed, hours of operation
- Easy Number selection by cursor, code or joystick
- Works in conjunction with most comms Roms

For just £9.95 + VAT

To: DATAPHONE LTD, 22 Alfric Square, Woodston, Peterborough, PE2 0PJ. Telephone (0733) 230240

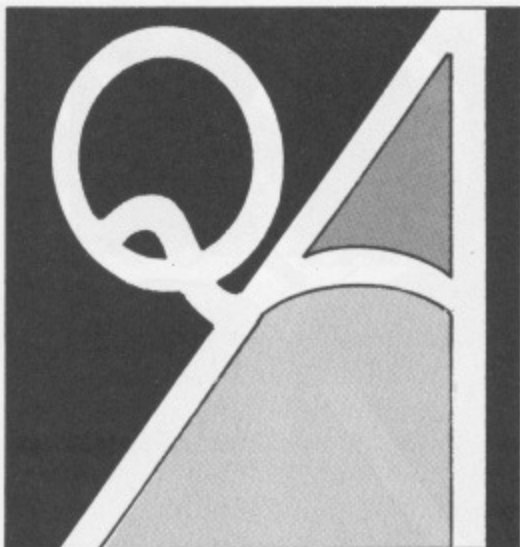
Please send me: Including VAT and P&P

_____ (Qty) Demon II Modems at £96.54
_____ (Qty) Magic Modems (STD) at £91.00
_____ (Qty) Disc Connect at £11.50

_____ (Qty) Demon Modems at £73.50
_____ (Qty) Enterprise I Modem at £119.54
_____ (Qty) Z Rom at £24.00

Please enclose cheque or Access/Barclaycard No to the value of £ _____ and include full address

mp
.95
.95
.95
.50
.50



Q I have a lot of software for my BBC Micro written in Basic with some 6502 code in them – will these programs run on the Archimedes in the 6502 emulator?

A Acorn say that any legally written software that runs on a BBC Micro 6502 second processor or Master 6502 co-processor will work on the Archimedes 6502 emulator. But experience has taught us that some FX commands (for example FX16 and FX119) are not implemented and generate a bad command error. Any software that uses these will fail unless the calls are removed.

When the analogue/joystick podule becomes available the FX16 command will probably work again.

Q Can my machine code programs use all of the memory in the 6502 emulator or am I stuck with Basic and 48k?

A Although the operating system insists that HIMEM is at &8000 you can use 60k of memory from &800 all the way up to &F800 (writing all over Basic) for your programs. Basic can be recovered using *BASIC as normal.

Q Do I need a new printer or a new printer lead for the Archimedes?

A You can use the printer you already have, but both the RS423 and Centronics connectors on the Archimedes itself are different. So for either a serial or parallel printer you will have to get the micro end wired to a new plug.

Q Since the Archimedes has so much memory, does it have a built-in printer buffer?

A A printer buffer does not come as standard but it would be quite easy to implement one as a software module.

Q Can I plug a television into my Archimedes?

A There is no TV output on the Archimedes and the expense and complexity of adding the necessary

We are receiving a large number of questions about the Acorn Archimedes. Some are answered here, and we will be answering more over the next few months.

So, if you have any questions about the new super micro from Acorn don't hesitate to send them to: Archimedes Questions, The Micro User, Europa House, 68 Chester Road, Hazel Grove, Stockport, SK7 5NY.

circuit makes it easier to use a monitor. In addition, a TV would not be able to handle the quality of screen resolution in the better screen modes.

Q Will previous Micro User listings work on the Archimedes?

A There's no blanket answer to this question. For example, none of the machine code games that use direct screen memory addressing will work. Pure Basic programs will, in general, work unless they interfere with system memory directly, such as program relocation routines or storing data in page &C. Most programs can be made to work with very little modification.

Q Are software companies likely to release upgraded versions of their old games for the Archimedes?

A We spoke to a leading software house who said that considering the outstanding capabilities of the Archimedes and the prestige in owning one, only the very best software is worthy of translation and even then it would have to be vastly improved. So most good games will be totally original and too complex for conversion to any other micro.

Q Is Archimedes' Basic V available for the BBC Micro?

A We have heard a rumour that Basic V will be made available for the Archimedes' predecessors but we are not in a position to confirm this at present.

Q My BBC Micro gets very hot due to all the add-ons I have. Can the Archimedes' power supply take many add-ons?

A The power supply in the Archimedes is designed to handle a lot of extra loading in the form of add-on podules and the cooling fan mounted in the side should ensure that no overheating occurs.

Q There is a great deal of business software that works on IBM computers and their clones – will these programs work on the Archimedes?

A Acorn do intend to produce a podule to give IBM compatibility. As a matter of interest Acorn has a product called Springboard which will make IBM machines Archimedes compatible.

Q Can you please explain in layman's terms how fewer instructions in the ARM chip means it is more powerful?

A Microprocessors like the 68020 and 80386 have hundreds of instructions so these chips take a long time (as far as chip speeds go) to decode which instruction is currently being executed. But most machine code programmers don't use the very complicated instructions available – they only use a few simple ones – and having them available on the chip is actually a waste of time.

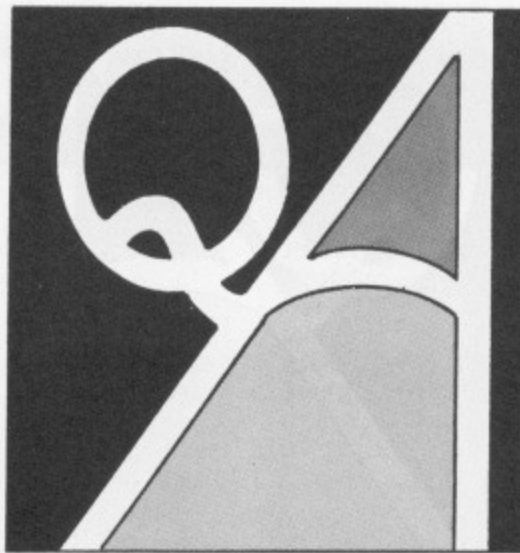
The Reduced Instruction Set philosophy says: Put only a few simple instructions on the chip, each of which can be carried out very fast because they are all simple.

The end result is that the chip is simpler and cheaper to make but goes very much faster and is thus more powerful – and still contains all the instructions a programmer needs.

Q My BBC Micro only has about 28k for Basic programs (using Mode 7). How much memory do I get for Basic in the Archimedes?

A In the Archimedes 305, which has 512k user ram in total you will get at

Turn to Page 98 ▶



◀ From Page 97

least 200k for Basic programs as the default – and you don't lose any using the high-resolution graphics modes either.

The amount of ram given to each section of the system – screen, modules, fonts, sprites, system work area – is all configurable, so it is possible to give more user area to Basic if you need it by reducing the memory for the other areas. On a Archimedes 310 the maximum user work area can be 830k.

Q Does adding software modules reduce the amount of user memory in the Archimedes?

A No, the user memory is fixed by the current configuration of the system – but the space available for modules and their workspace is reduced when a new module is added.

Q What happens if I try to use one of the special screen modes when I don't have the correct multi-sync monitor?

A To use Modes 18, 19 and 20 the system requires some additional internal hardware as well as a special monitor and if this is not fitted the screen defaults to Mode 0 with no error generated. If the circuit is fitted and a multi-sync mode selected with a normal monitor the screen will just display interference.

Q If I select a shadow screen mode using, for example, Mode 128 what happens?

A Strictly speaking the Archimedes does not have shadow ram, but the operating system allows you to have two screens in memory at one time and you can switch between them, just as if it were shadow ram. This option requires twice the amount of screen memory to be available.

Q Can I use my 3.5in ADFS discs in the Archimedes?

A Yes, the Archimedes ADFS supports the 640k standard ADFS disc format used on the Master, Compact and Electron Plus 3. But the Archimedes ADFS has a more advanced disc format which can store 800k per disc. The ADFS detects automatically which format the current disc uses.



BUSINESS SYSTEMS • HARDWARE
SOFTWARE • VIDEO SYSTEMS
OFFICIAL DOMESDAY DEALER
0602 787923

Acorn  APPROVED DEALER
The choice of experience.

Computers

Acorn Products
BBC Master Compact from £349.00
Phone for Special Package Offers.
Choice of either Free Software, Discs, Plinths etc.

| | |
|--|-------------|
| BBC Master 128 | £369.00 (a) |
| BBC Master ET (Economiser system only) | £289.00 (a) |
| Master Turbo Upgrade | £99.00 (a) |
| Master 512 Upgrade | £189.00 (a) |
| Master 128 Eprom Cartridge | £11.00 (e) |
| Master Compact RS232 Interface | £26.00 (e) |
| 64k Upgrade kit for BBC B+ 64k | £30.00 (d) |
| 1770 Disc Interface (for BBC B) | £41.00 (d) |
| ADFS ROM (BBC B+ or BBC B with 1770 interface) | £25.00 (e) |

Dot Matrix Printers

| | |
|--|-------------|
| Mannesman Tally MT85 80col/180cps + 45cps NLO | £244.00 (a) |
| Epson LX86 80col/120cps + 16cps NLO | £229.00 (a) |
| Juki 5510 80col/180cps+30cps NLO | £249.00 (a) |
| Juki 5510 Colour Upgrade Kit | £94.00 (c) |
| Citizen 120D 80col/120cps+25cps NLO | £164.00 (a) |
| Citizen MSP10 80col/160cps + 40cps NLO (Bk buffer) | £225.00 (a) |
| MP 165 80col/120cps 38cps NLO | £165.00 (a) |
| MP 200 80col 200cps 40cps NLO | £249.00 (a) |
| MP201 132 col 200cps 40cps NLO | £274.00 (a) |

Daisy Wheel Printers

| | |
|------------------------|-------------|
| Juki 6000 80col 12cps | £182.00 (a) |
| Juki 6100 110col 20cps | £280.00 (a) |

Monitors

| | |
|--|-------------|
| Philips BM7502 High res mono green + sound | £69.00 (a) |
| Philips BM7522 High res mono amber + sound | £74.00 (a) |
| Philips CM8533/8833 Med res colour RGB + composite video + sound (Green screen switchable) | £239.00 (a) |
| Hantarex Med res colour RGB/CV + sound P.O.A. | |
| Microvitec 1431MS STD res colour RGB | £179.00 (a) |
| Microvitec 1451MS Med res colour RGB | £224.00 (a) |
| Microvitec 1441MS High colour res RGB | £375.00 (a) |
| Master Monitor Plinth | £12.00 (c) |
| Master Monitor Plinth with shelf | £22.00 (b) |

* All monitors are supplied with a free BBC lead *

Disc Drives

| | |
|---|-------------|
| Viglen 40T SS 100K | £79.00 (a) |
| Direct VPD0241 40/80T DS 400K | £99.00 (a) |
| Direct VPD0243 Dual 40/80T DS 800K (Horizontal) | £194.00 (a) |
| Direct VPD0246 40/80T DS 400K + PSU | £114.00 (a) |
| Direct VPD0248 Dual 40/80T DS 800K + PSU (Horizontal) | £214.00 (a) |
| Direct VPD0249 Dual 40/80T DS 800K + PSU on Master Plinth | £229.00 (a) |
| UFD MD802C Dual 40/80T DS 800K (Vertical) | £219.00 (a) |
| UFD MD802E Dual 40/80T DS 800K + PSU (Vertical) | £244.00 (a) |
| Winchester Drives from | £549.00 (a) |

Direct Drives – Complete with a three years warranty

Discs and Accessories

| | |
|--|------------|
| 3M 744 SS/DD 48TPI 5.25" (Box of 10) | £11.00 (d) |
| 3M 745 DS/DD 48TPI 5.25" (Box of 10) | £13.00 (d) |
| 3M 747 DS/DD 96TPI 5.25" (Box of 10) | £17.00 (d) |
| 3M 3555 SS/DD 3.5" (Box of 10) | £21.00 (d) |
| 3M 35DS DS/DD 3.5" (Box of 10) | £29.00 (d) |
| B and S DS/DD 96TPI 5.25" (Case of 10) | £13.00 (d) |

Lockable Library Cases
50 Disc £8.00 (d) 100 £10.00 (d)

Modems

| | |
|-------------------------------------|-------------|
| Miracle WS2000 + BBC Lead | £95.00 (c) |
| Miracle WS4000 V2123 + BBC Lead | £144.00 (a) |
| Miracle Databeeb Communications ROM | £24.00 (e) |
| Pace Nightingale + Commstar II | £94.00 (c) |
| Pace Commstar II ROM | £28.00 (e) |

Modems (continued)

| | |
|--|------------|
| Nightingale Auto Dial/Auto Answer Board and Software | £52.00 (d) |
|--|------------|

** Please note: BAPT approval on modems only **

Fanfold Papers and Labels

| | |
|--|------------|
| 2000 x 1 Part 60gm 11" x 9.5" STD Perf | £11.00 (c) |
| 2000 x 1 Part 60gm 11" x 9.5" Micro Perf | £12.00 (c) |
| 1000 x 1 Part 85gm 11" x 9.5" Micro Perf | £9.00 (c) |
| 1500 x 1 Part 90gm Perfect A4 Micro Perf | £17.00 (b) |
| 1000 Labels 89mm x 36mm | £4.00 (d) |
| 1000 Labels 89mm x 49mm | £6.00 (d) |
| 1000 Labels 102mm x 36mm | £5.00 (d) |

Please state single or twin row when ordering labels

AMX Mouse and Software

| | |
|-------------------------|------------|
| AMX Mouse and Super Art | £60.00 (d) |
| AMX Pagemaker | £37.00 (d) |

Please state computer (B/B+/Master)

Printer Ribbons & Accessories

| | |
|--|------------|
| Epson LX80/86 Ribbon (Compatible) | £2.89 (e) |
| Epson 8302 LX80/86 Tractor Unit | £19.00 (c) |
| Epson 8338 LX80/86 Single Sheet Feeder | £49.00 (b) |
| Epson MX80/FX80/FX85/Juki 5510 Ribbon (Compatible) | £2.50 (e) |
| Taxan 810/Canon 1080 Ribbon | £3.74 (e) |
| Juki 5520 Colour Ribbon | £7.50 (e) |
| Citizen 120D Ribbon | £3.75 (e) |
| Mannesmann Tally MT85 Fabric Ribbon | £5.00 (e) |
| Mannesmann Tally MT85 Carbon Film Ribbon | £7.00 (e) |

Full range of ribbons & accessories supplied – call for details

Languages

| | | | |
|--------------|------------|------------|------------|
| Micro-Prolog | £50.00 (d) | ISO-Pascal | £42.00 (d) |
| Logo | £44.00 (d) | BCPL | £39.00 (c) |
| Forth (Disc) | £15.00 (e) | Comal | £32.00 (d) |
| Lisp | £33.00 (e) | Micro Text | £37.00 (d) |

Business Software

| | | | |
|------------------|------------|-------------------|------------|
| View 2.1 | £37.00 (d) | View 3.0 | £39.00 (d) |
| Hi-View | £37.00 (d) | View Sheet | £37.00 (d) |
| View Store | £37.00 (d) | View Spell | £29.00 (d) |
| View Plot (Disc) | £21.00 (e) | View Index (Disc) | £10.00 (e) |

Business Software (continued)

| | | | |
|-------------------------------|------------|---------------|------------|
| View Printer Driver Generator | | £8.00 (e) | |
| Tape | £7.00 (e) | Disc | £8.00 (e) |
| Inter Sheet | £38.00 (d) | Inter-Chart | £26.00 (d) |
| Inter Base | £55.00 (d) | Inter-Word | £36.00 (d) |
| Wordwise | £30.00 (d) | Wordwise Plus | £37.00 (d) |
| Spell Master | £47.00 (d) | Over View | £84.00 (d) |

Utilities

| | |
|--|------------|
| Fleet Street Editor (Mirrorsoft) | £31.00 (d) |
| Fleet Street Fonts and Graphics (Mirrorsoft) | £11.75 (e) |
| Fontwise Plus (Clares Micro Supplies) | £16.00 (e) |
| Replica III (Clares Micro Supplies) | £11.00 (e) |
| Replay (B/B4) | £35.00 (d) |

Please state 40 or 80 track and machine when ordering

Books (No VAT on books)

| | | | |
|----------------------------------|------------|------------|------------|
| Master Reference Manuals | | | |
| Part 1 | £14.00 (d) | Part 2 | £14.00 (d) |
| Advanced Master Reference Manual | | P.O.A. | |
| Lisp | £7.00 (e) | Forth | £7.00 (e) |
| ISO Pascal | £7.00 (e) | BCPL | £14.00 (d) |
| View Guide | £5.00 (e) | Into View | £5.00 (e) |
| View 3 | £9.00 (e) | View Sheet | £9.00 (e) |
| View Store | £9.00 (e) | Comal | £9.00 (d) |

* Large range supplied – phone for details *

ROM Boards

| | |
|-----------------|------------|
| ATPL "Sidewise" | £36.00 (d) |
|-----------------|------------|

Please state B or B+

UK Customers: please add 15% VAT to all prices (including carriage).

Government and educational establishments official orders welcomed. When ordering please enclose a cheque or postal order for the appropriate amount. UK Carriage Rates (a) £8.50 – courier insured delivery (b) £3.50 (c) £2.50 (d) £1.50 (e) £1.00. All prices are correct at time of going to press. All offers are subject to availability, all prices are subject to change without prior notification and are available on request. Current price list is available on request. Goods normally despatched on receipt of order.



B & S COMPUTING INOTT M LTD
THE LENTON BUSINESS CENTRE
LENTON BOULEVARD
NOTTINGHAM NG7 2BY
PHONE: 0602 787923

PROBLEM SOLVED

Time loss

COULD you explain an intriguing and frustrating idiosyncrasy of the Master? It concerns the on-board clock: Why does it lose anything up to 40 or 50 seconds a month? — **Mik Little, Lyneham, Chippenham.**

● *The problem is that the clock is not properly trimmed. IC11 is the real time clock, type 146818. Close to it is a trimmer capacitor, VC1, which can be adjusted to make the clock keep better time.*

Starting up

I HAVE a BBC Micro fitted with sideways ram. Some protected games discs lock up if the machine is switched on from cold. However if I place a file into the sideways ram and Shift+Break a games disc it works without any problem.

Is this normal and is there any way I could run these games without loading a file into the sideways ram or perhaps switch off the sideways ram before auto booting the disc? — **F. Beach, Stanmore, Middx.**

● *When a sideways ram is first switched on, it contains what is known as a switch-on garbage. This tends to be different on varying rams but will normally be consistent on any individual ram.*

What appears to be happening is that the switch-on garbage header is fooling the operating system or game into thinking it is a valid program. When an attempt is made to issue a service call to the ram the system crashes.

No, this is not usual although it is not entirely unknown. You could try changing the chips around on the board or replacing them with different ones or just keep on loading a valid file into it as you are doing now.

Disabling the board depends on the type of board you've got.

Hangover

MY daughter bought Impossible Mission by Epyx a short while ago but it won't run beyond the initial header. We have a Viglen unit with twin disc drives and the keyboard at the end of a curly cord. I borrowed another micro in its original case and the game ran perfectly.

By a process of hardware exchange between the two set ups I traced the problem to the curly cord or so I thought. But a thorough check of the curly cord revealed nothing physically wrong.

I then asked a couple of friends to play

the game on their machines with the Viglen conversion and in both cases the game hung up at the same stage.

I rang the software house and explained my problem, but they said if the game runs on a standard machine the software is okay so it's not their problem.

Can you explain what is happening? —

B.H. Ward, Braintree, Essex.

● *The curly cable used by Viglen introduces a slight delay or loading on the signals sent to and from the keyboard. Usually this is not a problem due to the way the keyboard is read by the computer. However some techniques used in software protection or games will not work with the extra loading introduced by the cable.*

When I phoned Viglen about this they were quite unrepentant and blamed the software house for breaking the rules in their program.

Who is to blame? Well, as in most cases like this, the innocent stretching of the computer specification in two different directions has resulted in the computer "snapping". So neither and both parties are to blame and as usual it is the consumer in the middle that takes the rap.

Printer poser

I bought an IBM personal graphics printer without a manual. I know it was probably stupid but it is an Epson compatible (or I should say it is a relabelled Epson). I have done some research and it seems that the printer is an Epson/IBM MX-80 (tractor feed only).

I have an Epson FX-80/FX-100 printer manual. The problem is I can't do any screen dumps with it. It prints text in draft, double strike, enlarged, emphasised and condensed but no elite or italics. I am interested in using it for screen dumps. What am I doing wrong? — **Mark Pritchard, Needingworth.**

● *A printer is a small computer system containing a microprocessor plus memory and the way it operates is controlled by its software stored in rom. What Epson does is sell its printer mechanism to different companies with rom software customised to the clients requirements.*

I suspect that IBM has no interest in

graphics and so the graphic commands were not implemented. Perhaps the spare room in the rom was used for some other IBM-specific function.

However, it should be possible to convert it to a standard Epson printer by replacing the rom. An Epson service centre may be able to supply you with one. The address of Epson UK is Dorland House, 388 High Road, Wembley, Middlesex. HA9 6UH.

Body building

WOULD you tell me whether it is still possible to buy the Body Building heart rate monitor for use with the BBC Micro or if it is possible to obtain the kit. — **F. Dickinson, Sheffield.**

● *A lot of old Body Build kits are still available from Musbury Consultants 8 Fairhill, Helmshore, Rossendale, Lancs. BB4 4JX. The heart rate monitor (April 1984) costs £19.00 as a kit and £25.50 assembled.*

Voltage conversion

I HAVE just returned from Saudi Arabia with an Epson RX80 printer that I bought out there.

The printer is 120 volts and I am using it with a voltage transformer. Can I convert it to 240 volts? — **D. M. Jefferson, Scarborough, North Yorkshire.**

● *It should be possible to convert your printer to 240 volts. Some transformers are multi-standard and require a link to be changed inside the printer. If your printer contains the single voltage type, it will be necessary to replace it. See the contact address for Epson UK above.*

Crusher control

I AM a pupil at a school in Worcester and I'm doing a soft drinks can crusher project.

I need to have several failsafe devices in the system, which include an induction circuit to sense the presence of a can and a micro switch. This will be connected to the door of the system to make sure that it is closed when the crushing takes place.

The crusher will be operated from an electronic/pneumatic interface. After the can has been crushed, it will be passed over a sensor to trigger a motor which will dispense a penny coin in payment for the can.

I have had trouble integrating these

PROBLEM SOLVED

◀ From Page 99

separate systems, so could you please send me an idea of the circuit I would need to fulfil these requirements. Or, alternatively, should I just use the BBC Micro port as a control for the circuits? — **Guy O'Keefe, Worcester.**

● Any operation that can be performed by computer can also be performed by a sequence of logic gates. However, designing logic circuits is a topic which could cover a whole book, not just a reply to a letter.

As this is a computer magazine let's look at the computer solution. Past Body Build articles hold the clue to your problems: Controlling DC motors (November 1985), Inductive sensor (June 1986) and Reading switches (July 1983).

Once you have control of these from the user port a simple Basic program should be quick enough to provide control.

Colour change

OCCASIONALLY the black background on my TV-display develops a pale green/yellow cast which sometimes lasts up to a minute.

Also the top pin of my print head doesn't work making the text difficult to read. — **J. Coates, Leominster, Herefordshire.**

● The cast on the picture is due to an absence of Red signal. This could be a faulty lead or connector at the computer or monitor end. Alternatively it could be inside the monitor circuit.

The print head fault can be rectified by cleaning or replacing the print head. Alternatively the Darlington drive controlling the top solenoid may have gone faulty and should be replaced.

Colour contact

WHEN I bought my BBC Micro I had to push the UHF lead down so I could get colour. Different leads didn't work until I pushed them down when I got monochrome but not colour. What's going wrong? — **K.V.S. Rajasmsi, Heston, Middx.**

● It is not the lead but the UHF modulator that is faulty. This is the small tin box in the top right hand corner of the computer.

Normally what happens is that the central core of the plug is not making good enough contact to produce the strong signal required for a colour picture and the colour killer circuit in your TV set is being activated to produce a monochrome image.

The simple solution is to take the lid off the modulator and crimp up the

socket so that it makes better contact. Failing that the modulator is quite cheap (under £10) and is Astec type UM1231. They are available from any good electronic component supplier.

Compact tape

I OWN a BBC Master Compact and, as a former Electron owner, I have a few BBC/Electron games on tape.

I was looking through the * commands you can use on the Compact when I came across *TAPE. Does this mean I can use a tape recorder on my Compact? — **Steve Peters, Swansea.**

● The Compact will accept the *TAPE command but will not do anything with it. There is no tape interface inside the machine or tape driving software in the operating system. The command is simply left over from other versions of the operating system and is probably included to prevent error messages when running existing software on the Compact. As there is no *TAPE command on the Archimedes it has been suggested that Acorn is phasing it out.

Lacking power

WHEN I switch on my BBC Micro the Caps Lock light goes on then turns off and a continuous tone is present. If the machine is switched on and off about 20 or 30 times, it powers-up correctly.

Once the machine has been switched on you can turn it off and on again without any problem. I have been told that it could be the voltage regulator. — **Shaun Howitt, Spalding, Lincs.**

● Your problem could indeed be the power supply. This is a switch mode type and there are components in the circuit to kick start it into action.

Unfortunately information about the supply is hard to come by and the components it contains are hard to obtain, so the only practical solution is to replace it. However at £60 this is not cheap.

Make sure that it is the supply by carefully measuring the voltage across the red and black wires coming from it. If this is within a quarter of a volt of five volts when the computer is switched on but not working then there could be

another problem.

A fault like yours can also be caused by an intermittent connection, the most likely place is the keyboard connector or a faulty IC socket.

Just a tick..

HAS *The Micro User* ever published details of a real time clock for the BBC Micro using the Dallas Semiconductors, battery-backed Smartwatch module? If not, could such a project be considered for the Body Building Course? — **Jonathan M Mott, Manchester.**

● The real time clock published in February 1984 of *The Micro User* used the MM58174 chip, there's not much point in publishing another as that works well and now several commercial real time clocks are available.

IBM compatible?

IS IT possible to fit an IBM hard disc to a BBC Micro and if so could you please supply me with the details? — **R. Banham, HMS Tamar, BFPO 1.**

● Fitting an IBM hard disc drive to a BBC Micro sounds most attractive. Unfortunately it is quite a big job. First of all you need a motherboard and interface to connect it to the 1 MHz bus, then you need the software to drive it.

None of the existing disc filing systems will cope so a new one will have to be written. After you have done all that there is not as much saving as you would think. I am sure that someone will do it one day and when they tell me about it I will let you know.

Body building

I AM writing in connection with the Body Building Course article featured in the January edition *The Micro User*.

A previous Body Building article gave an insight into the uses of conductive foam. Why not use this foam as the drum pad? This way the force with which the "drum" is hit could be read as it is analogue and the volume of output could be changed accordingly. — **David Griffiths, Wenvoe, Cardiff.**

● This is a good idea but I have not had time to try it. My only concern is that the analogue input port will not be fast enough to register the sharp peak produced by hitting the foam.

You could use the fast A/D converter described in the February 1987 issue but you would then have the problem of knowing where in the peak to take your sample. Most *Bodybuild* articles are intended as a springboard for your own applications: If any reader has tried this then please let me know.

CARE ELECTRONICS

Open
Mon - Thurs 9am - 5pm
Fri - Sat 9am - 4pm

800 ST ALBANS ROAD,
GARSTON WATFORD,
HERTS. WD2 6NL. Tel: 0923 672102

CARE MASTER ROM CARTRIDGES:

Designed by CARE Electronics to Acorn Specifications. Capable of taking up to 2 x 16K Eproms. Including Inter-word & Spell-Master. CARE Cartridges offer 3 options for maximum user flexibility. Opt 1 Standard Cartridge; Opt 2 Single Zif; Opt 3 Dual Zif.

CARE MASTER SMART CARTRIDGE:

Freeze Prog at any point and dump Screen to Disc/Printer. Copies 99% of Protected programs. Tape - Disc, ASCII Dump. And much much more.

| | Price Each - Ex Vat: | Inc Vat. |
|--|----------------------|----------|
| Master Reference Manual I | No Vat @ £15.00 | £15.00c |
| Master Reference Manual II | No Vat @ £15.00 | £15.00c |
| CARE Master ROM Extender | @ £8.40 | £9.66c |
| CARE BBC Model B Cartridges | @ £2.00 | £2.30c |
| CARE BBC Model B Zif Cartridges | @ £7.00 | £8.05c |
| CARE Low Profile System (The Original) | @ £10.40 | £11.96d |
| CARE Library Rack (Holds 6 Cartridges) | @ £1.60 | £1.84c |
| CARE Master ROM Cartridge | @ £7.80 | £8.97c |
| CARE Master Single Zif Cartridge | @ £12.80 | £14.72c |
| CARE Master Dual Zif Cartridge | @ £17.00 | £19.55c |
| CARE Master Smart Cartridge | @ £34.60 | £39.79c |

POWER SUPPLIES

| | | |
|---|----------|---------|
| For use with Disc Drives (Not old full height type) | | |
| Dual BBC Outlets | @ £30.00 | £34.50b |
| For use with most peripherals | | |
| Quad BBC Outlets | @ £33.00 | £37.95b |

CARE PRINTER BUFFER: (For Master & Compact/Model B&B+)

| | | |
|---------------------------------------|----------|---------|
| Uses SRAM, Spare I/O, User Definable. | | |
| Rom Version | @ £14.00 | £16.10d |
| 5.25" Disc Version | @ £13.00 | £14.95d |

GOVERNMENT & EDUCATION ORDERS WELCOME

HOW TO ORDER: All prices inclusive of VAT. By Post.

Endose your cheque/P.O. made payable to CARE Electronics. Or use your ACCESS/VISA. Please allow 7 days for delivery. Please add carriage.

a = £10.35 b = £5.75 c = £1.15 d = £2.30

COMPUTER CONCEPTS SOFTWARE

| | | |
|---|----------|----------|
| Inter-word The Word Processor | @ £48.80 | £56.12c |
| Spell-Master Ultimate Spelling Checker | @ £51.30 | £58.88c |
| Inter-word & Spell-Master & Master Cartridge. | | |
| The Complete Word-processing package | @ £99.80 | £114.77d |

M/B SOFTWARE

| | | |
|---|----------|---------|
| Mastercopy (DFS-ADSF, ADSF-DFS, DFS-DFS, ADSF-ADSF) | @ £13.00 | £14.95c |
| Software on ROM or DISC please specify | | |
| DESFAx Teletext Emulator (The FAX system) | @ £21.40 | £24.61d |
| 40 or 80 track disc please specify | | |

READY MADE LEADS:

| | Price Each = Ex Vat: | Inc Vat: |
|---------------------------------|----------------------|----------|
| Centronics to Centronics | 1.5mt @ £11.00 | £12.65c |
| Disc Drive Data (Single) | 1.2mt @ £6.00 | £6.90c |
| Disc Drive Data (Dual) | 1.5mt @ £8.00 | £9.20c |
| Disc Drive Power (Single) | 1.2mt @ £3.00 | £3.45c |
| Disc Drive Power (Dual) | 1.5mt @ £5.00 | £5.75c |
| Printer (BBC to Centronic) | 1mt @ £6.00 | £6.90c |
| Printer (BBC to Centronic) | 1.5mt @ £7.00 | £8.05c |
| RGB 6-7 pin DIN (Hitachi) | 1.2mt @ £6.20 | £7.13c |
| RGB 6-7 pin DIN (Ferguson) | 1.2mt @ £6.20 | £7.13c |
| RGB 6 pin to SCART | 1.2mt @ £8.20 | £9.43c |
| User Port Extension Skt to Plug | .5mt @ £9.00 | £10.35c |
| Printer Extension Skt to Plug | 1mt @ £10.20 | £11.73c |
| 1Mz Bus Extension skt to P.Lug | .3mt @ £10.40 | £11.96c |
| Many other cables available. | | |

SWITCHING UNITS:

1 MICRO INTO 2 PRINTERS

1 PRINTER INTO 2 MICROS



| | | |
|---------------------------------------|----------|---------|
| BBC Printer 2 to 1 (Inc Lead) | @ £30.00 | £34.50d |
| BBC Printer 6 to 1 | @ £71.00 | £81.65d |
| Centronics 2 to 1 (Inc Lead) | @ £33.00 | £37.95d |
| Centronics 4 to 1 | @ £70.00 | £80.50d |
| Printer 2 to 2 'CPX2 Fully Buffered' | @ £60.60 | £69.69d |
| User Port 2 way & Off Posn (Inc Lead) | @ £33.00 | £37.95d |
| User Port 6 way & Off Posn (Inc Lead) | @ £72.00 | £82.80d |
| RGB Switcher 2 to 1 | @ £20.20 | £23.23d |
| RS423 2 to 1 | @ £20.20 | £23.23d |

MORLEY ELECTRONICS PRODUCTS:

| | | |
|---|-----------|----------|
| Teletext Adaptor ATS Software on ROM | @ £106.00 | £121.90d |
| Eprom Programmer Software on ROM | @ £30.00 | £34.50d |
| CARE Deluxe Eprom Programmer capable of programming C'mos & Standard Eproms 2716, 2732, 2764, 27128 & 27256 | | |
| Software on ROM | @ £33.00 | £37.95d |

Microdis

FREE CABLE AND PAPER
DISCOUNT!

| SPECIAL OFFERS | | |
|---------------------------------------|--------|--------|
| Daisystep 80 col Daisywheel Printer | 139.08 | 159.95 |
| Panasonic KXP1081 (New model) | 156.48 | 179.95 |
| MP 135 80col 135cps/35NLO (New Model) | 156.48 | 179.95 |
| MP165 160cps/40NLO | 182.57 | 209.95 |
| MP201 200cps/50NLO | 324.95 | 373.69 |

| | Ex VAT | inc VAT & Carriage |
|---------------------------------------|---------|--------------------|
| DOT MATRIX PRINTERS | | |
| Canon PW1080A | 217.35 | 249.95 |
| Canon PW1156 | 334.74 | 384.95 |
| Epson LX800 (new model) 150cps/25NLO | 243.43 | 279.95 |
| Epson LX Tractor Attachment | 18.91 | 21.75 |
| Epson LX Sheet Feeder | 48.65 | 55.95 |
| Epson FX800 (200cps/40NLO/2 fonts) | 313.00 | 359.95 |
| Epson P40 (Thermal, 80 col) | 52.13 | 59.95 |
| Juki 5510 186 cps/NLO (colour option) | 243.43 | 279.95 |
| Juki 5510 Colour Upgrade | 97.20 | 111.78 |
| Juki 5520 Colour Printer | 408.65 | 469.95 |
| DAISYWHEEL PRINTERS | | |
| Juki 6100 | 269.52 | 309.95 |
| Juki 2200 | 217.35 | 249.95 |
| MP 26 CPS | 217.35 | 249.95 |
| MP 40 CPS | 286.91 | 329.95 |
| LASER PRINTERS | | |
| QMS Kiss Laser | 1695.65 | 1950.00 |
| Canon LP88A1 | 1720.00 | 1978.00 |

FREE! FREE! FREE!
WITH EVERY PRINTER -
LISTING PAPER + BBC LEAD
(phone for other leads)

| | | |
|--|--------|--------|
| LISTING PAPER | | |
| 60 GSM (Listing) 9.5"x11" 2000 sheets | 15.00 | 17.25 |
| 80 GSM (letter grade) 9.25"x12" 2000 sheets | 17.90 | 20.58 |
| Labels - Box of 8000 (2 abreast on 9.5" backing with central perf.) | 30.00 | 44.86 |
| MONITORS - | | |
| Philips 7502 (Green) | 74.74 | 85.95 |
| Philips 7522 (Amber) | 82.57 | 94.95 |
| Philips 7542 (White) | 82.57 | 94.95 |
| Colour 14" Screen | | |
| Philips 8833 | 273.87 | 314.95 |
| Philips 8873 | 595.95 | 685.34 |

DISCOUNT

Dept. MU487, 46 Middle Street, Blackhall, Hartlepool, Cleveland TS27 4EA. Tel: 091 587 2430

INCREDIBLE DISC DRIVE PRICES

HIGH QUALITY DISC DRIVES

Cased with leads, etc READY TO GO

| 5.25" | Ex VAT | inc VAT & Carriage |
|---|--------|--------------------|
| Acorn DFS Disc Interface | 43.33 | 49.95 |
| Opus DOOS Disc Interface | 40.83 | 46.95 |
| BBC SX (Uses BBC's Power Supply) | | |
| SX400S 80 track double side (400K) | 91.76 | 104.95 |
| Dual (uses BBC's power supply) | | |
| DX800S Dual 80 track double side | 178.22 | 204.95 |
| Single With Power Supply | | |
| S400S 80 track double side | 113.00 | 129.95 |
| Dual Drives (with Power Supply) | | |
| D800S 2x80 track double side | 204.30 | 234.95 |

NOTE - All 80 track drives have a 40/80 switch!

FAST SERVICE 24 HOUR HOTLINE

091 587 2430



NOTE: ALL PRICES INCLUDE VAT + CARRIAGE

| | | |
|--------------------------------------|--------|--------|
| MICROVITEC RGB MONITORS (BBC) | | |
| 1431 (472X585 dots) | 193.00 | 221.95 |
| 1431 AMP54 (with audio & PAL) | 219.09 | 251.95 |
| 1451 (653x582 dots) | 234.74 | 269.95 |
| 1451 AMP54 | 313.00 | 359.95 |
| TATUNG TMO 1A Colour for BBC | 165.17 | 189.95 |
| BBC ROM UTILITY SOFTWARE | | |
| Wordwise | 31.26 | 35.95 |
| Wordwise Plus | 40.65 | 46.75 |
| View 2.1 | 41.26 | 47.45 |
| View 3 | 61.00 | 70.15 |

Sorry, office only - No callers without appointment

Prices and specifications subject to variation.
Please phone for best prices

UPGRADE TO IBM STANDARD TRADE-IN YOUR BBC FOR THE PC1512 IBM CLONE

Telephone for Details

| | | |
|-----------------------------|---------|---------|
| AMSTRAD PC1512 | | |
| S Drive Mono Monitor | 399.95 | 459.95 |
| Dual Drive + Mono Monitor | 525.60 | 609.44 |
| 20Mb Mono Monitor | 867.34 | 997.44 |
| Single Drive Colour Monitor | 569.95 | 655.45 |
| Dual Drive Colour Monitor | 689.95 | 793.44 |
| 20Mb Colour Monitor | 1009.95 | 1161.44 |

AMSTRAD PC FROM
£399.95

| | | |
|------------------------------|--------|------------------|
| COMPUTERS | | |
| Master 128 | 382.57 | 439.95 |
| Compacts | | Phone for latest |
| OTHER BBC PERIPHERALS | | |
| Teletext Receiver | 188.95 | 217.29 |
| 6502 Second Processor | 177.50 | 204.13 |
| Z80A Second Processor | 312.95 | 359.89 |
| ATPL ROM Board | 39.09 | 44.95 |

| MEDIA - ARCHIVE DATA | BULK PURCHASE SPECIAL! | |
|--|------------------------|-------------|
| (Fully guaranteed) | | |
| High quality diskettes 5.25" boxed in 10's | | |
| 40 Track SSSD | includes | 6.91 7.95 |
| 40 Track DSDD | FREE | 6.91 7.95 |
| 80 Track SSSD | library | 6.91 7.95 |
| 80 Track DSDD | case | 6.91 7.95 |
| 3" Box of 10 | | 27.78 31.95 |
| 3" Disc (each) | | 2.78 3.20 |
| HEAD CLEANING KITS | | |
| 3M Standard | | 13.87 15.95 |
| Rexel Drive/VDU | | 19.96 22.95 |

Watford Electronics

Jessa House, 250 Lower High Street, Watford WD1 2AN, England

Tel: Watford (0923) 37774 Tlx: 8956095 Fax: 01 950 8989

BY POPULAR DEMAND OUR SHOP IS NOW OPEN UNTIL 8PM EVERY THURSDAY

All prices exclusive of VAT; subject to change without notice & available on request.

Credit Card Orders (ACCESS & VISA) Tel (0923) 33383 or 50234 (24 Hours)



Acorn
The choice
of Experience

The choice after
the Experience

BBC MASTER 128K Micro incl.
Acorn's: View, Viewsheets, ADFS,
BASIC Editor & TERMULATOR **£375**

SPECIAL OFFER

**FREE . . . £120 worth of
Hardware & Software**

Gemini's OFFICE MATE & OFFICE MASTER packages on Disc consisting of: Database, Spreadsheet, Beebplot graphics. Accounts packs: Cashbook, Final Accounts, Mailist, Easyledger, Invoice & Statements, Stock Control and Watford's 3 1/2", double sided 1 Megabyte (unformatted) single disc drive complete with cables, ready to connect to the micro - with every BBC Master purchased from us this month.

BBC MASTER with Turbo Board **£493**

512K Processor Add on Board
"inc. Mouse and GEM package" **£195**

BBC AIV (Domesday) System **£4479**

ADD-ONS & ACCESSORIES

Turbo 65C102 Add-on Module **£99**
BBC MASTER ET
(Econet Terminal) **£315**
Econet Module for the Master **£43**
Twin ROM Cartridge for Master **£8**
Quad ROM Cartridge for Master **£12**
Universal Processor Adaptor **£75**
Reference Manual I (No VAT) **£14**
Reference Manual II (No VAT) **£14**
Advance Ref. Manual (No VAT) **£19**
64K Upgrade Kit for B+ **£32**
Acorn 1770 DFS Kit complete **£42**
ECONET Upgrade Kit for BBC **£42**
ALL ECONET UPGRADES Available
Z80 Acorn 2nd Processor package **£325**
ARIES' Professional IEEE Interface **£238**
Acorn IEEE Interface Complete **£265**
Morley Teletext Adaptor **£104**

BBC MASTER COMPACT

All Master Compact Microcomputers are supplied complete with an integral 3 1/2" Disc Drive and various educational and professional bundled softwares.

System 1 Standard Package **£349**
System 1A System 1 + TV Modulator **£363**
System 2 System 1 + Green Hires Monitor **£399**
System 3 System 1 + Medium Res Colour Monitor **£549**

RS232 Kit for BBC Compact **£26**
Additional 3 1/2" Drive for BBC Compact **£99**

(Securicor carriage £7)

The 80186 Co-Processor

This package consists of the Master 512 board, Watford Co-Pro Adaptor, Acorn 1770 Disc Upgrade and Acorn ADFS. The Master 512 board using the 80186 16 bit Processor at 10MHz and running Digital Research DOS Plus, gives a high degree of IBM compatibility at an extremely reasonable price. Included in the 512k package is a mouse and the amazing Digital Research GEM suite of software; GEM Paint, GEM draw and GEM desktop giving a complete Mouse Icons environment (All other GEM packages will work on the 512k). Famous packages that will work with the 512k board include Wordstar, Dbase II, Lotus 123 and many others. The only requirement to upgrade any BBC Model B to this system is you must have twin 80 track disc drives.

£275

ARCHIMEDES Micros

Model 305

- Basic System **£799**
- with Green Monitor **£849**
- with Colour Monitor **£999**

Model 310

- Basic System **£875**
- with Green Monitor **£925**
- with Colour Monitor **£1075**

VARIOUS PRINTERS & ACCESSORIES

- Brother HR15 RS232 Daisy Wheel **£275**
 - Brother HR20 Daisy Wheel **£349**
 - Epson EX800 Printer **£405**
 - Epson EX1000 Printer **£550**
 - Epson FX800 Printer **£315**
 - Epson FX1000 Printer **£439**
 - Epson LQ800 Printer **£429**
 - Epson LQ1000 Printer **£585**
 - Epson LQ2500 Printer **£790**
 - Epson LX86 Printer **£189**
 - Epson LX800 Printer **£210**
 - Epson SQ2500 Printer **£899**
 - Epson Paper Roll Holder **£17**
 - EX800/1000 Colour Option **£55**
 - EX800/1000 Colour Ribbon **£18**
 - FX80/86 Tractor Feed Unit **£35**
 - FX/LQ/LX800 Single Sheet Feeder **£135**
 - FX/LQ1000 Single Sheet Feeder **£149**
 - Hi-80 Refills - Set of 4 Pens **£7**
 - LQ800 Tractor Feed Unit **£39**
 - LX80/86 Tractor Feed Unit **£20**
 - LX80/86 Single Sheet Feeder **£49**
 - Hitachi 672 Colour Plotter **£495**
- (Securicor Carriage on Printers £7)

PRINTER SHARERS

(Ideal for School environment)

| Connects | Serial | Centronics |
|---------------------------|--------|------------|
| 2 BBC Micros to 1 Printer | £25 | £26 |
| 3 BBC Micros to 1 Printer | - | £58 |
| 6 BBC Micros to 1 Printer | - | £99 |

PRINTER CHANGER

3 Printers to 1 Micro (Centronics) **£65**
(Cables extra, specify type required when ordering)

65C102 2nd PROCESSOR

This amazing package consists of the Acorn 65C102 'Turbo' Board, the Watford Co-Pro Adaptor and Acorn 1.2 DNFS ROM. The 'Turbo' board, running at 4MHz with 64k of additional RAM will increase the speed by between 50 and 200% depending on the application running, and allow a BASIC program of upto 44k in any screen mode. Simply by plugging in the Co-Pro and the DNFS ROM with its special Tube host code and you massively increase the power of any Model B.

£139

SPECIAL OFFER

EPROMs for BBC's Sideways ROMs.

2764-250nS £3.50

27128-250nS £3.75

RAMs (Low power) for ATPL, WATFORD, etc.,
Sideways ROM Boards

6264LP (8K) £2.70

2 x 6264LP (16K) £5.30

KAGA/TAXAN PRINTERS

(IBM/Epson compatibles)

| | |
|---------------------------------|-----------------------|
| Kaga KP815 Printer | £269 (carr £7) |
| Kaga KP915 Printer | £350 (carr £7) |
| RS232 Interface | £49 |
| RS232 Interface with 2K Buffer | £69 |
| RS232 Interface with 16K Buffer | £89 |

RX & FX PRINTER INTERFACES

Epson interfaces fit inside the printer to allow connection using techniques other than Centronics.

| | | | |
|----------|------------|-------------------|------------|
| RS232 | £27 | RS232 + 2K Buffer | £55 |
| IEEE 488 | £65 | RS232 & 8K Buffer | £75 |

PRINTER LEADS

Centronics lead to connect BBC micro to EPSON, KAGA, SEIKOSHA, NEC, STAR, JUKI, BROTHER, SHINWA, Panasonic etc. printers.

| | |
|-----------------------------------|---------------|
| Standard length (4 feet long) | £6 |
| Extra long (6 feet long) | £8 |
| Compact's Special Centronics Lead | £9 |
| RS232 Cable | P.O.A. |
| IBM Parallel 1 metre Cable | £9 |

PRINTER RIBBONS & VARIOUS DUST COVERS

| Type | Ribbons | Dust Covers |
|---------------------|---------------|--------------|
| BBC Micro | - | £3.50 |
| BBC Master | - | £4.00 |
| Brother HR15/20 | £3.00 | £5.00 |
| EX/LQ800 | £7.50 | £4.50 |
| EX/LQ1000 | £8.00 | £5.00 |
| FX80/85/800/MX80 | £4.50 | £4.95 |
| FX100/1000 | £7.00 | - |
| Kaga KP810 | £5.25 | £4.75 |
| LQ2500 | £9.00 | £5.50 |
| LX80/86/800 | £4.00 | £4.50 |
| M1009/GLP | £4.00 | £3.75 |
| Panasonic KX1080/81 | £4.50 | £4.75 |
| SQ2500 | £25.00 | £5.50 |

Our attractive Dust Covers are manufactured from translucent PVC. The seams are stitched and edges are taped to prevent splitting due to continuous use.

Listing Paper (Perforated)

| | |
|---|------------|
| 1,000 Sheets 9 1/2" x 11" Fanfold Paper | £7 |
| 2,000 Sheets 9 1/2" x 11" Fanfold Paper | £12 |
| 1,000 Sheets 15" x 11" Fanfold Paper | £9 |
| 1000 Sheets true A4 Fanfold Paper | £11 |
| 2000 Sheets true A4 Fanfold Paper | £20 |
| Teletypewriter Roll (Econo paper) | £4 |

Carriage on 1,000 Sheets £1.50

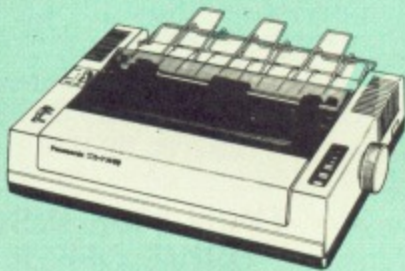
PRINTER LABELS

(On continuous fanfold backing sheet)

| | |
|------------------------------|--------------|
| 1,000 90 x 36mm (Single Row) | £5.00 |
| 1,000 90 x 36mm (Twin Row) | £4.90 |
| 1,000 90 x 49mm (Twin Row) | £7.50 |
| 1,000 102 x 36mm (Twin Row) | £6.25 |
| Carriage on 1,000 Labels | £1.00 |

Panasonic KX-P1081

(Now IBM/Epson Compatible)



Available NOW at a superbly realistic price, the KX-P1081 perfectly balances features, quality of construction and Value for Money to produce the printer of tomorrow, here today, ready to sweep the current generation of machines away.

Ingenious innovation in terms of software control codes permits great flexibility when it comes to defining the print style. A nippy 120 cps of clear Draft text backs up the crisp 24 cps Near Letter Quality text mode, with upto 40 superbly useful downloadable characters. A delightful range of assorted character widths is efficiently supported, with sizes ranging from a broad 5 cpi to petite 17 cpi, EVEN in NLO mode. Some of the extensive support for serious use includes specialised functions to perform justification, centering and even left and right ranging. Proportional spacing permit even greater freedom when it comes to advanced use. Not only is the full Epson RX compatible control code set implemented, but extra codes have also been added to cater for the NLO options, etc.

A full 96 ASCII character set is supported, with an extended set of 32 international characters and IBM special characters as well as IBM block graphics characters. A 1K Print Buffer alleviates much of the wait time normally associated with printing, whilst the bi-directional logic seeking print head takes the quickest route to print as required.

(Price includes, FREE a 4ft Printer Lead, and a Dump Out 3, Screen Dump ROM worth £35 with every printer purchased from us).

Special Price: **£149** (carr. £7)
Optional RS232 Interface: **£39**

Panasonic KX-P3131 Daisy-Wheel Printer

This low-cost high-performance Daisy Wheel printer is ideal for anyone wishing to produce clear, immaculate letters or reports. It delivers, flawless text at 10, 12 & 15 CPS. Supports proportional spacing. Is Bi-directional. logic seeking. Printing speed: 17CPS. Has 6k printer Buffer. A printer of similar spec could cost a lot more than our ridiculously low price of:

Only **£245** (carr. £7)

Single Sheet Feeder **£195**
Tractor Feed **£90**
Spare Ribbon **£3.00**

Acorn-Olivetti JP101 Ink Jet Printer

One of the main problems with most printers is that they are hopelessly noisy. How often have you wanted to print something late at night but not done so for fear of waking the children?

Also ideal for those working in quiet environments such as libraries, etc. Silence the complaints with the serious solution from Watford at the amazing cost of only **£59** (Offer valid while present stocks last)

JP101 accepts 9½" standard fan fold paper or single A4 sheets. Tractor & Friction feed supplied as standard - print speed 50 cps.

Pack of 4 refills **£10**

Screen Dump ROM for JP101 **£10**

Anti-Glare VDU Screen

This extremely effective, easy to install, 12" VDU screen eliminates harmful glare, improves contrast on colour monitors. Increases productivity in offices. A must for all wordprocessor users.

£12

Printer Stand Type-YU-S25



This new professional printer stand takes hardly more space than your printer. Due to the positioning of the paper feed

and re-fold compartments ie. one above the other, the desk space required for your printer functions is effectively halved. Additional facilities include: Easy access to paper from both sides, used with both top and bottom feed paper and with its dial controlled paper feed system with adjustable deflector plates it ensures smooth paper flow and automatic refolding.

£26



We stock a range of monitors to suit all needs. Choice of a monitor is a matter of personal taste so we recommend that whenever possible, you ask for a demonstration at our shop. All Monitors are supplied complete with connecting lead.

MICROVITEC 14"

- 1431 - Medium resolution as used on the BBC television computer programme **£175**
- 1451 - High resolution, suitable for word processing in mode 0 **£225**
- 1441 - High res, exceeds the capabilities of the BBC micro **£359**
- 1431AP RGB + PAL and AUDIO **£199**
- 1451AP RGB + PAL and AUDIO **£255**
- Dust Cover for Microvitecs **£5.50**
- Touchtec 501 Touch Screen **£239**

KAGA-TAXAN 12"

- TAXAN KX117 Hi-res Green Monitor **£80**
- TAXAN KX118 Long persistence Hi-Res Green Monitor **£90**
- TAXAN KX119 Ultra-Hi-Res Amber Monitor **£90**
- TAXAN Super Vision 2 Type 620 Hi-res RGB Colour monitor. Ideal for Wordprocessing **£269**
- TAXAN Super 3, Type 625 Ultra Hi-res, RGB Colour) Text mode switch allows monochrome text display in Green, Amber, White reverse or White on Blue **£319**

STAR BUY

- PHILIPS 14" Hi-Res, dark glass, attractively finished Colour Monitor - supplied complete with RGB, SKART and Audio/Phono connectors. A push-button switch toggles between Hi-Res monochrome green text mode and full colour display.

ONLY £209

ZENITH

"Test Bureau Recommended for use in Education"

12" high resolution monochrome monitor. Ideal for word processing as its green or amber screen is very restful to read. (These are the same professional quality, stylishly finished monitors as used in the larger Zenith PC Systems.)

Green (New Design) Hi-res **£69**
Amber (New Design) Hi-res **£74**

LEADS

BNC Lead for Zenith or Philips **£3**
Skart Monitor Lead **£5**
RGB lead for KAGA **£3**

N.B. carriage on Monitors **£7** (securicor)

SWIVEL BASES

for Video Monitors

By placing your monitor on one of our superb swivel bases, you gain the freedom to adjust the monitor viewing angle to suit your needs. By doing this, you alleviate eye strain and reduce back stress. Front adjustable without lifting the monitor.

for 12" Monitors **£8** (carr. £2.50)
for 14" Monitors **£10** (carr. £2.50)

MEGABUFFER 256



This new Megabuffer 256 from Watford is a full featured 256K Printer Buffer. It allows the computer to print 256,000 character in a short time thus freeing the computer very quickly. In short it makes light work of printing large documents, screen dumps, etc. It is extremely simple to connect. The features are:

- Low Cost, High performance.
- Improves efficiency by making more efficient use of computer and printer.
- Compatible with any computer and printer that uses Centronics Parallel connections including all BBCs, IBM PCs, etc.
- Total compatibility with all software.
- Cheaper phone bills when using your Modems.
- Ideal for those doing large graphics screen dumps that are slow to print.
- Multi-Copy facility allows you to print several copies via Megabuffer without going through your computer.
- Data Dump facility is included.
- Built in test unit for both the buffer & your printer.

In conclusion it can safely be said that MEGABUFFER 256 is the ultimate printer Buffer for both the amateur and professional user.

Only £125 (carr £2)

CO-PRO Adaptor



Now for the first time you can add the Master Co-processor boards, to your standard BBC model B, or B Plus. With this brand new launch from Watford Electronics you can attach any BBC Master co-processor to the original BBC Micro. Once again Watford strides ahead with a new concept in BBC B Micro add-ons. This unique external Co-Pro Adaptor, is protected by patent applications.

Use the super fast Turbo Board with your BBC B, it is much faster than the 6502 2nd processor superseding it.

With the 512K add-on your standard BBC machine achieves IBM PC compatibility at a realistic price running GEM, Lotus 123 and many other programs. Included with the 512k package is a high precision mouse and the Digital Research GEM suite of software; GEM Desktop, GEM Write GEM Paint. This requires both the 1770 DFS and the ADFS to be fitted to your computer.

To use other co-processors you require a BBC B with DNFS 1.20 or higher, or BBC B+ fitted with 1770 DFS 2.20 or greater. Co-processors work exactly like a second processor.

Master owners may use Co-Pro to add a second Co-processor externally.

Watford, brings power to your BBC at only: **£50.00** (carr £5)

Continued

THE EPSON RX-FX-KAGA PRINTER COMMANDS REVEALED (BOOK)

So you bought yourself a new printer, because the salesman in the shop showed you how clever it is and impressed you with all sorts of printouts to show its capabilities – he may even have offered you a special price.

However, now that you have got it home and connected it to your BBC microcomputer, you are wondering how to make it perform these magical tasks. The manual seems to give no clues, and when you type in the example programs, the computer throws the LPRINT statements back in your face.

Now what do you do, when this £400 piece of high technology refuses even to move its head, and you have stayed up until 2 in the morning with copious supplies of coffee, desperately trying to print something out. Once again, Watford Electronics comes to your help with our new book entitled 'THE EPSON RX-FX-KAGA PRINTER COMMANDS REVEALED'.

This book describes in plain, easy to understand English, how to use and make the most of your KP810, PW1080A or any other Epson FX80 compatible Printers like Panasonic KX-P1080/1, etc., with the BBC Micro, both from BASIC and Wordwise.

It describes in detail how to obtain the maximum in graphics capability from your printer and includes full indexes allowing you to cross index the numerous commands. Every command is explained in detail, with an accompanying BBC Basic program and an example of its use from Wordwise.

£5.95 (No VAT)

NOW WITH EXTRA FEATURES AT NO EXTRA COST – Watford's latest DFS 1.44

- Incorporates Acorn's Official Tube Host Code so that those with 2nd processors no longer need to waste a ROM socket on the DNFS.
- Option to DOUBLE the speed of BPUT and BGET.

If you already have the Watford Electronics DFS and wish to incorporate these new facilities then simply return your existing DFS ROM to us together with £5 remittance for an upgrade. Please pack the ROM securely and address the package to our Upgrades Dept.

WATFORD's & ACORN's SINGLE DENSITY DFS

Watford's popular and widely acclaimed DFS has now been available for four years, and has gained a large following amongst serious users of the BBC Micro. Owners of Acorn or any other standard DFS can upgrade to our "Ultimate" DFS merely by replacing their DFS ROM. See below for this upgrade. (P.S. Watford's highly sophisticated DFS is fully compatible with Acorn DFS). (not Acorn's 1770 DFS)

- Complete Disc Interface Kit including DFS ROM and fitting instructions **£54**
- Acorn's 0.90 DFS Kit complete **£52**
- DFS Manual (Comprehensive) (no VAT) **£6.95**
(P.S. Our comprehensive DFS Manual covers both Acorn & Watford DFSs).
- Watford's sophisticated DFS ROM only **£16**
- We will exchange your existing DFS ROM for Watford's Ultimate DFS ROM for only **£12**
- DNFS ROM only **£17** ● ADFS ROM only **£25**
- Watford's DFS is exclusively available from Watford Electronics and their appointed dealers only. Every ROM carries a special label with LOGO and serial number.

NEW WATFORD's Mk II Double Density DFS INTERFACE

Many of our customers have wanted to use our superior DDFS and Acorn ADFS together. Now our DDFS board has been adapted to allow the use of Acorn ADFS.

Added features include:

- Acorn ADFS compatible – Use ADFS on our DDFS board.
- Tube host Code – No longer any need to have the DNFS in your machine to use Co-Processors, even the CoPro and Master 512.
- Auto 40-80 Track sensing – no need to fuss with 40/80 track switches (even works with protected disks).
- An extremely powerful 8271 emulation – ensuring compatibility with almost all software.
- New low profile – small footprint board.
- Fits with all third party ROM boards.
- Option to double the speed of file handling operations – BPUT and BGET.
- Operates in both single and double density modes.
- OSGBP has been recoded, increasing still further the speed of file handling.

Please note that not all DDFS's are capable of providing either the full 80% storage increase or of allowing a file the full size of the disk – Ours allows both of these!

If you already have a DDFS (any manufacturer), and wish to upgrade to our MkII version, then simply return your existing ROM and DDFS board and we will supply the new DDFS for only £30.00.

- Special introductory offer **£39.00**
- DDFS Manual (No VAT) **£6.95**
- We will exchange your Existing DFS or DDFS for our DDFS for only **£25.00**

Please note, as the MkII DDFS is a hardware and software upgrade, it is not possible for existing Watford DDFS users to simply exchange their ROM for the new version.

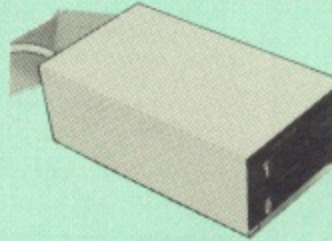
SPECIAL DISC DRIVE/DDFS OFFER

Type CLS400



- The popular Mitsubishi 400k Single Disc Drive, Double Sided, cased with Cables. Plugs directly to your Micro.
 - Watford's popular DDFS Disc Interface (allows 720k storage). Will run in both Single and Double Density modes 40/80 track Software switchable.
 - A comprehensive User Friendly Manual.
- A Bargain at Only **£125** (£6 carr)
(Offer valid while stocks last)

3 1/2" TWIN 800K DISC DRIVE OFFER



These top quality 3 1/2" Disc Drives are attractively finished in BBC beige and are supplied complete with Cables. They run directly from the BBC B/Master's own PSU.

Special Offer **£126**

DISC DRIVE SHARER

(Ideal for educational establishments)

At last, a low cost alternative to the econet system. Watford's Intelligent Disc Drive Sharer allows you to connect 3 BBC micros (model B, B+ and Master series) to a single or double disc drive. Running under any DFS or DDFS, this intelligent unit will automatically queue the computers. Each computer has a status light dedicated to it. If it is green you will get immediate access to the disc, and red means that you are next in line.

The unit plugs directly into the disc drive socket on each computer and is powered by the mains. (N.B. Not compatible with ADFS.)

Launch Price: **£59** (Price includes 3 Cables)

MYSTERIES OF DISC DRIVES & DFS REVEALED (BOOK)

Are you tired of faulty cassettes, and lengthy loading times? Do you want to upgrade your BBC micro to take discs but you get tied up in the plethora of jargon surrounding the choice and use of these systems.

Then The Mysteries of Disc Drives and DFS Revealed is the book for you. It explains in detail the different types of systems available, how they are installed and how to use them. Many examples are given including pre-written programs to call various functions of the DFS available only through Operating System calls. Different types of disc, 40/80 tracks etc. are all explained. This book is ideal for the beginner confused by the plethora of choice available in the marketplace.

£5.95 (Book No VAT)

DISC ALBUMS

Attractively finished in antique brown leather look vinyl. Stores upto 20 Discs. Each disc can be seen through the clear view pocket.

£4

FLOPPY HEAD CLEANER KIT

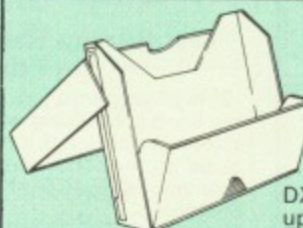
The heads in floppy drives are precision made and very sensitive to dirt. The use of a cleaner Kit is a sensible precaution against losing valuable data. It is recommended to clean the drive head once a week. It is very simple to use. Available in 3 1/2" & 5 1/4", please specify.

£7

ANTISTATIC LOCKABLE DISC STORAGE UNITS

Gives double protection – Strong plastic case that affords real protection to your discs. Antistatic helps avoid data corruption whilst in storage. The smoked top locks down. Dividers and adhesive title strips are supplied for efficient filing of discs.

- M35 – holds upto 50 5 1/4" discs **£6.50**
- M85 – holds upto 95 5 1/4" discs **£8.00**
- M50 – holds 50 3 1/2" Discs **£7.50**



PLASTIC LIBRARY CASES

◀ Holds up to 10 5 1/4" Discs. **Only £2.00**

DX-08: This extremely handy unit holds upto 8 5 1/4" Disc while in use. **Only £2.00**



DUST COVERS (For our Disc Drives)

- Single CLS (without PSU) **£3.20** Twin CLD (without PSU) **£3.85**
- Single CS (with PSU) **£3.95** Twin CD (with PSU) **£3.90**

Quality Disc Drives from Watford

To help you decide which drive is the most suitable for your needs (and your pocket!), we have produced the table below.

The first capacity given in the first column indicates capacity in single density mode. That within the brackets is the capacity in double density mode. All disc drive type numbers start with the prefix "C".

The tinting on some of the boxes is used to indicate which Drives are 40 track (non-tinted) and which are 80 track (tinted). All our 80 track drives are already fitted with a 40-80 select switch.

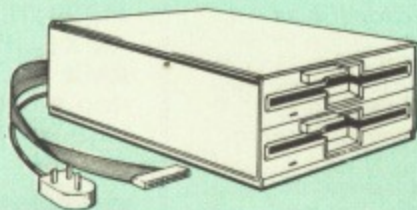
All our Disc Drives are Double Sided and will operate in both Single and Double Density modes. Extensive experience of the usage of disc drives suggests that the JAPANESE drives currently represent about the best in terms of speed, reliability and overall "elegance" available for the BBC Micro.

Various other "manufacturers" of disc drives for the BBC micro (more accurately, "packages" label other manufacturers drives with their own name). We buy the high quality JVC and Mitsubishi drives in large quantities directly from the manufacturers, package them and sell them at "dealer" prices direct to the public.

If you look around the popular BBC micro press, you will find that the prices we quote for the top quality, new slimline disc drives are, virtually without exception, some of the best around. These prices, coupled with the backup of one of the country's largest distributors of BBC peripherals provides a superb deal.

Unless you anticipate using dual drives in a fully expanded BBC system for long periods of time with little ventilation, then we suggest that our range of "CL" disc drives without the PSU (Power Supply Unit) would be quite adequate (extensive tests within our workshops have confirmed this). All drives are supplied complete with a SPECIAL UTILITIES Disc, Cables and Plugs. The Drives with power supply have a mains moulded plug for safety purposes. Ideal for Schools & Colleges. We are now able to supply all single disc drives with Power Supply, in either single or dual case. (Dual case has a twin data cable and a power supply capable of driving two disc drives) allows easy expansion to a dual drive unit, at a later date. Prices stated in the pricing boxes below are for single drives in standard single cases. Single drives in a dual case cost an extra £5. (At Watford we anticipate your needs of tomorrow, not just today!)

When using a BBC Micro, most people find themselves short of desk space. The Watford's BBC Micro plinths form an ideal way of recovering some of this precious space) your BBC, Disc Drive and Monitor can all occupy the same vertical footprint and still be comfortably situated. With the Watford Double plinth, your Disc Drive is mounted vertically at one side, leaving a very valuable area directly in front of you for such useful items as spare discs, pen, paper, reference manuals, etc. Follow the trend with Watford plinth. (Turn to the 6th page of our advert for the Plinths). P.S. All our 5 1/4" Disc Drives with PSU are compatible with the Compact Micro. All you require is the special Compact Disc Drive Cables designed by us.



| Capacity | Drives without P.S.U. | | Drives with P.S.U. | |
|-----------------|-----------------------|------------------|--------------------|-----------------|
| | Single | Twin | Single | Twin |
| 200K (360K) | CLS 200 £90 | | CS 200 £102 | |
| 400K (720K) | CLS400S £92 | CLD 400 £175 | CS 400S £103 | CD400 £196 |
| 800K (1.44M) | | CLD 800S £179 | | CD 800S £198 |

● TWIN Disc Drive Case, complete with Power Supply & Cables £43
Securicor carriage on Disc Drives £5 to £6

Prefix C = Cased Drive
L = Less PSU
S = Single
D = Double

Suffix S = 40-80 Switchable

e.g. CLS400S = Cased Disc Drive, Less power supply unit, single 5 1/4" 400K, (720K in double density); Double sided; 40/80 track switchable.

Cable to connect 5 1/4" Disc Drives to BBC Compact
Single £9 Twin £12
Special Cable to connect both 3 1/2" and 5 1/4" Disc Drives
simultaneously to the BBC Compact £13

3M - DISKETTES

3M - SCOTCH Diskettes with Lifetime warranty from Watford Electronics your 3M Appointed Distributor.

| | |
|---|-----|
| ● 10 x 5 1/4" S/S D/D 40 Track Diskettes | £9 |
| ● 10 x 5 1/4" D/S D/D 40 Track Diskettes | £11 |
| ● 10 x 5 1/4" S/S D/D 80 Track Diskettes | £13 |
| ● 10 x 5 1/4" D/S D/D 80 Track Diskettes | £13 |
| ● 10 x 5 1/4" 1.6M D/S D/D High Density Discs for IBM XT and AT | £28 |
| ● 10 x 3 1/2" S/S D/D 40/80 track Discs | £18 |
| ● 10 x 3 1/2" D/D D/D 40/80 track Discs | £22 |

TOP QUALITY 3 1/2" & 5 1/4" DISKETTES

To complement the range of quality discs and disc drives that WE already sell, WE are now supplying some special offer packs of 10 high quality discs. Each Disc has a reinforced hub ring and carries a lifetime guarantee. These are supplied complete with selfstick labels and packaged in an attractive plastic library disc box to protect them from damage. We strongly recommend these Discs.

DON'T SETTLE FOR LESS, BUY THE BEST

| | |
|---|---------|
| ● 10 x M3 3 1/2" D/S D/D 80 Track Discs | £18 |
| ● 10 x M4 5 1/4" S/S D/D 40 Track Discs | £7 |
| ● 10 x M5 5 1/4" D/S D/D 40 Track Discs | £9 |
| ● 10 x M7 5 1/4" D/S D/D 80 Track Discs | £11 |
| ● 3" Double Sided Discs | £3 each |

Special BULK OFFER on 5 1/4" DISCS

(Supplied packed in Anti-Static Lockable Storage Units)
(Lifetime warranty on Discs)

BULK PACK DISCS in lots of 100

| Type | S-S 40T | D-S 40T | D-S 80T |
|-------------------|---------|---------|---------|
| ● Without Sleeves | £35 | £39 | £45 |
| ● With Sleeves | £38 | £42 | £48 |

ACORN WINCHESTER DRIVES

Supplied complete with Level 3 Econet File Server software.
20 Megabytes £699; 30 Megabytes £1549

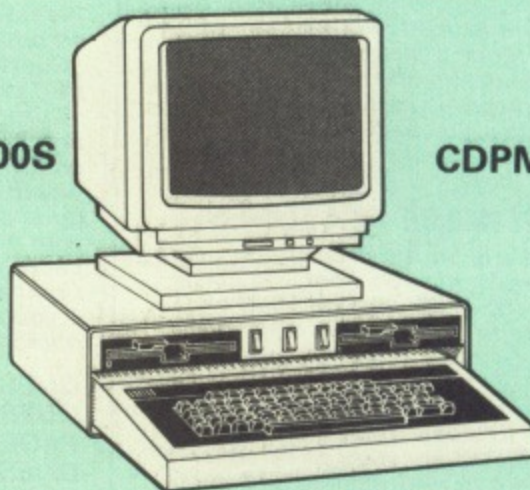
PRICES SLASHED

WATFORD'S WINCHESTER DRIVES

- 10 Megabyte Unit with ADFS £399
- 20 Megabyte Unit with ADFS £499
- 40 Megabyte Unit with ADFS £999

CDP 800S

CDPM 800S



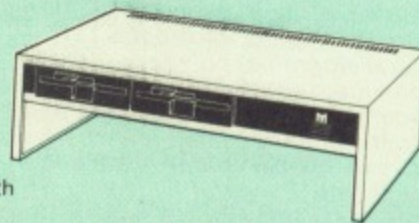
Twin 800K Double sided 40-80 track switchable disc drives mounted in an attractively finished Beige colour plinth for the BBC Micro. Supplied complete with integral power supply, cables and Utilities disc. The switches are mounted on the front panel for ease of use.

CDP 800S for BBC Micro £119

CDPM 800S for Master £205
(Securicor Carr. £7)

ACORN'S Twin 800K Disc Drives

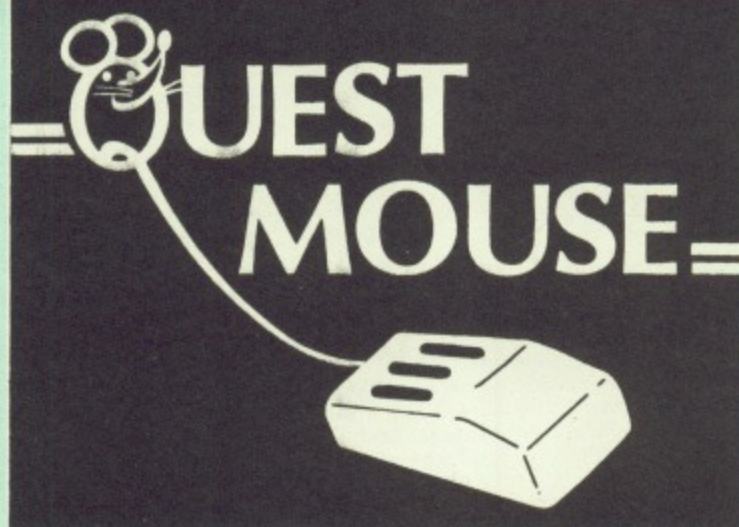
Specially mounted side by side in a Master Plinth. Supplied complete with Cables. Plugs directly to the Master Computer.



RRP £250 Our Price: Only £189 (carr £7)

NOMINATED
FOR

MICRO
BRITISH COMPUTING
AWARDS
1987



QUEST MOUSE

The ultimate in Mouse technology, the Watford Electronics Quest Mouse must be the most powerful Mouse package yet produced for the BBC Micro. Featuring state of the art 32K ROM software the Quest Mouse package is filled with features essential to the budding artist. The Quest Mouse is a high precision, low profile and large footprint mouse. It has three large comfortable buttons and is smooth and easy to use on most work surfaces. The Quest Mouse is FULLY HARDWARE COMPATIBLE with the AMX MOUSE so that programs such as AMX Pagemaker etc, will work with it.

The two parts of the Quest package are available separately so that existing Mouse owners can upgrade to the Watford's sophisticated Quest Paint software or replace their existing worn out mice for a minimum cost.

QUEST PAINT

The Quest Mouse software is supplied on a PALPROM unit to allow the sophisticated 32K program to be used from a single ROM socket. It is compatible with the BBC B, BBC B Plus and BBC Master Series machines.

The software is used to draw high resolution Mode 1 pictures in full colour. All menu selection and control of the drawing process is performed with the mouse so that you will hardly ever touch the keyboard.

SOFTWARE FEATURES

The software is far too powerful for us to describe it fully in such a small space. Below is a list of the various features. Please write to us for a fully descriptive leaflet.

Disk interface not required. Utilities disk has facility to create and print big screens. Colours applied can be solid, either pattern of user defined pattern. Drawing can use brush or airbrush. Brush shapes can be defined and stored. Airbrush sprays colour/pattern randomly with four jet sizes and even or center spread. Colour cycles. Colour protection to stop particular colours from being overwritten by selected drawing actions. All standard drawing facilities like: rubber, straight pencil lines, triangles, circles, ellipses, rectangles, parallelograms, polygons, etc are provided. All shapes can be solid or just a boundary line. Once a shape has been set up it can be repeated anywhere on the screen. Global colour replace in a rectangle. Powerful fill facility for areas and vertical/horizontal lines. Full cut and paste of rectangular areas with rotation and size with screens from Watford Beeb

Video digitiser. Load and Save screens with colour pallet information, save brush and pattern definitions etc.

Take The Guesswork Out of Selecting a Mouse Package
With reviews like this how can you go wrong.

Popular Computing Weekly, 9-11 June '87
"What you actually get for your money is a well built, three button mouse (far superior to the AMX mouse)."
"Overall the combination of a quality mouse and decent art package gives Watford Electronics a real chance of supplanting AMX as mouse supremos."

Micro User June '87
"Quest Mouse and Quest Paint can hold their heads high in the market. . ."

A&B Computing June '87
"... Watford Electronics, a company famed for excellent hardware add ons and versatile software packages. Called Quest mouse, "this is a very special mouse driven drawing package. . ."

"... you will have one of the most comfortable and professionally built mice I have used in a long time. The buttons are responsive, the mouse movement is smooth and without directional bias - a pleasure to use."

"What we have here is probably the best art package there is for the BBC Micro . . ."
"Quest Paint is a major leap forward in BBC programming. . ."
"Quest Paint is an original piece of programming, it is friendly and well endowed with many useful facilities. I would comfortably say it is easier to draw good pictures with Quest Paint than it is with more expensive 'Professional' art packages for the Atari ST and the Commodore Amiga. A recommended buy if you are looking for the best in BBC micro based art packages".

QUEST MOUSE & QUEST PAINT £55
QUEST MOUSE, QUEST PAINT, AMX PAGERMAKER & PAGEFONT £85
QUEST MOUSE ONLY £29
QUEST PAINT SOFTWARE £32
QUEST FONT DISC £12
QUEST MAT £3

Part-exchange your old Mouse for a New QUEST MOUSE for only £23

N.B.

1. Quest Paint supplied complete with Software in a 32K ROM, Comprehensive User Guide and a Utility Disc.

2. Quest Font Disc has 24 text FONTS for use within Quest Mouse.

P.S. There is no need to worry about any of your existing AMX mouse software. The Quest Mouse is totally AMX compatible so it will work with any of the AMX range of software.

All prices in this advert are exclusive of VAT.

MARK II LIGHT PEN + PENPAL 2

Our Mark II Light Pen is the very latest in light pen technology. It is totally insensitive to local lighting conditions and works with many different monitors. The pen only responds to the High Frequency light produced by your monitor/TV. An LED indicates when valid video data is being produced. A conveniently located switch is also fitted.

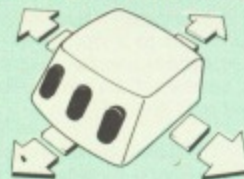
Penpal II, Watford Electronics' sophisticated light pen software is also supplied free on cassette or disc (please specify). This is a highly sophisticated drawing package enabling you to gain the maximum benefit from your Light Pen. The software is used to edit Mode 2 full colour screens using lines, patterns and you own designs. Screens may be saved to cassette or disc.

Price Only £18



CREDIT CARD 24 HOUR
Ansaphone Hot Lines
(0923) 50234 or 33383

THE AMX MOUSE



Now supplied with the NEW SUPERART Software ROM & Disc at no extra cost.

ONLY: £59 (carr £1.50)

(Please specify for BBC or Master Computer)

We are giving away, absolutely FREE, our popular Colour Art software package worth £15 with every AMX Mouse package purchased from us.

| | |
|--|-----------|
| AMX MAT | £3 |
| AMX MOUSE ONLY | £29 |
| AMX DESK Package | £19.00 |
| AMX UTILITY Package | £11.00 |
| AMX SUPERART Package | £39 |
| AMX PAGE-MAKER Pack - A desk-top publishing software. It Works with keyboard, joystick and a mouse | Only: £32 |

We are giving away, absolutely FREE, PAGE-FONTS, a disc containing over 20 fonts, with every purchase of AMX PAGE-MAKER from us.

| | |
|---------------------------------------|-------|
| PAGE-FONTS Over 20 fonts for use with | |
| AMX PAGE-MAKER | £9.50 |
| EXTRA EXTRA | £19 |
| AMX DESIGN (ROM) | £59 |
| AMX 3D ZICON Disc | £19 |
| AMX Database Disc | £19 |
| AMX XAM Educational | £19 |
| AMX MAX A gem of desktop (ROM) | £17 |

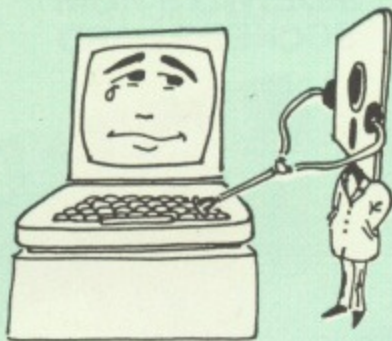
RB2 MARCONI TRACKER BALL

| | |
|-----------------------------------|-----|
| Complete with Software Disc | £59 |
| RB2 + Software Disc + Quest Paint | £85 |

FLEET STREET EDITOR

| | |
|-------------------------------|-----|
| Software pack | £35 |
| Admin Xtra Disc Utility | £13 |
| Walt Disney Disc Utility | £13 |
| Fonts N Graphics Disc Utility | £13 |

DIAGNOSTICS DISC



The BBC Micro is a very complex machine and thus diagnosing a fault can be very difficult. At Watford Electronics, we realise how difficult it can be when faced with a problem, finding yourself a long way from your nearest dealer, or even just uncertain about your Beeb's health, but not wanting to waste time and money taking it to be looked at.

The solution to these problems is here now, in the form of the Watford's Diagnostics Disc. This excellent utility is specially designed to test out the following areas of your Beeb: RAMs, ROMs, ULAs, Sound, Keyboard, Disc, RS423, ADC, User Port, Printer Port, Cassette, Joysticks, Speech, Disc Drives, 6502 and Z80 2nd Processors.

This utility is an invaluable aid for all those who take the reliability of their system seriously. A comprehensive manual provides full operating details and a list of possible causes and remedies for any faults that you may find along the way. The package also enables a permanent equipment and service record to be maintained.

Only £20.00

BBC SOFTWARE'S Popular Educational Software

- Maths with a Story 1 (Cassette). 4 primary level maths programs **£9.95**
- Maths with a Story 2 (Cassette) 4 further maths programs **£9.95**
- Picture Craft (Disc) 6 - 14 age group. Pack consists of flexible geometrical design & colouring programs **£19.95**
- WAVES: Science Topics (Disc) CSC O Level Physics program. **£14.95**
- RELATIONSHIP: Science (Disc) O Level Biology program. **£14.95**
- BONDING: Science (Disc) O Level Chemistry program. **£14.95**
- ELECTROMAGNETIC SPECTRUM (8 Discs) O Level program. **£14.95**
- ELECTRONICS IN ACTION (Disc) O Level program **£14.95**
- NEWTON & THE SPACE SHUTTLE (Disc) O Level program. **£20**
- ECOLOGY (Disc) O Level program. **£20**
- POLYMERS (Disc) O Level program. **£20**
- Classification & Periodic Table O Level. The suite is supplied with its own database of chemical elements which can be classified according to your own rule. **£20**
- FOOD & POPULATION (Disc) O Level program. **£20**
- MICROTECHNOLOGY (Cassette) O Level program. **£6.95**
- A VOUS LA FRANCE (2 Cassettes) A French language home study aid. **£17**
- DEUTSCH DIREKT! (Disc & Audio Cassette) **£20**
- Modem Master (Disc) **£11.25**
- ADVANCED TELETEX SYSTEM **£6.90**
- PERIOD TABLE SOFTWARE **£20**
- USING YOUR COMPUTER (Cassette) 8-12 age **£24**

TED

THE ULTIMATE TELETEX SYSTEM

TED is one of a new generation of powerful 32K ROMs for the BBC B, B+ and Master computers and is compatible with disc, tape and network systems. It is in everyday use in schools, colleges and universities, Programmers, Prestel I.P.'s, Micronetters and exhibitors have also found it indispensable.

TED includes the most comprehensive teletext (Mode 7) screen editor ever written for the BBC micro, combining flexibility with ease of use. Its sophisticated facilities include line, column and block copying within AND between frames; text, in a variety of styles and sizes, entered directly from the keyboard; graphics and line drawing modes; search and replace; margins; printer dump routines and a library of in-built icons and typefaces. TED will edit ANY mode 7 screen and can even convert high-res graphics screens to mode 7! Included within the ROM is a fully Epson compatible mode 7 graphics dump routine giving a grey scale printout of exactly what appears on the screen.

Using '*SHOW' (a versatile carousel), collections of mode 7 screens may be 'routed' or displayed sequentially, making it ideal for creating and running 'Viewdata' information systems. Over 1200 frames may be stored on a twin 80 track drive. A unique feature of TED is '*SCROLL', which lets you create pages of up to 600 lines which may be viewed 'Wordwise style', automatically or manually. SHOWs and SCROLLs may be freely mixed and even used from within a BASIC program.

The package comprises a 32K ROM, a 117 page manual, a function-key strip and a demonstration disc containing examples of real-time animation and a sample 55-frame database. A stand-alone machine code routine is provided allowing SHOWs and SCROLLs to be displayed on machines not fitted with TED.

Price: £35

ROM-SPELL

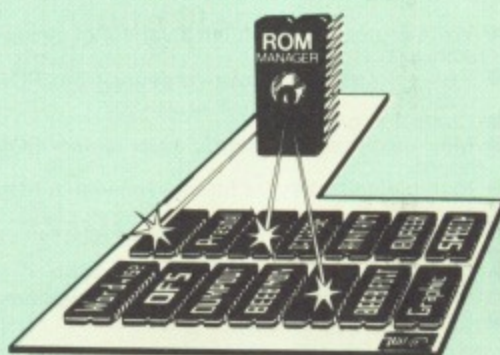


Probably the most advanced and fastest spelling checker available for the BBC Micro. Compatible with View, Wordwise and Wordwise Plus ROMSPELL is simple to use with easy editing of incorrect words. Full facilities for editing the user dictionary to allow customisation to your personal needs. Dictionary includes over 30,000 words and is supplied with a Comprehensive manual.

NOT compatible with 1770 DFS.
(Please state 40 or 80 track disc)

Price still only: £25

ROM MANAGER

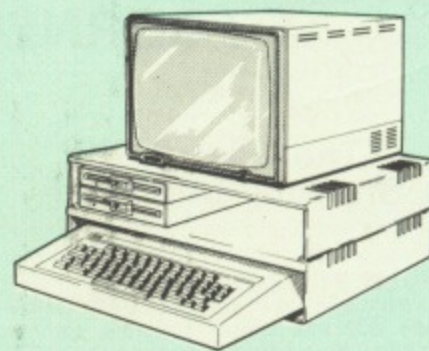


Take control of your Sideways ROMs with ROM Manager. This powerful utility ROM gives you power over your sideways ROMs. Disable whole ROMs, send commands directly to named ROMs and many other powerful facilities.

"Provides comprehensive management of all your installed ROMs". (BEEBUG November '84.)

ONLY £20

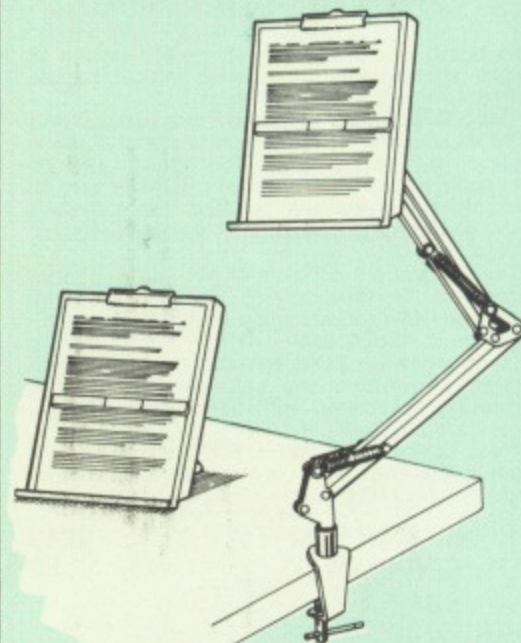
PLINTHS FOR BBC MICRO, MASTER & PRINTERS



Protect your computer from the weight and heat of your monitor. The BBC micro plinths have slots for maximum ventilation. The single plinth is suitable for a BBC and monitor, whilst the double height version provides enough room for our stacked or side-by-side dual disc drives or TORCH Disc pack, to be placed in the centre section. If you use our stacked drives, the remaining space can be used for further peripherals e.g. Speech Synthesizer, EPROM programmer or simply stationery. The computer slides neatly in to the lower section allowing easy access to remove the lid. The printer plinth is equally sturdy but without the cooling slots. It allows for access to the paper from the front as well as from the rear, (a facility not often thought of in similar products) if the paper is located beneath the plinth. This is a very convenient way to work especially if your work area is not deep enough to take the printer and paper separately.

| | |
|----------------------|--------------------------|
| SINGLE BBC PLINTH | £11 (carr. £1.50) |
| DOUBLE BBC PLINTH | £20 (carr. £2.00) |
| PRINTER PLINTH | £10 (carr. £1.50) |
| SINGLE MASTER PLINTH | £14 (carr. £1.50) |
| DOUBLE MASTER PLINTH | £25 (carr. £2.00) |

COPY HOLDERS



How often have you been about to type hand written notes into your computer when you find that there's nowhere to rest the paper or that your notes are resting at the wrong angle to read the type? Whether the notes be your latest program or the draft of a new trilogy, the new Manuscript Holders from Watford are superb for holding your paper at the ideal height and angle to allow you read and type in ease and comfort.

Available in 2 versions, desk resting and shelf clamping versions, these two units hold your paper firmly by means of a plastic retaining ruler and a clip grip. Both units are full A4 size.

Amazing value at only
Desk Top **£10** (carr. £2)

Angle poise **£14** (carr. £3)

Continued



ARIES CORNER

The Aries B-32 Shadow RAM Card

Like the BBC B+, the B32 provides 20k of shadow screen RAM and 12k of sideways RAM. Unlike the B+, the B32 has simple software commands which allow the user to reconfigure the RAM as 16k of shadow RAM and 16k of sideways RAM, or all 32k as sideways RAM.

With the B32, the programmer gets up to 28k of RAM available for Basic, Logo, Comal, Forth, Lisp and BCPL programs in any screen mode. The business user gets extra memory for View, ViewSheet, Wordwise Plus, Interword and many other applications. For advanced applications, the scientific user gets access to a massive 47k of data storage using the Acorn approved *FX call.

Sideways RAM enables you to load sideways ROM images from disc, allowing you to have a large library of sideways ROMs (subject to the copyright holder's permission) stored on disc. The B32's sideways RAM can also be used to extend any operating system buffer (such as the printer buffer) or to load tape programs into a disc system.

The B32 simply plugs into the 6502 processor socket on your BBC micro - no flying leads to connect and no soldering. Provision of the on-board ROM socket means that the Aries-B32 control ROM does not use up one of your existing ROM sockets.

Price: **£80** (carr. £2)

Aries B-12 Sideways ROM Board

This board is extremely well made, simple to install, reliable when fully loaded and compatible with the Aries-B20 and the Aries-B32

The B12 provides a total of twelve sideways ROM sockets (the four in the original machine are replaced by the twelve on the board), all fully accessible by the MOS sideways ROM system. In addition, there are two sockets for sideways RAM, giving up to 16k of RAM using 6264 static RAM chips.

The B12 system consists of two parts: a large detachable "mother board" which carries the extension ROM sockets and a small "base board" on a short ribbon cable, which plugs into the existing sideways ROM sockets. This two-board design eliminates the reliability problems previously associated with some other ribbon-cable based systems.

If you do not have a B32 or B20, a small adaptor module (the Aries-B12C) is available at a nominal cost.

Price: Aries B-12 **£40**
Aries B-12C **£5**

ARIES B-488 IEEE-488 INTERFACE UNIT

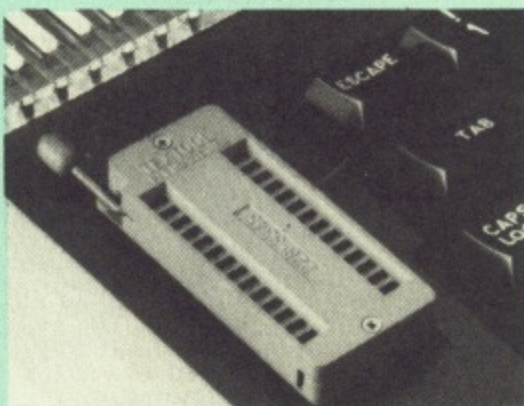
The Aries-B488 is an interface unit to enable the BBC micro to control and monitor IEEE-488 bus systems. The IEEE-488 bus (also known as the 'GPIB' or 'HP-IB') is the standard method of interconnecting programmable laboratory instruments and control equipment. Using the B488, up to 15 devices may be connected in a single high-speed data network.

£238 (Carr £3)

GRAPH PAD 2

Supplied complete with Software
£60 (Carr. £3)

SIDEWAYS ZIF SOCKET



Allows you to change your ROMs quickly and efficiently, without opening the lid. The ZERO INSERTION FORCE (ZIF) socket is located into the ROM Cartridge's position.

- Very simple to install. NO SOLDERING required. The ZIF (Zero Insertion Force) eliminates the possibility of damage to your ROM pins when inserting & extracting.

- The low profile of the socket allows unrestricted access to the Keyboard.

- All data and address lines are correctly terminated to ensure correct operation of suitable ROMs with the BBC micro. We also supply a purpose designed see-through storage container with anti-static lining, allowing you to store up to 12 ROMs, protecting them from mechanical and static damage.

- This versatile hardware solves the problem of running out of socket space. Simply lift the ROM from the ZIF & insert a different one (No pulling or pushing of Cartridges. It is a must for all professionals and Hobbyists alike.)

- BBC, B+ and Master compatible.

ONLY £15 (carr £2)

Low Profile CARTRIDGE SYSTEM

Complete System consists of: Low profile ROM Cartridge, Socket housing, Cable assembly, 5 labels and a library storage rack.

- Complete System **£11**
- Spare Cartridges **£2.50**
- Spare Rack **£1.50**

16K Sideways RAM Modules

Complete with such features as read and write protection, these new modules from Watford Electronics are ideal for the hobbyist, software developer and ROM collector.

Key points to note about this new addition to the Watford range of products are:

- Write protection (useful in a variety of circumstances).
- Read protection (allows recovery from ROM crashes).
- Compact construction.
- May be fitted in systems even with a ROM board.
- Multiple units may be fitted, even with a ROM board.
- No overheating or overloading problems.
- Free utilities disc supplied.
- Can be used as a 16K PRINTER BUFFER.
- Ideal for professional software development.
- Supplied with utilities software disc.

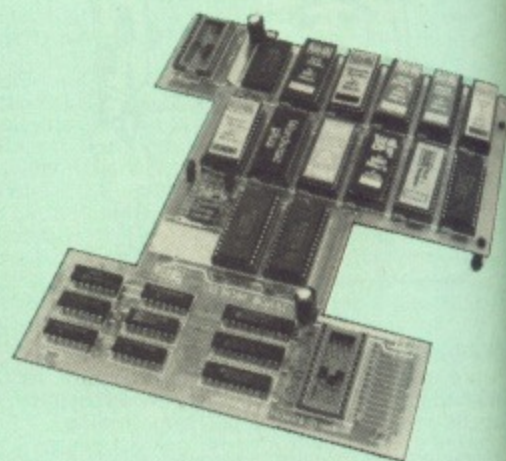
Only: **£24** (carr £2)

Optional extras

READ and WRITE protect Switches **£2** each
Battery for Battery Backup **£3**

**All prices in this advert are
exclusive of VAT.**

SOLDERLESS SIDEWAYS ROM SOCKET BOARD



In the May, 1986 Micro User's independent review, the writer concludes, "The board has been well laid out. Its position is much better than others - not over the HOT RAM chips and further away from the disc controller area". "I give the solderless ROM board the thumbs up and wish it success".

This brand new board from Watford Electronics is designed specifically for those wishing to add a ROM board to their own BBC without the need to perform any soldering.

This new board expands the total possible number of ROMs in a BBC from 4 to 16.

Unlike our competitors inferior boards, the ONLY upgrade required for fitting battery backup to the Watford Solderless ROM board (all Watford ROM boards, actually) is the fitting of the battery itself. (No other expensive components are required.)

- The key features of this new, no fuss, easy to install quality product from BBC leaders Watford Electronics are as follows:

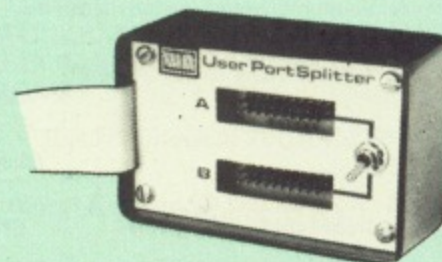
- Increase your BBCs capacity for ROMs from 4 to 16.
- **No soldering required.**
- Very low power consumption.
- Minimal space required.
- Compatible with Torch, DDFS, RAM Card, 2nd Processor, etc.
- Socket 14 takes two 6264 RAM chips.
- Read protect to make RAM "Vanish" allows recovery from ROM crashes.
- Battery backup option for RAM chips.
- Supplied ready to fit with comprehensive instructions.

Price: **Only £32**
Battery backup fitted **£36**
(carriage £2)

- Sideways RAM Utilities Disc for Solderless ROM Board. Includes the options to load and save ROM Images and the facility to use Sideways RAM as Printer Buffer.

Only: £8

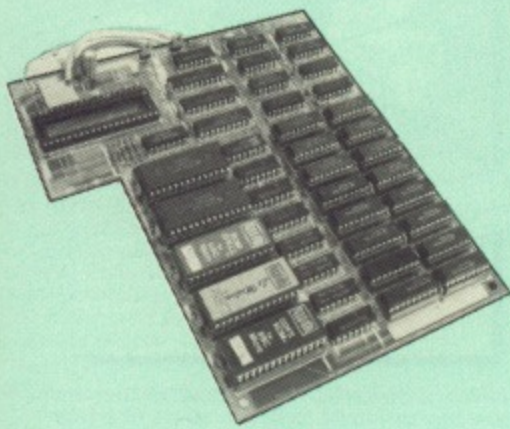
USER PORT SPLITTER UNIT



Gone are the days when you had to plug and unplug devices from the User Port. This extremely useful little device allows two units to be connected to the User Port simultaneously, and select between them simply by toggling a switch. This device is particularly useful for those people using Quest Mouse and the Watford Video Digitiser or any similar combination.

Excellent Value at £15

ROM/RAM CARD



Watford Electronics announced the first ever commercial ROM board for the BBC micro, the Watford Electronics 13 ROM Socket Board 3 years ago. Following the success of this board, we have designed what probably represents the ultimate in expansion boards, the new Watford Electronics ROM/RAM board. This highly versatile and sophisticated board represents the latest in "2nd generation" sideways ROM technology for the BBC micro, designed to satisfy the serious BBC user.

- NO SOLDERING required to fit the board.
- NO overheating problems.
- No User Port corruption (avoids problems with the mouse, modems, Eprom Programmers, etc.)
- Fully buffered for peace of mind.
- Firm mounting in BBC micro.
- Compatible with all BBC micros (not BBC+ or Master).
- Total number of ROMs increased from 4 to 8.
- Up to 8 banks of sideways RAM (dynamic).
- Option for 16k of Battery backed CMOS RAM (CMOS RAM needs one ROM socket).
- Software Write protect for ALL RAM.
- Read protect for CMOS RAM (ALLEVIATES crashes during ROM development).
- Separate RAM write register (&FF30 to &FF3F).
- Automatic write to currently selected RAM socket for convenience.
- Accepts any ROM.
- FREE utilities disc packed with software.
- Compatible with our DDFS board, 32k RAM Card, Delta Card, sideways ZIF, etc.
- Large printer buffer.
- UNIQUE Fully implemented RAM FILING SYSTEM (similar to the popular Watford DFS).
- ROM to RAM load and save facilities.

The SFS (Silicon Filing System) can utilise up to the full 128k of RAM (with the SFS in any paged RAM) as a SILICON DISC. This behaves as a disc drive, with all the normal Watford DFS features (including OSWORD &7F for ROM-SPELL, etc.) to provide an environment that looks like a disc but loads and saves MUCH faster.

The ROM-RAM Board plugs into the 6502 CPU socket. This leaves free all the existing ROM sockets, which can still be used normally.

Any ROM that can be plugged into the BBC micro's own ROM sockets may be used in the ROM-RAM Board.

The ROM-RAM Board is supplied with all ordered options fitted as standard. Upgrade kits (with full instructions) are available for all of the options, for later.

Please write in for further details.

INTRODUCTORY PRICES:

- ROM/RAM card with 32k dynamic RAM£39
- ROM/RAM card with 64k dynamic RAM£52
- ROM/RAM card with a massive 128k dynamic RAM£80
(carriage on ROM-RAM Card £3)

OPTIONAL EXTRAS:

- 16k plug-in Static RAM kit.....£6
- 16k Dynamic RAM for Upgrade.....£7.50
- Battery backup.....£3
- Read and Write protect switches.....£2 each
- Complete ROM-RAM board
All options installed£89

P.S.

Is your existing ROM Board overflowing with ROMs? Do you need more Sideways RAM? Is your Board unreliable? Then upgrade to Watford ROM/RAM Board and pay £10 less

Le Modem



The MODEM from Watford

At last a professional MODEM for the BBC Micro. Unlike other 'Modem packages' this is a complete package there are no extra software costs to get 'up and running'. Of course Le MODEM is multi-standard, i.e. 300/300, 1200/75 & 75/1200 UK and BELL (USA) are all supported.

The features that make Le MODEM such good value are:

- A complete communications terminal that transforms your BBC Micro into a very powerful World-wide data transfer system.
 - Auto Dials, Auto answers, and is completely controlled by your micro. There are no external controls!
 - Allows you to access PRESTEL, B.T. GOLD, THE SOURCE, MICROLINK, MICRONET, MICROWEB, THE TIMES NETWORK, MICRO LIVE (BBC TV database), CITY BB and more.
 - Designed to be SIMPLE but SOPHISTICATED. To LOGON to a data base all you have to know is its TELEPHONE NUMBER, Le MODEM does the rest.
 - Supplied with a comprehensive telecomms package in a 16K sideways ROM which includes a FULL PRESTEL terminal allowing TELE-SOFTWARE to be downloaded.
 - A comprehensive 80 column terminal. This includes XMODEM error checked transfer protocol, to allow error free data transfer anywhere in the world!
 - FULLY controlled by simple **COMMANDS allowing you to control it from your own BASIC programs. To get you started we supply a FREE disc of bundled software!
 - Connects to the 1MHz bus. A *AUDIO ON-OFF command allows you to actually hear the telephone line through your BBC micro loudspeaker.
 - Completely self contained with internal mains power supply. (Even a free mains plug is fitted!) A *TEST facility gives ON SCREEN indication that Le MODEM is working correctly.
 - Packaged in such a way that you need nothing else except a BBC Micro to communicate with computers all over the world.
 - FREE Registration to MicroLink.
 - BT Approval applied for.
- (When ordering, please specify the version required, (BBC or Master)

SPECIAL OFFER

Price: **£74**
(carr £3)

(Price includes, Le Modem, Software ROM, Cables & Comprehensive Manual)
(Write in for further details)

Nightingale Modem

SPECIAL PRICE to our Customers

£82

(Price includes: Nightingale Modem, Commstar ROM pack & Comprehensive manual)

Nightingale Modem without software Only £75
COMMSTAR ROM package only £29
(P&P on modem £3.00)

APOLLO



The NEW Modem from Watford

Following numerous requests from you, our discerning customers for an APPROVED, Low Cost & High Performance modem with Auto Dial & Auto Answer facilities as standard) we bring you the versatile APOLLO Modem. Just compare the features and look at the price (which incidentally includes the cost of the Software, manual and BBC connecting cable). We are sure you will agree that Watford Electronics in their traditional way are giving you a super 'value for money' deal.

Just look at these features:

- V21 for Bulletin boards, Microlink, Telecom Gold, etc.
- V23 for Prestel, Home Banking, and other Viewdata services.
- Reverse V23 allows User run Viewdata service.
- 1200-1200 half duplex for communications.
- XMODEM, HEX and ASCII file transmission.
- Auto Dial of given 'phone number.
- Auto Answer for User's Bulletin Board.
- 80 column terminal with split screen facility.
- Prestel text screen dump.
- Fully BAPT approved.
- FREE Registration to MicroLink.

The Apollo is attractively finished in matt black. It opens the doors to world communication to both, the Hobbyist and the Professionals alike. With baud rates varying from 300/300 Originate and Answer, 1200/75 and 75/1200 full duplex and 1200/1200 half duplex, virtually all the popular tele-services can be accessed. A comprehensive Comms ROM oversees the use of the APOLLO, providing simple commands for all the software controlled facilities. APOLLO is an ideal modem for both the first time buyer and the seasoned user. Join the Telecommunications Revolution - Buy a Watford APOLLO!

Only: **£75** (Carr £3)
(Write in for full specification)

Minerva Systems Software

| | |
|-------------------------------|-----|
| System Delta with Card Index | £55 |
| System Programmers Ref. Guide | £19 |
| System Gamma | £43 |
| System Gamma Prog, Ref, Guide | £19 |
| System Mailshot | £17 |
| System Reporter | £17 |
| System Intrer/View Link | £17 |

Versatile BEEB SPEECH SYNTHESISER Unit



The Watford Speech Synthesiser is a very flexible speech synthesis unit based upon the powerful phonemes system. This system stores the building blocks of speech (called phonemes) and allows you to combine them quickly and easily to form virtually any word imaginable.

Supplied with an advanced ROM, you are provided with a 500 word dictionary to get you started. These can easily be added to by following the notes given in the comprehensive manual.

SPECIAL PRICE £32 (carr £2)

Continued

COMPUTER CONCEPT'S ROMS

| | |
|-------------------------|-----|
| ACCELERATOR | £48 |
| CARETAKER Basic Utility | £25 |
| DISC DOCTOR | £28 |
| Graphics ROM | £23 |
| TERMI | £25 |
| COMMUNICATOR | £49 |
| SPEECH ROM | £24 |
| Printmaster | £24 |

Wordwise

£24

Wordwise plus

WORDWISE PLUS £40

We are giving away absolutely **FREE**, the superb Word-Aid ROM worth £24, with every WORDWISE PLUS package bought from us.

Word-Aid

The most comprehensive utilities ROM for Wordwise-Plus

Extend the power of your Wordwise Plus word processor with this most advanced ROM from Watford. By utilising the powerful Wordwise Plus programming language, WordAid provides a whole host of extra features, all accessed via a special new menu option. This ROM has been personally approved by Mr Charles Moir, the author of WORDWISE PLUS.

- Alphabetical sorting of names and addresses.
- Text transfer options.
- Chapter marker.
- Epson printer codes function key option.
- Search and display in preview mode.
- Embedded command removal.
- Print Multiple copies of a document.
- Multiple file options for print and preview.
- Address finder.
- Label printer.
- Mail-merger.
- Number/delete/renumber.
- Clear text-segment area.
- BBC B, B+ and Master compatible.

Only £24

(N.B. Word Aid requires a Disc Interface in your Micro)

HI-WORDWISE-PLUS DISC: £5

SPELL MASTER £47

Inter SHEET ONLY £37

INTER-CHART

ONLY: £26

Inter-WORD

Only: £39

INTERBASE £55

All Prices Exclusive of VAT

VIEW

VIEW WORDPROCESSOR 2.1 £37

VIEW 3.0 ROM £54

VIEW PROFESSIONAL £79

HI-VIEW £36
(for use with 6502 2nd Processor)VIEW Printer Driver Generator £9
Please specify Disc or Cassette)

VIEWSHEET (Acornsoft) £37

VIEWSTORE £37

VIEWSPELL with 80 track disc £29

VIEWPLOT Disc £22
(Please specify for Master 128 or Compact)

VIEW-INDEX £12

OVERVIEW Packs 1 & 2 for the Master £75

Watford's own Sophisticated VIEW PRINTER DRIVERS

Epson FX80 & Kaga KP (Disc) £8
Juki & Brother HR15 (Disc) £8
Silver Reed Printers (Disc) £8Micros in Business (Disc)
An introduction to Business software for the BBC Micro from Acorn £43

ADVANCE COMPUTER PRODUCTS' ROMs

Adv. Disc Toolkit £29
Adv 1770 DFS for Mast/Compact £29
Adv 1770 DFS for BBC/BBC+ £29
Adv Disc Investigator £24
Adv. Control Panel £29
Adv. Rom Manager £13

MINI OFFICE II

Disc Version £14.50
ROM Version £48.00

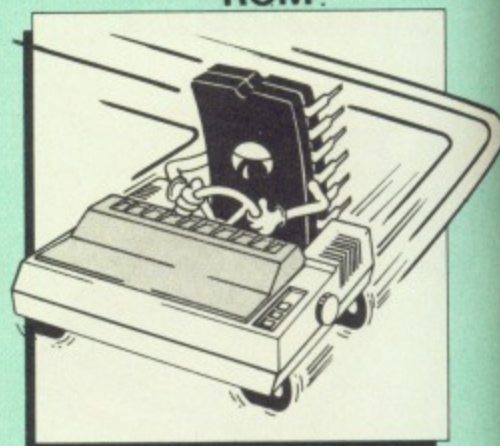
REPLICA 3

This new improved REPLICA 3 from Clares is a very powerful disc based TAPE to DISC Utility. It now transfers even more programs than ever before. Replica 3 will not work with all programs but then neither will anything else. 30,000 Replicas have been sold to date. It has to be good.

£13 (40 or 80 track)

Acorn's Speech Synthesiser
package, complete
Special Offer £18

VIEW PRINTER DRIVER ROM



View is a powerful word processor, but until now has seriously lacked in terms of printer support. With the launch of our Printer Driver ROM, which includes an extremely powerful and easy to use Printer Driver Generator, View users can find themselves in the realms of advanced word processing only at a small outlay.

The VPD extends View's printer command with a series of mnemonic commands. All standard highlight sequences are also supported. A large range of printers are supported by drivers contained within the ROM (the drivers can be downloaded and customised). Printers supported include: Epson's MX, RX, FX, LX, JX80 range, HI80, KP810/910, PW1080, JP101, HR15, M1009, GLP, JUKI 6100, etc.

Other printers are readily supported by defining a Printer Driver using the built in Printer Driver Generator. The features mentioned below are available to both the built in Printer Drivers and user defined drivers (assuming the printer supports the features).

NLQ control, Underline, Bold, Proportional Spacing, Microspacing, Italic, Superscript, Subscript, Condensed, Enlarged, Double Strike, Set lines per inch numerically (e.g. LPI 6), Set characters per inch numerically (e.g. CPI 5), Select printer font, Select printer ribbon colour, Translation sequences, Emulation of BBC Character Set, Simple numeric expressions for certain operations, Full printer setup, Send control codes, Print prompt on screen, Redefinable Pad character, Pause for key press, Prompt to change daisywheel, and Execute * command when printing.

Other features include a very powerful on screen preview, with bold, italic, underline, super/subscript, enlarged highlights, and a special printer driver to allow memory based text to be previewed by View 1.4. Of course, View 1.4, 2.1 and 3.0 are all supported, as is Shadow RAM and 6502 Second Processors. The BBC B series and Master series of micros are supported. A comprehensive manual is supplied. All in all, a very professional product for the discerning user who wants power at their finger tips. (Write in for a detailed leaflet).

Price: Only £33

EPSON NLQ ROM for the BBC Micro



Harness the full potential of your Epson RX or FX printer. The NLQ ROM makes Epson printers produce Near Letter Quality output with optional proportional spacing, enlarged and underlined. Accessed by simple * commands from Basic, Wordwise and View (with driver) or almost any other language.

(Send an SAE for sample printout)

Only: £25

VIEW PRINTER DRIVER for NLQ ROM

£7

DUMPOUT 3



A highly sophisticated screen dump ROM. This has to be the most flexible and powerful screen dump ROM yet produced for the BBC micro. It will put on paper anything you see on the screen, including full Mode 7 graphics. Also provided are window setting utilities and OSWORD calls to plot and read Mode 7 graphics pixels.

Facilities:

- Vertical and horizontal scaling in all graphics modes and mode 7
- Rotation of image by 90, 180 or 270 degrees
- Left hand margin setting
- Screen dump window setting
- Colours appear as grey scale
- Two tone fast dump
- Colour mask
- Mode 7 contrast expansion
- Mode 7 contiguous dump
- Key triggered and User Port triggered dumps

The Micro User Feb. 1985.

'Without reservation I wholeheartedly recommend the Dump Out 3 ROM as the ultimate screen dump facility for the BBC Micro ... it must represent excellent value for money and surely cannot be beaten'

For use with the following printers:

GLP, GP80/100/250, CANNON, STAR, KAGA/TAXAN, NEC, SHINWA CP80, GEMINI, EPSON MX/RX/FX, M1009, NEC PC8023, DMP100/200/400, Panasonic KX1080, Mannesman Tally and compatibles.

Only: £25

(Write in for further details on all above ROMS)

THE EUREKA CARD

(The Unique RAM Expansion System)

The Eureka Card is Watford's latest and most sophisticated RAM expansion system. Using advanced PAL based technology this card is a breakthrough in RAM systems for the BBC micro. The Eureka Card provides the user with around 58K of free memory in Basic, VIEW and WORDWISE PLUS. You also get Shadow RAM from within the active language. No other RAM expansion system can match that!

Load up to 58K long Basic programs. Texts in VIEW and WORDWISE PLUS up to 58K as well. This with absolutely NO loss of speed in accessing your text or program. Eureka consists of a card containing 64K of program memory, two parallel banks of sideways RAM and some extremely complex switching circuitry. This is all controlled by Eureka's highly sophisticated software supplied in ROM. Designed to a very high specification, this board is fully buffered to give reliable operation under virtually any circumstances.

The Eureka board plugs into the 6502 socket and has NO messy flying leads. It is compatible with many other products from Watford, such as our Solderless ROM Board and our ROM/RAM Board. All in all, the Eureka Card is an amazing board. Jump into the age of serious data processing with a Eureka Card! Please write in for further details 'on advantages the Eureka can offer you'.

Introductory price: **Only £89** (carr £3)

(P.S. Eureka is only suitable for a standard model B; it normally replaces any Shadow RAM cards present. Some speed degradation does occur with filing system access. Eureka cannot be used at the same time as a second processor).

BEEBMON

The most powerful machine code monitor for the BBC Micro **£24**.

THE NLQ DESIGNER

(The First & still the Best)

Supplied with over 25 Different fonts

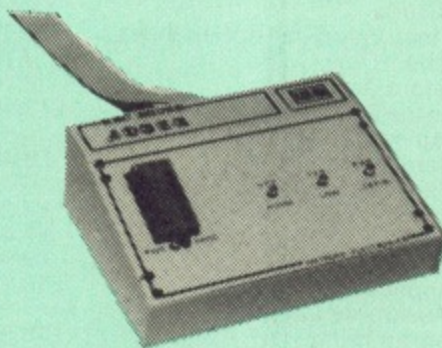
A massively useful utility for users of the Taxan/Kaga KP810/910 or the Canon PW1080. This program allows you to define NLQ character sets to download into the printer's memory. Full on screen editing of the font. Requires 6264 RAM chip to be fitted in the printer.

Supplied with disc containing over 25 example fonts. Please specify 40 or 80 track. Fonts are: Italic, Courier, Courier Italic, Script, Copper Plate, Shadow, Bold, Double Print and Gothic etc. (P.S. This ROM is not suitable for Epson printers.)

● NLQ Designer ROM & FONT Disc

£25

ADDER



Adder is the ultimate EPROM programmer for the BBC Micro. It will program many different EPROMs up to the very latest 27256 32K devices.

The Adder unit connects to the User Port and draws its power from there too. The EPROM is mounted in a top quality ZIF socket. There are no switches or controls as Adder is entirely software controlled.

The Adder software provides sophisticated facilities for programming EPROMs from a RAM image produced by loading disc files. The software is menu driven and designed for ease of use.

Features:

- Two ultra fast programming algorithms or standard slow algorithm.
- Supports standard 21V programming and newer 12.5 volt EPROMs. (Software switched).
- The RAM image to be programmed can be built up in many ways. Sections of image can be loaded separately. Part programming. Read EPROM. Edit data in memory.
- Automatic processing to handle a list of files to program into the EPROM.
- Automatic disc buffering to allow programming of 32K 27256 devices from a 32K file without extra effort.
- Verification gives detailed error list and checksums are maintained. There is also a blank check facility.
- Works with all standard filing systems. Generates header code for RFS ROMs to allow Basic programs etc. to be stored in EPROM. More than one file per ROM permitted.
- Programs the following EPROMs:
From 2K to 32K: 2516, 2716, 2532, 2732, 2764, 2764A, 27128, 27128A, 27256 (Both 12.5V and 21V).

£65 (£3 Carr)

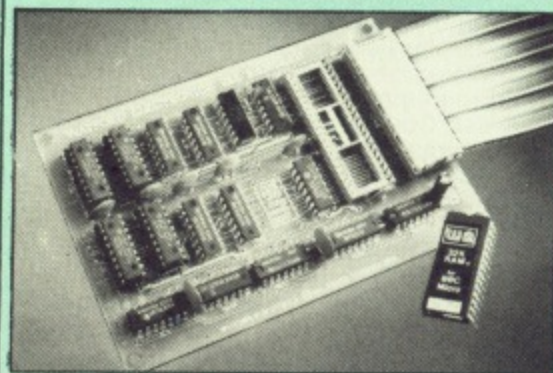
TEX EPROM ERASERS

EPROMs need careful treatment if they are to survive their expected lifetime. Over erasure of EPROMs very rapidly turns them into ROMs! The TEX erasers operate following the manufacturers specifications to give the maximum possible working life by not erasing too fast. We use these erasers for all our own erasing work.

- ERASER EB - Standard version erases up to 16 chips. **£28** (carr £2)
- ERASER GT - Deluxe version erases up to 18 chips. Has automatic safety cut-off to switch off the UV lamp when opened. **£30** (carr £2)
- Spare UV tubes. **£9**

32K

SHADOW RAM-Printer Buffer Expansion Board



A MUST FOR WORD PROCESSING

Watford Electronics now brings you the latest state-of-the-art MEMORY EXPANSION BOARD for your BBC microcomputer. Don't throw away your BBC B for a BBC B Plus or BBC Master. Just plug the ribbon cable into the 6502 processor socket, and fit the compact board inside the computer. Immediately you will gain not 16K or even 20K, but a massive 32K of extra RAM!!!

● IMPROVE your WORD PROCESSING system, whether disc or cassette based. Don't wait for a slow printer - type in text while printing. TWO JOBS DONE SIMULTANEOUSLY and £100+ saved on a printer buffer.

● "VIEW" Wordprocessor users can now type in letters in 80 columns and have up to 28,000 bytes free - 5 times as much as normal.

● In WORDWISE (or WORDWISE-PLUS), preview in 80 columns with the full 24K of text in memory. This product is recommended as an ideal complement by Computer Concepts.

● Combine GOOD.GRAPHICS and LONG PROGRAMS. Use the top 20K of the expansion RAM as the screen display memory, leaving all the standard BBC RAM free for programs. Benefit from MODE 0/1/2 graphics and 28K of program space.

● Use the FULL 32K or the bottom 12K of the expansion RAM as a PRINTER buffer for PARALLEL or SERIAL printers, sound channels, RS423 etc. Print large text files while running long graphics programs, and have all your buffer options available as well (*FX15,21,138,145,ADVAL etc). Please note only a 12K printer buffer can be used with Wordwise or Wordwise-Plus, due to the way they are written.

● Unique facility to turn ROMs off and on again. Unlike all other ROM managers, this feature does not use 'unofficial' memory. Two bytes of normally user-inaccessible memory on the RAM card are used to ensure ROMs are disabled WHERE OTHER ROMS FAIL.

See next page for SPECIAL OFFER

Only £59 (carr £2)

(Price includes a comprehensive manual and the ROM)

INCREDIBLE WORDPROCESSING DEAL

Watford's 32K SHADOW RAM CARD and Computer Concept's INTERWORD Wordprocessor package.

at **Only £89** (carr £2)

Continued



BOOKS (No VAT on Books)

| | |
|--|---------------|
| 30 Hour BASIC (BBC Micro) | £7.95 |
| 40 Best machine Code Routines | £7.95 |
| 50 Programs in BBC BASIC | £6.95 |
| 6502 Assembly Language Program | £19.95 |
| 6502 Application | £11.95 |
| 6502 Assembly Lang. Subroutines | £19.95 |
| 6502 Development Package | £7.50 |
| 6502 Reference Guide | £9.95 |
| 68000 Assembly Lang. Programming | £19.95 |
| 68000 Machine Code Programming | £13.00 |
| 68000 Microprocessor Handbook | £14.95 |
| 68000 Programming the | £22.95 |
| 68000 User Guide | £8.95 |
| 6809, Programming the | £16.95 |
| 6809 Machine Code Programming | £7.95 |
| 8086/8088 Assembly Language Prog. | £11.95 |
| 8086/8088 Programming the | £16.95 |
| Advanced Disc User Guide | £16.95 |
| Advanced BASIC ROM User Guide | £9.95 |
| Advanced Programming Guide to BBC | £9.95 |
| Advanced Sideways RAM User Guide | £10 |
| Advanced User Guide for BBC | £10.95 |
| Advanced FORTH | £9.95 |
| Advanced Graphics with BBC | £9.95 |
| Assembly Language Programming on BBC Micro | £11.50 |
| Adventure into BBC BASIC | £6.95 |
| Applied Assembly Lang. for BBC | £9.95 |
| ARM Assem, Lang, Programming | £12.95 |
| Art of Microcomputer Graphics | £14.95 |
| Assembly Language Programming FOR the BBC Micro | £8.95 |
| Assembly Language Programming on the BBC & Electron | £8.95 |
| Basic ROM User Guide | £11.95 |
| BBC B Compendium | £5.95 |
| BBC BASIC for Beginners | £7.95 |
| BBC Forth | £7.50 |
| BBC Hardware Projects | £8.95 |
| BBC Micro & the small Business | £5.75 |
| BBC Micro ROM Book | £10.95 |
| BBC Master 128 for High Flyer | £10.95 |
| BBC Micro Disc Companion | £8.95 |
| BBC Software Projects | £6.95 |
| BCPL User Guide | £14 |
| BCPL The Language & its Compiler | £7.95 |
| C for Beginners | £10.95 |
| C for Programmers | £9.95 |
| Complete FORTH | £6.95 |
| Computer Graphics & CAD fundamentals | £9.95 |
| CP-M-86 User's Guide | £19.95 |
| CP-M Bible | £16.50 |
| CP-M Handbook with MPM | £9.95 |
| CP-M Plus Handbook | £13.95 |
| CP-M Soul of | £16.50 |
| CP-M The software BUS | £8.95 |
| Creative graphics on BBC Micro | £7.50 |
| Disc Drive Projects for Micros | £5.45 |
| DISC FILING SYSTEM (DFS) | |
| Operating Manual for BBC | £6.95 |
| DBASE Programming Language | £14.95 |
| Disc Programming Techniques | £9.95 |
| Exploring FORTH | £6.95 |
| FORTH on the BBC Micro | £7.50 |
| Functional Forth for the BBC Micro | £5.95 |
| Guide to BBC ROMs | £9.95 |
| Graphics for Children | £6.95 |
| Graphs & Charts on BBC Micro | £7.50 |
| Hackers Handbook - New | £6.95 |
| Inside Information (Computers, Interfacing & Control of BBC Micro Communications & People) | £9.95 |
| Interfacing & Robotics on BBC | £8.95 |
| Introduction to COMAL | £15.95 |
| Introduction to LOGO | £9.50 |
| Introducing 'C' | £6.95 |
| Introducing LOGO | £9.95 |
| Introduction to FORTH | £5.95 |
| Introduction to PASCAL | £8.95 |
| ISO-PASCAL Reference Manual | £17.95 |
| LISP 2nd Edition | £9.95 |
| LISP, A Beginners Guide to | £14.95 |
| LISP on the BBC Micro | £10.95 |
| LISP the Language of Artificial Intelligence | £7.50 |
| Logo on the BBC Micro | £9.95 |
| Logo Programming | £8.95 |
| Mysteries of DISC DRIVES and DFS REVEALED | £5.95 |
| Mastering Assembly Code | £8.95 |
| Mastering CP-M | £17.95 |
| Mastering Music | £6.95 |

| | |
|--|--------------|
| Mastering the Disc Drive | £7.95 |
| Master Operating System | £12.95 |
| Master Reference Manual Part 1 | £14.00 |
| Master Reference Manual Part 2 | £14.00 |
| Mastering View, Viewsheet & Mathematical Progress in BBC Basic | £7.95 |
| Micro Prolog | £10.00 |
| Microtext for the BBC | £10.00 |
| Viewstore | £12.95 |
| Points of View | £6.95 |
| Practical Disc File Techniques | £5.95 |
| Programming the 6502 | £16.95 |
| Programming the Z80 | £19.95 |
| Structured Basic | £7.95 |
| The Epson FX-KAGA PRINTER Commands REVEALED | £5.95 |
| The Software Business | £5.50 |
| Toolbox 2 | £10.95 |
| Towers Int. Transistors Selectors | £12.95 |
| Turtle Graphics on BBC Micro | £7.50 |
| Understanding FORTH - A Beginner's Guide | £6.50 |
| Understanding Interword - A Beginners Guide | £6.50 |
| View 3.0 User Guide | £10 |
| View Guide | £4.50 |
| VIEW incl. ViewSpell & ViewIndex | £12.95 |
| Viewsheet User Guide | £10 |
| Viewstore User Guide | £10 |
| Within the BBC Micro | £13.95 |
| Writing Interactive Interpreters & Compilers | £8.45 |
| Wordprocessing BBC Beginners Guide | £7.95 |
| Wordstar & CP/M made easy | £7.45 |
| Wordwise + A User Guide | £9.95 |
| Z80 Applications | £15.95 |
| Z80 Assembly Language Programming | £19.95 |
| Z80 Reference Guide | £9.95 |

OFFICE MASTER

CASHBOOK - A complete "Stand Alone" accounting software package for the cash based sole trader/partnership business. It is designed to replace your existing cashbook system and will provide you with a computerised system complete to trail balance.

FINAL ACCOUNTS - Will take data prepared by the Cashbook module and produce a complete set of accounts as following: Trial Balance with inbuilt rounding routine; Notes to the accounts; VAT Summary; Profit & Loss A/C; Balance Sheet.

MAILIST - A very versatile program. Enables you to keep records of names and addresses and then print, examine, sort and find them, all with special selection techniques.

EASILEDGER - A management aid software tool designed to run alongside an existing accounting system. Essentially a Debit/Credit ledger system which can handle sales, purchase and nominal ledger routines to provide instant management information.

INVOICES & STATEMENTS - Greatly reduces the time and cost of preparing Invoices and Statements by storing essential information like customer names, addresses and account numbers. Has VAT routines and footer messages facility.

STOCK CONTROL - Allows you to enter stock received, stock out, summary of stock items and current holdings together with details of total cost, total stock to minimum level, units in stock ordering, quantity and supplier detail.

All this for only **£21 (Disc)**

OFFICE MATE

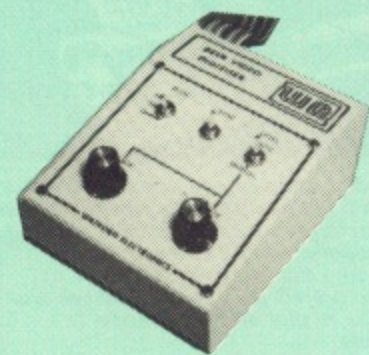
- DATABASE
- BEEBCALC SPREADSHEET
- BEEBLOT GRAPHICS

DATABASE - Set up a computerised card index system with powerful search facilities.

SPREADSHEET - Offers many calculation and editing features.

BEEBLOT - Provides visual representation from Spreadsheet data.

OFFICE MATE Only £10 (Disc)

BEEB VIDEO DIGITISER

Using any source of composite video (colour or monochrome) and the Watford Beeb Video Digitiser, you can convert an image from your camera into a graphics screen on the BBC Micro.

This uses the full graphics capacity of the BBC micro in modes 0, 1 or 2. The video source may be a camera, video recorder or television, and is connected via the video output socket.

Images produced can be compressed, stored to disc, printed on an Epson compatible printer, directly used to generate graphics, analysed for scientific and educational use or converted to other formats e.g. Slow Scan TV or receiving a picture from a remote camera using a modem.

The output from the digitiser exactly matches the graphics capability in each mode, with up to 8 levels of grey in mode 2. The unit connects into the User Port and automatically scans a complete picture in 1.6 seconds.

Both the black and white levels can be adjusted manually for the optimum picture, or switched to automatic for unattended use. The image produced can be reversed if necessary.

Full controlling software is supplied on a normal sideways ROM and this is easily accessed via additional * commands. The package is designed to allow easy input of complex screens and give full access of the data to the user. Once on the screen, the image can be used as a normal graphics screen, allowing any of the usual graphics commands in BASIC or other ROM's to work on it.

A special print dump routine is included with the driver programs. This is specially designed to produce a fast, correctly proportioned picture, with reduced "contouring", resulting in an accurate reproduction of the original image.

Detailed examples of driving this unit from BASIC or other languages are all provided in the extensive manual supplied.

£109 (Carr. £3)

(Price includes) Digitiser Unit, Software in ROM & a Comprehensive Manual)
(BBC B+ and Master compatible, except Master with Econet)

Magazine Maker

(As seen on TV)

A combination of the AMX Pagemaker and Watford's Beeb Video Digitiser.

Using any video that provides a composite signal and the digitiser, images from a camera or TV can be converted into a graphics screen on the BBC Micro.

They can then be used within AMX Pagemaker to illustrate magazines or newsletters - in fact anything that needs to be created on A4 size paper.

With Pagemaker's many features, a variety of pictures can be composed - the only limit being the imagination.

Pictures can be doctored using Pagemaker's graphics option to produce any number of effects.

Text can be formatted around the digitised photo on screen using the facilities available, which include 16 typefaces, character and pattern definer, text formatting and the ability to load in wordwise and viewfiles plus much more.

Once created the picture can be printed out. The Magazine Maker is suitable for any use that requires illustrated documents.

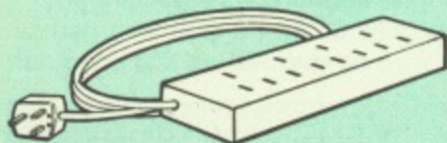
Complete Package £129.00 (carr. £3)

SURGE PROTECTOR Plug

Fitted in place of your normal mains plug, this device protects your equipment against mains surges. Nearby lightning strikes, thermostats switching and many other sources which put high voltage transient spikes on to the mains. This can lead to data corruption in memory and on disc and can result in spuriously crashing machines. A must for every computer user.

Protection for only **£6.99**

4 WAY MAINS DISTRIBUTION SOCKET



4 way top quality mains trailing sockets. Supplied wired up with mains plug ready for use. Can be screwed to floor or wall if required. Very useful for tidying up all the mains leads from your peripherals.

£7.95 (carr £1.50)

SPIKES CLEANER UNIT

A 4 way mains distribution unit as above with a built-in Surge Arrester, providing protection for your complete computer system

£12.50 (carr. £1.50)

SPARES for BBC Micro

| | | | |
|---------------|------------|-----------|--------------|
| Keyboard * | £46 | Keystrip | £2 |
| UHF Modulator | £4 | Case | £20 |
| Speaker Grill | £1 | Speaker | £2 |
| Power Supply | £59 | Keyswitch | £1.50 |

Replacement FLEXIBLE 17 way Keyboard Connector £3

8 WAY DIP SWITCHES

With these DIP switches soldered to their keyboard, any BBC B or B+ owner can take full advantage of the fast disc drives that we supply by configuring his BBC for fast disc drive operation.

Excellent value for money at **£1.00**

CONNECTING LEADS

(All ready made and tested)

| | |
|---|--------------|
| CASSETTE LEADS 7 pin DIN Plug to 5 pin DIN Plug + 1 Jack Plug | £2.00 |
| to 3 pin DIN Plug + 1 Jack Plug | £2.00 |
| to 7 pin DIN Plug | £2.50 |
| to 3 Jack Plugs | £2.00 |
| 6 pin DIN to 6 pin DIN Plug (RGB) | £2.50 |

DISC DRIVE POWER LEADS

Supply from BBC power supply to standard Disc Drive connector.

Single **£3.00** Dual **£3.75**

DISC DRIVE INTERFACE LEADS

BBC to Disc Drives Ribbon Cable

Single **£4** Twin **£6**

MISCELLANEOUS CONNECTORS

| | Plugs | Sockets |
|-----------------------|-------|---------|
| RGB (6 pin DIN) | 30p | 45p |
| RS423 (5 pin Domino) | 40p | 50p |
| Cassette (7 pin DIN) | 25p | 65p |
| ECONET (5 pin DIN) | 20p | 30p |
| Paddles (15 pin 'D') | 80p | 200p |
| BBC Power Plug 6 way | 80p | - |
| Disc Drive Plug 4 way | 75p | - |
| 6 way Power Connector | - | 95p |

Watford Dealers' List

UNITED KINGDOM

Badger Micros (Devon), Badger's Hill, Southerton, Ottery-St. Mary, Devon EX11 1SE. Tel: 0395 68516.

Beebug Retail, Dolphin Place, Holywell Hill, St. Albans.

Cambridge Computer Store, 4 Emmanuel St., Cambridge CB1 1NE. Tel: 0223 358264.

Cirkit Distribution Ltd, Park Lane, Broxbourne, Herts.

C.J.E. Micros, 78 Brighton Road, Worthing, West Sussex. Tel: 0903 213361.

HCCS, 575-583 Durham Road, Low Fell, Gateshead, Nr. Newcastle Upon Tyne. Tel. 091 4870760.

Mancomp Ltd, Printworks Lane, Levenshulme, Manchester. Tel: 061-224 1888-9888.

Microman Computers, Rainford Industrial Estate, Mill Lane, Rainford, St. Helens

The Computer Depot, 205 Buchanan Street, Glasgow G1 2JZ. Tel: 041-332 3944.

Verospeed Ltd, Boyatt Wood, Eastleigh, Hants.

OVERSEAS DEALERS

*Absolute Electronics, Rewal House, 208-210 La Trobe Street, Melbourne, 3000, Victoria, Australia. Tel: (03) 663 2411.

Alpha Computer Co, Shop 314 Chi Fu Commercial Centre, Chi Fu Fa Yuen, Hong Kong. Tel: 5-506592.

Computer Distribution Company, Parklaan, 47, B-9300 Aalst, Belgium.

E.B.N., Elisenstrasse 13, 1000 Berlin 41. Tel: (030) 7952057

Lendac Data Systems, Unit 31, IDA Enterprise Centre, Pearce Street, Dublin 12. Tel: 710796.

Scientex P.V.B.A., Zilvermidstraat 2, B-2000 Antwerpen, Belgium, Tel: 03 233 59 06

Techno-matic Data, Holbergsgade 19, 1057 Kobenhavn K, Denmark

*Velobyte, Scheaedyksadyk 5a-6a, 3011 EB Rotterdam, Holland, Tel: (010) 413 8197/414 5171.

Viking Tecno, Vestergade 12.1, 9620 Aalestrup, Denmark, Tel: 08 642522

*Acorn/Watford Referral Centres.

Viglen Console Unit

Enhance the appearance and convenience of your BBC Micro & Master with the Viglen console unit.

BBC **£42**; Master **£51** (carr. £4)

VOLTMACE JOYSTICKS

| | |
|-------------------------------|------------|
| Delta 3B Single Joystick | £12 |
| Delta 3B Twin Joysticks | £17 |
| Delta 3C Joystick for Compact | £10 |
| Delta 14B Single Joystick | £12 |
| Delta 14B/1 Adaptor Module | £12 |
| Transfer Software Disc-Tape | £7 |

ROM EXTRACTION TOOL

This extremely useful tool allows you trouble free chip removal from your computer by distributing the removal force over the whole body of any 24 or 28 pin chip.

£2

ATTACHE CARRYING CASE for BBC Micro

This attache carrying case is attractively finished in mottled antique brown leatherette. An ideal and safe way of carrying your BBC Micro around. Supplied with two Keys.

Price: **£13** (£2 carr.)

28 pin ZIF SOCKET (Textool) **£6.95**

28 pin DIL HEADER PLUG
SOLDER type **£1.50**
IDCCRIMP type **£1.95**

CHIP SHOP

ASSORTED ROMS

| | | | |
|-----------------|---------------|------------------------|-------------|
| 8271 | £36.00 | ACORN ADFS | £25 |
| DS3691 | £3.50 | ACORN BASIC 2 | £19 |
| DS88LS120 | £5.25 | Acorn BCPL | £42 |
| LM324 | £0.45 | Acorn COMAL | £38 |
| SN76489 | £5.50 | ACORN DNFS | £17 |
| SAA5050 | £8.75 | Acorn FORTH | £32 |
| UPD7002 | £4.40 | Acorn Graphics | £25 |
| 2764-250nS | £3.50 | Acornsoft C | £74 |
| 27128-250nS | £3.75 | Acorn LISP | £35 |
| 27256 | £4.20 | Acorn LOGO | £49 |
| 27512 | £9.50 | Acorn OS B+ | £25 |
| 27C101G (1 Meg) | £20.00 | Acorn OS 1.2 | £14 |
| 4013 | 60p | Basic Editor | £24 |
| 4020 | £0.90 | Beebfont | £25 |
| 4464-12 | £4.45 | Beebmon | £22 |
| 4464-15 | £3.75 | BROM Plus | £32 |
| 4816 RAM | £1.75 | Buffer & Backup | £20 |
| 41256 | £2.45 | Communicator | £49 |
| 6264LP-8K RAM | £2.80 | Graphics Extension Rom | £21 |
| 6502A CPU | £4.75 | GXR-B | £22 |
| 65C02 3M | £9.75 | GXR-B+ | £22 |
| 65C12 | £9.00 | Help II | £27 |
| 6512A | £10.00 | ISO Pascal | £54 |
| 6522 | £3.40 | ISO-Pascal Stand | £30 |
| 6522A | £5.00 | Alone Generator | £28 |
| 6845SP | £6.00 | ICON Master | £45 |
| 68B50 | £2.95 | Logotron LOGO | £34 |
| 68B54 | £7.50 | Master Termulator | £62 |
| 7438 | 40p | Micro Prolog | £48 |
| 74LS00 | 25p | Microtext Disc | £199 |
| 74LS04 | 25p | Microtext Rom | £47 |
| 74LS10 | 25p | Mini Office ROM | £21 |
| 74LS123 | 80p | MUROM | £29 |
| 74LS163 | 70p | ROMAS | £29 |
| 74LS244 | 80p | ROMIT | £13 |
| 74LS245 | £1.00 | Serial ULA | £28 |
| 74ALS245 | £2.75 | TERMULATOR | £31 |
| 74LS373 | £1.00 | Toolkit Plus | £15 |
| 74LS393 | £1.00 | Video ULA | £26 |
| 75453 | 70p | ULTRACALC | |
| Acornsoft C | £74 | | |

Prices subject to change without notice and available on request. ALL OFFERS subject to availability.

Mail Order and RETAIL SHOP. Trade and Export inquiries welcome.

Government and Educational Establishments' OFFICIAL ORDERS Accepted.

Shop Hours: 9.00am to 6.00pm. Monday to Saturday. Thursdays 9am to 8pm. (Free Customer's Car Park)

VAT: UK customers please add 15% VAT to cost incl. Carriage.

CARRIAGE: Unless stated otherwise, minimum £1 on all orders. £2 on Larger items.

On bulkier items, £7 Securicor charge applies (UK mainland only). Overseas orders, carriage is charged at cost.

Specifications of all products are given in good faith but is subject to change without notice. Some items vary in their availability. Please ring for latest delivery situation.

Watford Electronics

JESSA HOUSE, 250, Lower High Street, WATFORD, ENGLAND
Telephone: (0923) 37774; Telex: 8956095; FAX: 01 950 8989

ORDER VIA
MicroLink
72-MAC030

Compiled by Steve Turnbull

One point that has come up while compiling this month's Library selection is legality. For example, the Striped Writing routine given here directly pokes system variables, which means that it won't work over the Tube.

Legality is vital to make programs usable on all Acorn machines, so wherever possible please make sure that your submissions to the Library use only documented calls to the MOS.

We have received two decimal-to-roman conversion programs, the one not printed used logarithms in almost every calculation and was considerably slower than the one here.

And we have our first forays into Pascal with a protected key input and sample menu system.

Name: ADFS Total Compact
Language: Basic
Author: Stephen Ashford

The ADFS *COMPACT command does not remove all the gaps between programs – it just links smaller gaps into larger ones. So to completely compact the disc you need to call *COMPACT repeatedly – unfortunately this can take a very long time.

The following program issues a *COMPACT command and then clears the screen before issuing a *MAP command which displays all the gaps. If the vertical position of the cursor is beyond line 2 then there is more than one gap and a new *COMPACT is issued.

The first parameter of *COMPACT is the start page for use as workspace, the second is the number of pages to use. As written the program is set up for a *COMPACT that overwrites the Mode 7 screen. Safer values in a more general situation would be 20 and 5C but it would take slightly longer.

```
10 MODE 7
20 REPEAT
30 *COMPACT 0F 71
40 CLS:*MAP
50 UNTIL VPOS<3
60 *FREE
```

Name: Decimal to Roman Conversion
Language: Basic
Author: Tony Dibble

As challenged, I have written the decimal to roman conversion routine. It works by taking each digit of the

decimal number and converting it to the appropriate roman form.

```
100 REM Decimal/Roman Conversion
110 REM =====
120 READ roman$
130 FOR DX=1 TO 4E6
140 PRINTDX," ",FNdec(DX)
150 NEXT:END
160 DEF FNdec(DX)
170 IF DX>=4E6 PRINT"Too big!":END
180 LOCAL CX,JX,MX,RS
190 MX=1000000:CX=13
200 REPEAT JX=DXDIVMX
210 IF JX=9 RS=RS+FNr(CX,1)+FNr(CX+2,1)
) ELSEIF JX>4 RS=RS+FNr(CX+1,1)+FNr(CX,J
X-5) ELSEIF JX=4 RS=RS+FNr(CX,1)+FNr(CX+
1,1) ELSE RS=RS+FNr(CX,JX)
220 DX=DXMODMX:MX=MXDIV10
230 CX=CX-2:UNTIL CX=-1:=RS
```

```
240 DEF FNr(DX,NX)
250 =STRING$(NX,MID$(roman$,DX,1))
260 DATA IVXLCDMvxlcdm
```

✓ Get it right!

| | | |
|--------------|--------------|--------------|
| 100 = 0 0 | 160 = 288 F | 220 = 6E65 8 |
| 110 = 0 0 | 170 = ED1 E | 230 = B9B3 C |
| 120 = D93B B | 180 = F209 3 | 240 = B945 2 |
| 130 = DB73 C | 190 = DF09 8 | 250 = C2F7 8 |
| 140 = D8E0 D | 200 = 5F53 2 | 260 = 742 4 |
| 150 = F510 3 | 210 = D6F1 5 | |

Send your routines – with full details of the language it is written in and the hardware/software requirements – on disc or tape to:

Steve Turnbull, Library, The Micro User, 68 Chester Road, Hazel Grove, Stockport SK7 5NY.

Remember to enclose a stamped addressed envelope for the return of your media. Five blank discs will be sent to the authors of any routines published.

Name: Break Message
Language: 6502 Machine code
Author: Andrew Moulden

This program sets up a piece of machine code which is saved so that it can be executed by typing *MSG.

This code then configures your micro so that the message of your choice appears when Break or Ctrl +Break is pressed.

The message can contain any Ascii values and may be up to 255 bytes long and will be terminated by a zero

byte. If you want the message to appear as the first message at the top of the screen, change the instruction at line 210 to:

BCS out

otherwise it will be printed after the initial start up message.

```
100 REM * Break Message *
110 osascii=&FFE3:osbyte=&FFF4
120 code=&900:FOR LX=0 TO 2 STEP 2
130 PX=code:[OPT LX
140 .start
150 LDA #247:LDX #&4C
160 LDY #0:JSR osbyte
170 LDA #248:LDX #routine MOD256
180 LDY #0:JSR osbyte
190 LDA #249:LDX #routine DIV256
200 LDY #0:JMP osbyte
210 .routine BCC out:LDX #0
220 .loop LDA message,X:BEQ out
230 JSR osascii:INX:BNE loop
240 .out RTS:.message
250 ]:$message="Hi there!"
260 PX=PX+LEN$message+1
270 !PX=13:PX=PX+2:NEXT
```

```
280 $&700="SAVE MSG 900 "+STR$PX
290 XX=0:YX=7:CALL&FFF7
```



| | | |
|--------------|--------------|--------------|
| 100 = 00 | 170 = 828 B | |
| 110 = 108 8 | 180 = 8AA B | 240 = 6E0F 9 |
| 120 = 03B6 1 | 190 = 3B5F 2 | 250 = DCEB D |
| 130 = 7CBB A | 200 = A785 7 | 260 = 772C D |
| 140 = 3208 A | 210 = D0FC 1 | 270 = 96DA 0 |
| 150 = B75D 4 | 220 = 64B1 4 | 280 = F470 F |
| 160 = 8AA F | 230 = 490F 6 | 290 = A5D2 3 |

Name: Sample Menu
Language: Pascal
Author: John Derry

In response to the request for languages other than Basic and machine code I present this sample menu with a protected input routine similar to the one by Petra Galloway.

The *inchar* function calls the *osrdch* operating system call to read one character which is then checked

to see if it is lower case. When it is, it is converted to upper case.

The REPEAT...UNTIL loop in the main program displays the prompt and then waits until either A, P or R are pressed, then passes the value on. The CASE statement selects one of the dummy procedures.

```
PROGRAM Menu_Test_1 (input,output);
VAR reply:char;
FUNCTION inchar:char;
VAR reply:char;
BEGIN
  reply := CHR(code0(&FFE0,0,0,0) MOD &100);
  IF reply IN ['a..'z'] THEN reply := CHR(ORD(reply) - 32);
  inchar := reply;
END;
PROCEDURE archive;
BEGIN
  WRITE('Archiving data')
END;
PROCEDURE process;
BEGIN
  WRITE('Processing data ')
END;
PROCEDURE readindata;
BEGIN
  WRITE('Reading new data ')
END;
BEGIN
  WRITE('Enter A)rchive, P)rocess or R)e ad new data ');
  REPEAT
    reply := inchar
  UNTIL reply IN ['A','P','R'];
  CASE reply OF
    'A' : archive;
    'P' : process;
    'R' : readindata;
  END;
END.
```

Name: Melter
Language: 6502
Author: Guy Eastwood

This very short piece of machine code will allow you to clear any screen using a variety of different ways – it'll even clear a Mode 7 screen, although it's much less impressive.

You supply the routine with two parameters, in A% you put an odd number (1, 3, 7 and so on) this controls the way the screen is cleared. And Y% should be set to the high byte value of the bottom of screen memory.

The value is used to increment an offset which is used to clear a byte in every page of screen memory. This offset eventually cycles round to zero at which time the screen is clear. The machine code is completely relocatable in memory and only takes 41 bytes.

```
100 REM * Screen Melt *
110 PROCinit:PROCassem
120 MODE 2:PROCTest:END
130 DEF PROCinit
140 ZX=RND(-TIME)
150 dend = &70:base = &71
160 ptr1 = &72:offs = &74
170 code = &900:osbyte = &FFF4
180 ENDPROC
190 DEF PROCassem .
200 FOR LX=0 TO 2 STEP 2
210 PX=code:[OPT LX
220 .melt STA dend
230 STY base:STY ptr1+1
240 LDX #0:STX offs:STX ptr1
250 .clear LDY offs:LDA #0
260 .regen STA (ptr1),Y
270 INC ptr1+1:BPL regen
280 LDA #19:JSR osbyte
290 LDA base:STA ptr1+1
300 CLC:LDA offs:ADC dend
310 STA offs:BNE clear:RTS
320 ]:NEXT:ENDPROC
330 DEF PROCTest:REPEAT CLS
340 FOR JX=0 TO 20:GCOL 3,RND(8)
350 PLOT85,RND(1279),RND(1023)
360 NEXT:REPEATUNTILGET=32
370 AX=RND(127)*2-1
380 YX=HIMEM DIV256:CALL melt
390 PRINT'Space to run again';
400 UNTIL GET=13:ENDPROC
```



| | | |
|--------------|--------------|--------------|
| 100 = 00 | 210 = 7CBB 4 | |
| 110 = 597F F | 220 = DC7B 1 | 320 = 953B 9 |
| 120 = 9D65 A | 230 = 5FA0 8 | 330 = 2F1 5 |
| 130 = 40D7 1 | 240 = 54A6 D | 340 = 3A21 4 |
| 140 = 4E1 0 | 250 = C770 E | 350 = E7A5 A |
| 150 = B58B 5 | 260 = 70C5 B | 360 = D71F B |
| 160 = 22CE 0 | 270 = 6963 E | 370 = 9A A |
| 170 = 5884 F | 280 = 2439 C | 380 = 6CD 3 |
| 180 = ED0F F | 290 = 8D5C 1 | 390 = CF23 1 |
| 190 = B623 9 | 300 = 3D18 1 | 400 = 3B5B E |
| 200 = AAB9 C | 310 = 4E7D F | |

Turn to Page 116 ▶

◀ From Page 115

Name: Cat Bytes Back
Language: 6502
Author: Richard Ellison

I noticed a couple of problems with *DOG in Library number 4, the first of which is that it doesn't print the right number of files. This may be corrected by deleting line 320 and altering line 330 to read:

```
330 LSR A:LSR A:LSR A
```

Another problem is that it doesn't allow you to select the drive you want, as not all DFSs store their drive number in the same place. What is wanted is a program that works like

the normal *CAT but also gives number of tracks and the number of files on the disc.

The program given here finds the currently selected drive using *osgbpb* with A set to 6, it then catalogues the disc (using *CAT from machine code) and finally it acquires track zero sector zero and prints up the number of tracks and files.

Type it in and save it as CatInfo when it's run it saves the machine code as C which you can then run as *C.

```
100-REM * Cat Plus *
110 osgbpb=&FFD1:osword=&FFF1
120 osasci=&FFE3:osnewl=&FFE7
130 oscli =&FFF7:fscv =&21E
140 buff =&A00:code=&900
150 fnum =buff+5
160 tracks=buff+7
170 topdig=&8F:txtptr =&F2
180 FOR LX=0 TO 2 STEP 2
190 PX=code:[OPT LX
200 LDA (txtptr),Y:STA drive:PHA
210 LDA #5:LDX #drive MOD256
220 LDY #drive DIV256:JSR osfsc
230 JSR osnewl:PLA:CMP #48:BCS ok
240 LDA #6:LDX #drive MOD256
250 LDY #drive DIV256:JSR osgbpb
260 LDA drive+1
270 .ok AND #803:STA block
280 LDA #0:STA block+1:STA topdig
290 LDA #buff DIV256:STA block+2
300 LDA #&7F:LDX #block MOD 256
310 LDY #block DIV 256:JSR osword
320 LDA fnum:LSR A:LSR A:LSR A
330 STA fnum
340 .printnum
350 CMP #10:BCS too_big:STA drive
360 LDA topdig:ORA #830:JSR osasci
370 LDA drive:ORA #830:JSR osasci
380 LDA tracks:CMP #820
390 BNE not80:LDA #ASC"8"
400 JMP print_info
410 .not80 LDA #ASC"4"
420 .print_info STA tr:LDX #0
430 .loop LDA text,X:BEQ end
440 JSR osasci:INX:BNE loop
450 .end RTS
460 .too_big INC topdig
470 SEC:SBC #10:JMP printnum
480 .osfsc JMP (fscv)
```

```
490 .block OPT Fnb(0):OPT Fnd(buff)
500 OPT Fnd(&01005303)
510 OPT Fnb(&21):OPT Fnd(0)
520 .text OPT FNs(" files on ")
530 .tr OPT Fnb(0)
540 OPT FNs("0 tracks"+CHR$13)
550 OPT Fnb(0)
560 .drive OPT Fnw(&0D00):]:NEXT
570 $&700="SAVE C 900 "+STR$PX
580 X%=0:Y%=7:CALL oscli
590 PRINT"Saved.":END
600 DEFFnd(DX)!PX=DX:PX=PX+4:=LX
610 DEFFnw(WX)!PX=WX:PX=PX+2:=LX
620 DEFFnb(BX)?PX=BX:PX=PX+1:=LX
630 DEFFNs(SS):SPX=SS:PX=PX+LENS:=LX
```

✓ Get it right!

| | | |
|--------------|--------------|--------------|
| 100 = 00 | 280 = C9E3 2 | 460 = F56D D |
| 110 = F366 6 | 290 = 8567 3 | 470 = 9558 2 |
| 120 = 86C1 0 | 300 = 60FC 4 | 480 = DDE7 8 |
| 130 = 4C96 3 | 310 = 2AAF A | 490 = 68CC E |
| 140 = 1297 3 | 320 = 178B B | 500 = 1AD9 1 |
| 150 = C4E5 F | 330 = 8BC2 2 | 510 = D149 8 |
| 160 = 3C04 A | 340 = 3C2 8 | 520 = A9D7 C |
| 170 = 78E6 4 | 350 = CCBB 6 | 530 = 98C0 0 |
| 180 = AAB9 A | 360 = C52D 0 | 540 = F6A7 0 |
| 190 = 7CBB 4 | 370 = 6AD5 6 | 550 = 9AD1 D |
| 200 = F2B4 9 | 380 = A167 B | 560 = 430B B |
| 210 = 9CCF 8 | 390 = D350 E | 570 = 759F B |
| 220 = 98C8 7 | 400 = A5DA 3 | 580 = C836 A |
| 230 = C49E 3 | 410 = B45 8 | 590 = 25BB 9 |
| 240 = ADE9 0 | 420 = 616D 3 | 600 = CF0A 5 |
| 250 = D292 E | 430 = 140D B | 610 = 3646 B |
| 260 = 4318 C | 440 = 490F B | 620 = 7623 5 |
| 270 = 14A6 A | 450 = CFA8 E | 630 = ECE4 5 |

Title: Striped Writing
Language: Basic
Author: Rupert Wood

In all screen modes except 2 and 7 you can force the operating system to think that it is in a 16 colour mode by directly poking the system workspace (byte &360). However if you do this then select foreground text red, then switch back to four colours, you get striped writing.

This program sets up various colour of stripes and displays them. There are 45 available options but I think these are the best.

```
10 MODE 1:PROCRAW
30 PRINT"Striped writing demo"
40 PRINT"RED AND WHITE STRIPED!!"
50 PROCRAW:PRINT"Red and black striped"
60 PROCYAB:PRINT"Yellow and black striped"
70 PROCYAR:PRINT"Yellow and red striped"
80 PROCBAW:PRINT"Black and white striped"
90 COLOUR3:END
1000 DEFPROCRAW:PROC3(7,1,7):ENDPROC
1010 DEFPROCRAW:PROC2(2,1):ENDPROC
1020 DEFPROCYAB:PROC2(2,4):ENDPROC
1030 DEFPROCYAR:PROC2(2,6):ENDPROC
1040 DEFPROCBAW:PROC3(2,1,10):ENDPROC
1050 DEFPROC3(AZ,BX,CX):COLOUR AZ
1060 ?&360=15:COLOUR BX:COLOUR CX
1070 ?&360=3:ENDPROC
1080 DEFPROC2(AZ,BX):COLOUR AZ
1090 ?&360=15:COLOUR BX:COLOUR CX:ENDPROC
```

✓ Get it right!

| | | |
|-------------|---------------|---------------|
| 10 = BE68 8 | 80 = 986F 4 | 1040 = 351A 9 |
| 30 = AE9 6 | 90 = AD7 6 | 1050 = B8EC 8 |
| 40 = 8507 E | 1000 = 6EF7 4 | 1060 = 2FA4 6 |
| 50 = 374D B | 1010 = B22D A | 1070 = 36B2 C |
| 60 = 6965 8 | 1020 = CA97 3 | 1080 = 569D 8 |
| 70 = F6A1 6 | 1030 = 72C2 E | 1090 = 63A5 4 |

VIDEO-TITLER II for the BBC-B

VIDEO-TITLER II is a sophisticated professional caption generator/video typewriter program with features that will impress both the pro and semi-pro video maker.

Features include:

- ★ 8 large fonts
- ★ Proportional spacing
- ★ Unlimited page saving & recall
- ★ Full, fast text editing with auto centering or screen positioning
- ★ Drop shadow & underlining
- ★ Use of 16 colours in Modes 1 or 2
- ★ Broadcast-style VTR starter clock which allows the user to add college or company name & program identification
- ★ A full Mode 7 sub-titler program using centred double-height characters in blue box background, with full text editing, saving & reloading
- ★ Program also ideal for slide-making and A/V applications

Simplicity of use is the key to the success of this excellent suite of programs as used extensively by colleges and video-makers around the country. Supplied with full instructions, advise on titling your video productions and colour interfacing your BBC with a video recorder.

VIDEO-TITLER II is £15.75. Disc only. Please state 40 or 80 track. Official orders welcome. Available exclusively from:

☎ 01-446 1866
VISIONCRAFT SOFTWARE
PO BOX 135, LONDON N20 0HF

Carswell Computers

24 Elm Road, Faringdon, Oxon SN7 7EJ
Telephone (0367) 21153

TYPEASY Version 4

- Touch typing course for the BBC B, B+, Master & Electron (version for the compact soon)
- Mistakes displayed with flashing letters
- Teaches correct finger movement
- 139 progressive exercises plus routines for writing more yourself
- Displays errors, speed and performance

disc (40 or 80 track) £15, Econet disc (80 track) £30, cassette £7.50

TYPE INVADERS

- Increases your speed - we guarantee!
- Letters and words rain down faster and faster - type correct letters to stop them
- 10 levels with 4 speeds plus colour and sound
- See review in Acorn User July '86

disc (40 or 80 track) £12.50, Econet (80 track) £25, cassette £7.50

Prices include P&P, please add 15% VAT

CONTRACT BRIDGE BRIDGE-MENTOR II

VERSION 1.10

"the best offering we have seen for the bridge player so far" BRIDGE CLUB REVIEW
"an ideal teaching aid" ACORN USER
"One of the best serious games programs" MICRO USER

+ FREE!
Cassette Software
with this ad

"The internationally acclaimed system for the COMPACT/MASTER/BBC/ELECTRON that can really improve your standard of play"

Practise your bidding: Perfect your card-play: Create your own archive of interesting hands

With high resolution colour graphics and sound, BRIDGE-MENTOR II guides you, step-by-step, through expertly analysed hands. A host of features including the spectacular "AUTOPLAY" option. The package now includes the famous "Challenge" hands archive... in total-over 60 testing hands to improve your game... with unlimited scope for more!!!



Original
Cassette
version
now only
£12.00

Now with comprehensive
24 page on-line user guide

BRIDGE-MENTOR II Version 1.10

Licensed copies available for all MASTER/BBC/ELECTRON models with 32k + DFS/DDFS and MASTER COMPACT/ELECTRON (64k +) with ADFS. Also tape-to-disc for other disc systems.

| | |
|-----------------------|--------|
| 5.25" Disc (DFS/ADFS) | £17.50 |
| 3.5" Disc (DFS/ADFS) | £19.50 |
| Tape-to-Disc | £19.50 |

Please state 40/80 track and DFS where relevant

Cheques to:- **MINIC BUSINESS SERVICES,
12 WOBURN CLOSE,
BUSHEY, HERTS WD2 3XA.**

LIGHTSPEED SOFTWARE

60 High Street Hanham Bristol BS15 3DR Telephone: (0272) 604130
24 Hour Answer Phone for all enquiries

BBC DISC

| TITLE | RET PRICE | OUR PRICE | TITLE | RET PRICE | OUR PRICE |
|---------------------------|-----------|-----------|--------------------------|-----------|-----------|
| Acornsoft Hits Vol 1 | 11.95 | 10.50 | Monopoly | 14.95 | 12.50 |
| Acornsoft Hits Vol2 | 11.95 | 10.50 | Olympic Decathlon | 9.95 | 7.50 |
| Big K.O. | 12.95 | 11.50 | Paperboy | 14.95 | 12.50 |
| Big K.O. (Compact) | 12.95 | 11.50 | Phantom | 12.95 | 10.50 |
| Cholo | 17.95 | 14.50 | Psycastris | 11.95 | 10.25 |
| Citadel | 11.90 | 10.50 | Quiz Quest | 9.95 | 7.50 |
| Code name Droid | 11.95 | 10.75 | Ravenskull | 11.95 | 10.50 |
| Code name Droid (Compact) | 14.95 | 12.50 | Repton 3 | 11.95 | 10.50 |
| Colossus Chess 4.0 | 14.95 | 12.95 | Repton 3 (Compact) | 14.95 | 12.75 |
| Commonwealth Games | 12.95 | 10.50 | Revs +4 Tracks | 14.95 | 12.50 |
| Commonwealth Games CM | 12.95 | 10.50 | Revs +4 Tracks (Compact) | 19.95 | 17.50 |
| Count with Oliver | 10.95 | 9.25 | Scrabble | 14.95 | 12.50 |
| Craze Rider | 11.95 | 10.50 | Sentinal | 14.95 | 12.50 |
| Double Phantom | 19.95 | 17.50 | Sink the Bismarck | 10.99 | 9.95 |
| DR. Who | 19.95 | 17.50 | Speech | 11.95 | 10.50 |
| Elite | 14.95 | 12.95 | Sphere of Destiny | 11.95 | 10.50 |
| Elite (Compact) | 19.95 | 17.50 | Starquake | 11.95 | 10.50 |
| Firetrack | 14.99 | 12.50 | Steve Davis Snooker | 12.95 | 10.75 |
| Fleet St. Editor 40/80 | 39.95 | 32.50 | Strike Force Harrier | 12.95 | 10.75 |
| Footballer of the Year | 14.95 | 12.50 | Strykers Run | 11.95 | 10.50 |
| Graham Gooch | 11.95 | 10.50 | Superior Col V1 Com | 14.95 | 12.50 |
| Grand Prix | 11.95 | 10.25 | Superior Col V2 Com | 14.95 | 12.50 |
| Grand Prix (Compact) | 14.95 | 12.50 | Superior Coll Vol 1 | 11.95 | 10.50 |
| Graphic Adv Creator | 27.95 | 24.00 | Superior Coll Vol 2 | 11.95 | 10.50 |
| Hyper Sports | 12.95 | 10.50 | Supertest | 12.95 | 10.50 |
| Ian Botham | 12.95 | 10.50 | Tanks | 12.95 | 10.50 |
| Ian Botham (Compact) | 12.95 | 10.50 | Tarzan | 12.95 | 10.50 |
| Imogen | 9.95 | 7.75 | The Quill | 22.95 | 19.50 |
| Imogen (Compact) | 11.95 | 10.25 | Thunderstruck II | 11.95 | 9.99 |
| Impossible Mission | 12.99 | 10.50 | Trivial Pursuits | 19.95 | 17.50 |
| Ket Trilogy | 11.95 | 10.50 | War | 14.95 | 12.50 |
| Magic Story Maker | 12.95 | 10.50 | Winter Olympics | 12.95 | 10.50 |
| Mini Office 40/80 | 16.95 | 14.50 | XOR | 12.95 | 12.50 |
| Mini Office 80T Master | 19.95 | 17.50 | XOR Designer | 14.95 | 12.50 |
| Mini Office Master Com | 21.95 | 18.75 | | | |

BBC CASSETTE

| TITLE | RET PRICE | OUR PRICE | TITLE | RET PRICE | OUR PRICE |
|---------------------------|-----------|-----------|------------------------|-----------|-----------|
| 1st Steps with Mr. Men | 8.95 | 7.25 | Micropower Magic II | 7.95 | 6.25 |
| Acornsoft Hits 1 | 9.95 | 7.75 | Mini Office II | 14.95 | 12.50 |
| Acornsoft Hits 2 | 9.95 | 7.75 | Monopoly | 12.95 | 10.50 |
| Adrian Mole | 9.95 | 7.75 | Mouse Trap | 7.95 | 6.25 |
| Arkanoid | 8.95 | 7.25 | Oxbridge | 7.95 | 6.25 |
| Big K.O. | 7.95 | 6.50 | Paperboy | 9.95 | 7.75 |
| Citadel | 9.95 | 7.75 | Phantom | 7.95 | 6.25 |
| Code Name Droid | 9.95 | 7.75 | Phantom Combat | 9.95 | 7.75 |
| Colossus Chess 4.0 | 9.95 | 7.75 | Power Pack | 9.95 | 7.75 |
| Commonwealth Games | 7.95 | 6.25 | Psycastris | 7.95 | 6.25 |
| Comp Hits 10 Vol 3 | 9.95 | 7.75 | Raid over Moscow | 9.95 | 7.75 |
| Computer Hits 5 | 6.95 | 5.35 | Ravenskull | 9.95 | 7.75 |
| Craze Rider | 9.95 | 7.75 | Repton 3 | 9.95 | 7.75 |
| Dodgy Geezers | 8.95 | 7.25 | Rev + 4 Tracks | 12.95 | 10.50 |
| Elite | 12.95 | 10.95 | Round World 80 Screens | 7.99 | 6.75 |
| Exploding Fist | 9.95 | 7.50 | Scrabble | 12.95 | 10.50 |
| Firetrack | 9.95 | 7.50 | Sentinal | 9.95 | 7.75 |
| Five Star Games 2 | 9.95 | 7.50 | Speech | 9.95 | 7.75 |
| Five Star Games 1 | 9.95 | 7.50 | Sphere of Destiny | 7.95 | 6.75 |
| Footballer of the Year | 9.95 | 7.50 | Spy Hunter | 9.95 | 7.75 |
| French on the Run | 9.95 | 7.75 | Spy V Spy | 9.95 | 7.75 |
| Future Shock | 7.95 | 6.25 | Star Clash | 4.99 | 4.25 |
| Galaforce | 9.95 | 7.50 | Starquake | 9.95 | 7.75 |
| Goal | 7.95 | 6.25 | Steve Davis Snooker | 8.95 | 7.25 |
| Graham Gooch | 9.95 | 7.75 | Strike Force Harrier | 9.95 | 7.25 |
| Grand Prix | 9.95 | 7.75 | Strykers Run | 9.95 | 7.75 |
| Graphic Adventure Creator | 22.95 | 16.50 | Supertest | 8.95 | 7.25 |
| Here and There Mr. Men | 7.95 | 6.25 | Tarzan | 9.95 | 7.50 |
| Ian Botham | 7.95 | 6.25 | The Hobbit | 9.95 | 7.50 |
| Imogen | 8.95 | 7.25 | The Quill | 16.95 | 14.50 |
| Impossible Mission | 8.99 | 7.25 | Thunderstruck | 7.95 | 6.50 |
| Jet Set Willy | 7.95 | 6.25 | Thunderstruck II | 7.95 | 6.75 |
| Kayleth | 9.95 | 7.50 | Trivial Pursuits | 14.95 | 12.25 |
| Ket Trilogy | 9.95 | 7.50 | Vandaloo | 7.95 | 6.50 |
| Konam's coin ops | 9.95 | 7.50 | WAR | 8.95 | 7.25 |
| Last of the Free | 7.95 | 6.25 | Winter Olympics | 7.95 | 6.25 |
| Magic Story Maker | 9.95 | 7.50 | Winter Wonderland | 7.95 | 6.25 |
| Master of Universe Adv | 9.99 | 7.50 | Word Games | 9.95 | 7.75 |
| Mega Sports/Genesis | 8.95 | 7.25 | XOR | 9.95 | 7.75 |
| Micro Value Gold | 3.99 | 3.50 | Yie Ar Kung Fu | 8.95 | 7.25 |
| Micropower Magic | 7.95 | 6.25 | Yie Ar Kung Fu II | 8.95 | 7.25 |

All prices are inclusive of VAT and delivery inside the UK. Please make cheques P.O.'s payable to 'LIGHTSPEED SOFTWARE', all orders despatched within 24 hours, but allow 7 days.



No strings to this puppet

I HOPE that BBC Micro owners are beginning to look forward to the cleverly Quilled games from Larsoft.

Their latest offer, *The Puppet Man*, is very elegantly designed and will particularly appeal to those who have a classical background or an interest in theatre.

Geoff Larsen described it as a kind of celebration of theatre and pantomime and I think that sums it up. Ordinary adventurers will like it too – with its well-crafted puzzles.

At the heart of the game are three of the nine Muses – Terpsichore, Thalia and Erato: They are reflected by three characters in the story who need help.

Ballerina cannot dance because she has lost her shoes, Tomaszewski the clown cannot perform until his eggshell "face" has been found and Pierrot has locked up his love poem to Columbine and thrown away the key. Your task is to find and restore these items to their owners.

Other characters in the adventure are Harlequin (naturally) and the Rub-a-Dub-Dub trio complete with wooden tub. Most of the characters can be spoken to and in spite of the dreadful puns, some helpful clues are provided.

Play is complex, several locations have to be revisited as the game unfolds and careful mapping is essential if the adventurer is to make any progress.

The descriptions cleverly maintain the atmosphere throughout the game and it was possible at times to forget that *The Puppet Man* is a Quilled offering.

In terms of difficulty I would rate it medium-to-hard but beginners at adventuring should not be put off – Geoff Larsen always provides proper help for those who are stuck (so long as you send a stamped, addressed envelope).

I have described Larsoft adventures as consistently at the top of division two and this latest game is no exception; it is better than some costing twice the price and you should add it to your collections.

The Puppet Man costs £3.95 and is

available from Larsoft, 4 Chantry Road, Clifton, Bristol BS8 2QD.

I now have a new example of frustration: A Robico disc has just landed on my desk: It is not Master compatible, my own Model B is still being repaired and my borrowed machine is a Master!

However, I shall deal with *The Hunt* –

gested courses of action to the map, even when I don't follow them up right away. When that is the case I include a few question marks to remind myself that the action has not yet been tried.

The spiral ramp is the core of the Central Dungeon in the game and it contains a number of nasty surprises as well as

| Room | Description | Move | Result |
|------|--|------|--------|
| 82 | On the ramp, hand sign points to narrow opening Throw ring to go safely..... | D | 80 |
| | | IN | 83 |
| | | U | 84 |
| 83 | Small soft room, 5 fleshy pillars; ruby | S | 82 |
| 84 | On the ramp outside long room with scratches | D | 82 |
| | | IN | 85 |
| | | U | 88 |
| 85 | In East crusher room (drop wedge) Wait around a bit | E | 84 |
| | | W | 86 |
| 86 | West crusher room by door into treasure chamber | E | 85 |
| | | W | 87 |
| 87 | Treasure chamber; agate | E | 86 |
| 88 | Wobbly section When boulder comes, pop into a doorway | D | 84 |
| | | U | 89 |
| 89 | On the ramp outside a round opening | D | 88 |
| | | IN | 90 |
| | | U | 91 |
| 90 | On the brink of a deep dark pit | E | 89 |
| | | D | 71 |
| 91 | On a loose section of the ramp | D | 89 |
| | | U | 92 |
| 92 | On the ramp outside a dark doorway | D | 91 |
| | | IN | 93 |
| | | U | 95 |
| 93 | Dead end dark room; black pedestal Wedge, also Sphere, (Lead this to the other one) | W | 92 |
| | | U | 94 |

Figure 1: *Dungeon Adventure* logical map

Search for Shauna as soon as I can. You will be interested to know that *The Hunt* is an illustrated adventure.

For this month's tutorial, I want to look at a section of Level 9's *Dungeon Adventure* to see what can be learned from clever room descriptions and how to take calculated risks – having saved first. So, examine the logical map in Figure 1 for a minute or two before reading the commentary.

Please remember that the comments I have added to the room descriptions are often the fruit of several hours thinking and experimentation.

I always find it useful to add sug-

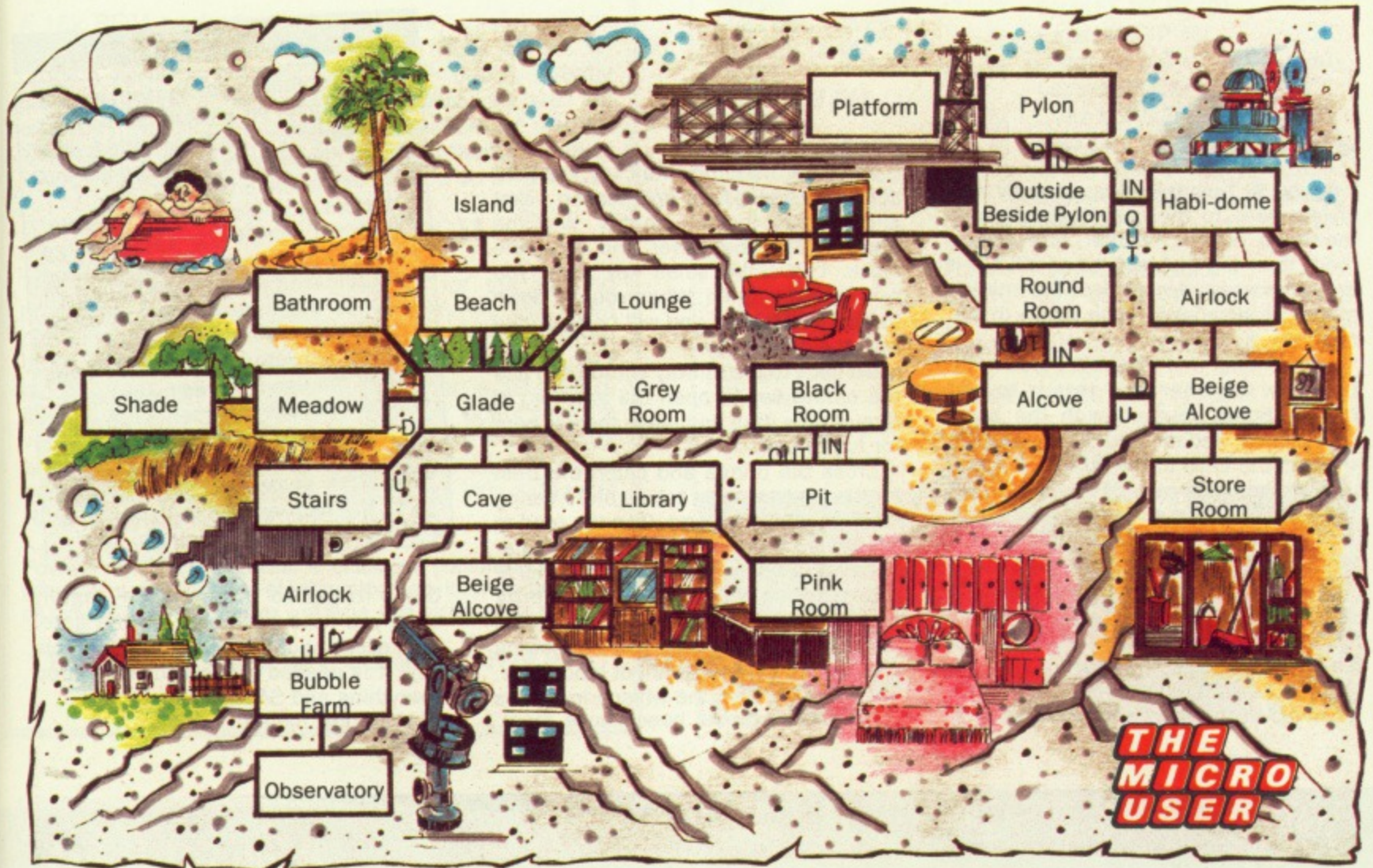
many treasures.

The hand sign (82) proved to be a clue to the sort of room location 83 was rather than a mere signpost.

To begin with I strolled in and duly died – but I had saved my position on the ramp before entering so that didn't matter. Eventually, I found a ring that was too hot to hold without protection.

Once I'd got the gloves, I threw the ring into the hand room and found that I could then enter safely.

The scratches outside room 84 promised trouble and so it proved. Thus when I located the dead end dark room and found a wedge, I went back and tried



Part 6 of Stuart Booth's Snowball map – the Habi-Dome or Snowball Hilton

again. I still saved first: Over confidence is the death of too many adventurers.

The final problem in this section was signalled by the sound of a boulder coming down from above when you are on the wobbly section of the ramp.

This problem is designed so that you cannot move into a room straight from the wobbly section.

If you retreat down, you land up in the crusher room again – you do not have the wedge at this stage. Thus it becomes a question of having the courage to move up towards the approaching boulder and then going into the round opening so that it passes down the ramp without killing you.

Notice, too that if you decide to go down from the brink of the deep dark pit and then move out from your destination, you end up lower down the ramp. It's a modest teleport device though not to be confused with the collar activated one.

Next month the column will feature the large number of interesting letters from readers that have built up in my file and hopefully, a review of Temple of Terror. Until then, happy adventuring.

Solution to Emerald Isle. part 2.

Module 4: Go back through the cave to the stream and fill the lamp with (fresh) water. You may be able to fill the lamp with sea water but knowing Pete Austin I wasn't taking any chances.

Put the carbide granules in the lamp and you can then LIGHT LAMP as an alternative to using the short lived matches.

To turn the lamp off, enter EXTINGUISH LAMP and expect a grudging response when you insist. This may mean its an everlasting lamp, I never bothered to find out.

Finally, note that you can retrace your steps in dark areas without using the lamp and survive. You really have to blunder around a long time in the dark before you are killed.

Light the lamp when returning through the cave this time and collect the map that you will now be able to see there. Next, visit the mine with the lamp and fence post.

Take the shovel first and dig to find the platinum pyramid, then push the

ceiling with the fence post in the dusty tunnel. Now get the rope and pick from the mine debris. Dig here for the opal and go back to the middle of the beach once again.

Don't forget to collect the post on the way as you will need this later. Dig with the shovel in the middle of the beach. The spikes you find need to be taken and worn. Leave the post and treasures here.

Climb back into the canoe, this time heading N and then W into crystal waters and up the blowhole (using the lamp) and visit the car park to find the wallet.

Don't go straight back to the beach, but visit the north isle and dig below the palm tree for the doubloons and the figurine.

Take the wallet back to the police station near the seaside railway station and enter DROP WALLET to get the reward money. After that, drop everything at the middle of the beach once more and save.

Turn to Page 120 ►

◀ From Page 119

Module 5: Take the reward money and go overseas to the cobble square with the shops. Buy the hammer, screwdriver, food, then the picture last of all: Do it any other way and you'll not have enough money to go round. Back again to the beach.

Visit the hut and RELEASE PLANK with the claw hammer and return to the beach. Equip yourself with the short rope, lamp, ladder and plank and go through the cave to the stream gravel.

Drop the plank at sedge tussocks and cross to horrid heights. Find and examine the boulder to get the small key and get the paper from the hollow.

Visit the river valley, extend and drop the ladder across the stream. Cross the ladder to the hill slopes to find the treasure chest, then tie the short rope to the pinnacles and down you go for the coronet. Back again to the beach. Drop

everything and save.

Module 6: Take the small key, the gold coin, boathook, food and season ticket and go back to the tree city. Visit the plaza, climb the tower and wind the clock. Leave the small key here, you won't need it again. When you get down to the plaza again, you will be rewarded with the ornate key.

Go back to the railway station and use the ornate key to open the gate, go W through the gate and leave the key here for future use.

Cross the bridge and catch the train for the forest village, taking and wearing the armband as you go. Give the food to the beggar in return for the identity card.

Visit the hospital and give the nurse the gold coin in return for being inoculated. Use the boathook to pull the hanging vines so that you can swing safely across the river full of crocodiles. Get the bowl from the whispering grass and go back to the beach once more.

Helpline

Neil Shipman has written in with some tips for **Dodgy Geezers**. The man-hole cover can only be lifted once you've chosen your gang and got into part two of the adventure.

Here's how to recruit Tweedle: Phone Ken from the kaff (George gave you the number just before you were released from prison) and then go to the dog track and give Tweedle Ken's tip.

Meet him later in the Fish Finger pub. At the one hundred move count, enter the arcade and then go straight to the graveyard. Meet up with Tweedle again at the warehouse, wait, then search it. You can now enter the club and Soapy will talk if you buy enough rounds of drinks.

Don't forget to drop the key again once you have been through the gate. Whatever you do, don't lose track of this key, it is needed in the endgame. Drop everything and SAVE again.

More next month!

The truth about TELEX

How much does it cost to go on Telex?

You could go the conventional way and buy a dedicated Telex machine. The cheapest will cost you £1,604 (the Whisper), the dearest £2,892 (the Cheetah). You will also need a separate telephone line, costing £101 to install, plus £404 a year rental. That's a total outlay over the first year of a minimum of £2,109. (All prices include VAT.)

Or you could do what more and more BBC Micro users are doing – use your BBC Micro to double as a Telex machine. And just use your ordinary telephone!

How do I turn my BBC Micro into a Telex machine?

All you need is a modem and appropriate communications software (see the advertisements in this issue), a telephone, and a subscription to *MicroLink*. Telex is just one of a growing number of services available to micro users on *MicroLink*. You can also read the news as it happens, go teleshopping, create your own closed user group, send telemessages and electronic mail right round the world, download free telesoftware programs directly into your micro . . . and much more.

But why use Telex?

Because it's a standard means of instant communication between businesses. Today there are 150,000 Telex machines in use in Britain – and more than 2 million worldwide. It's used to dramatically speed up business communications – just as quick as using the phone but far more efficient, because you have a hard copy of every "conversation" for your records.

But there's a big bonus you get when you use *MicroLink* for Telex that the conventional way doesn't offer.

With *MicroLink* you don't HAVE to be in your office to send or receive Telex messages. You can just as easily use your computer at home (or even a portable). So now you can check whether there are any Telex messages waiting for you – anywhere, anytime. How's that for your business efficiency?

How to Join:
See Page 47

Tubelink

Advanced RAM Utilities Plus

A 16k ROM packed with 30 genuinely useful utilities for Solidisk sideways RAM users (BBC Model B) ranging from the 16k unit to the 256k board. Greatly eases management of sideways RAM, as well as everyday disc and machine use. Available on disc for sideways RAM, or on 16k EPROM. Amazing value at £9.95 for a 40/80 track 5.25" disc, £14.95 on EPROM.

The Tube Toolkit ROM

The ultimate utility ROM designed for the second processor user. Among its many features, the ROM contains powerful memory transfer functions allowing both large and small blocks of memory to be copied quickly from one processor to the other; a full-feature 65C02 disassembler; TUBE memory editor; and a versatile printer buffer function. Ideal for Acorn 6502 and Master Turbo Co-processors! Available on a 40/80 5.25" disc at £9.95 for loading into sideways RAM or on 16k EPROM for only £14.95.

Postage FREE on all items. A catalogue containing detailed information on our range of utility programs is available FREE on request. Dealer enquiries welcome. Orders/enquiries to:

Tubelink, PO Box 641, LONDON NW9 8TF

DELTA COMPUTERS

BBC MASTER SERIES

| | |
|-----------------------------|----------------|
| Archimedes | Ring for price |
| Master 128 | £395.00 |
| Master Turbo Module | £115.00 |
| Master Compact Entry System | £415.00 |

OPUS DISC DRIVES

| | |
|--------------------------|---------|
| 5802 400K DS DD 40/80T. | £104.95 |
| 5802DB Dual 800K 40/80T. | £204.95 |
| 5802D as 5802DB+PSU | £234.95 |
| Opus DDOS (With a drive) | £40.00 |

PRINTERS (inc lead)

| | |
|--------------------|---------|
| Epson P-40 | £49.95 |
| Citizen 120D | £179.00 |
| Star NL-10 | £237.00 |
| Panasonic KX-P1081 | £169.00 |

SPECIAL OFFER

| | |
|-----------------------|--------|
| Electron | £49.99 |
| Electron+Plus 1+View+ | |
| Viewsheets | £79.99 |

PRINTER RIBBONS

| | |
|----------------------|-------|
| Brother M1009 | £3.25 |
| Canon PC1080A | £3.25 |
| Epson FX, MX, RX 80 | £2.70 |
| Epson LX80, LX86 | £2.70 |
| Epson FX, MX, RX 100 | £3.35 |
| Panasonic KX-P1081 | £3.99 |
| Citizen 120D/LSP10 | £4.60 |
| Citizen MSP10,20 | £2.70 |
| Citizen MSP15,25 | £3.25 |
| Kaga 810 | £3.25 |
| M Tally MT80 | £3.50 |
| Seikosha GP100/250 | £2.65 |
| Shinwa CP80 | £3.50 |

UNBRANDED DISKS

| | | |
|-------------------|---------|--------|
| 5.25" DS DD 96tpi | 25 off | £14.99 |
| 5.25" DS DD 96tpi | 50 off | £26.99 |
| 5.25" DS DD 96tpi | 100 off | £48.99 |
| 3.5" DS 135tpi | 10 off | £17.99 |
| 3.5" DS 135tpi | 25 off | £39.99 |

All orders over £100 receive free Touchpad for BBC worth £49.95 (while stocks last).

MINIMUM ORDER £10.00

All prices include VAT

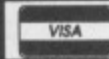
Please add £5 carriage on orders over £100

Mail Order only at this address

Trade and Educational enquiries welcome

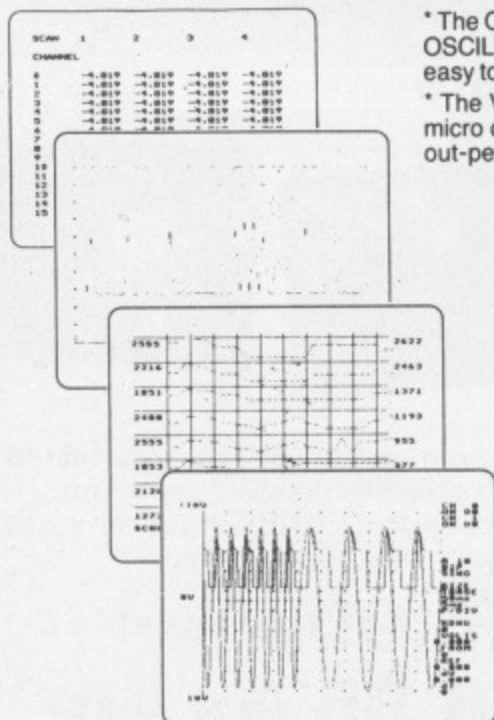
85 Union Street Oldham Lancs

061-626 3841



Oasis Products

OASIS VIRTUAL INSTRUMENT SYSTEM



* The OASIS Virtual Instrument System (VIS) emulates conventional DVM, OSCILLOSCOPE, CHART RECORDER, X/Y PLOTTER and DATA LOGGER in one easy to use package and also provides sophisticated data analysis tools.

* The VIS data acquisition module and instrument emulation software turns the BBC micro directly into a versatile and flexible laboratory measurement system which can out-perform and is easier to implement than IEEE 488 linked systems.

* VIS professional, ready-to-use instrument emulations include:

Multi-channel DVM with real time numeric and graphic displays, storage SCOPE with on-screen measurement and waveform zoom, DATA LOGGER with logged data compression algorithm and X/Y PLOTTER with programmable integration periods.

HARDWARE

VIS is based on a precision computer controlled 16 channel A-D converter, with six programmable ranges and read rates of 50k samples per second at 8 bit resolution, 25k at 12 bit.

This simply installed unit has proven long term stability and reliability.

SOFTWARE

The menu-driven acquisition, analysis and display programs combine on screen set up of measurement parameters, SPREADSHEET data manipulation and a range of data display formats, including 8 trace CHART RECORDER and oscillogram.

Total data mobility from measured information to memory, disk, screen and HARD COPY output.

The OASIS VIS carries full documentation to allow the beginner or professional programmer to create new interface applications or personalised instrument emulations.

PRICE

At £399 (ex VAT), the price of the complete VIS system is less than any one of the instruments it replaces. Performance enhanced versions also available, e.g. higher acquisition speeds.

For fast delivery, phone your order on 0603 747887. Technical queries answered and requests for further data on this number.

The Street, Old Costessey, Norwich NR8 5DF Tel: 0603 747887

Design Consultancy

GALLERY

No. 7

THANKS for the pictures – keep sending them in. This month we feature some works of art by Jeremy Moss, N. Carson, Jim Crossley and Matthew Searle. We don't mind whether it's just one masterpiece or a full gallery that you send – if the pictures are good you'll see them in print. Please send screen dumps on disc or tape with a note saying which mode they use.

The address to send them is Gallery, The Micro User, Europa House, 68 Chester Road, Hazel Grove, Stockport SK7 5NY.



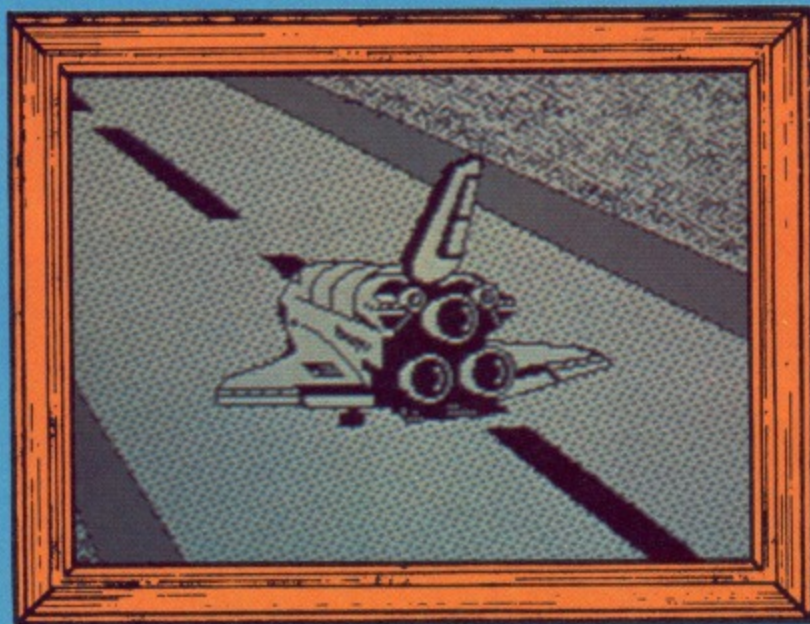
Android Dreams by Jim Crossley



Peeling by Jeremy Moss



Magic by Jim Crossley



Landing by N. Carson



Serious Stuff by Matthew Searle

Amazing Acornsoft bargains

GAMES

THREE tapes for the price of ONE!

Revs and Aviator are two of the best simulations ever produced for the BBC Micro. And with Revs Four Tracks you will be able to experience the excitement of driving around some of Britain's most renowned racing circuits.

Games Galore
Normally £39.85
Offer Price £9.95

Save £30!



LANGUAGES

Powerful roms pack a punch

- BCPL is the most flexible of modern structured languages and is the easiest to learn. It is particularly good at handling Input and Output, and is perfect for writing utilities, screen editors, control systems – even games software. The package includes a language rom, a disc containing compiler, screen editor, 6502 Assembler, utilities – and a 450 page User Guide.

BCPL Bundle
Normally £109.70
Offer Price £29.95

Save £80!

- Forth is a complete implementation of the 1979 standard specification. It is a compiled language which typically runs five times faster than Basic, and this rom version gives full error messages, making it ideal for beginners and enthusiasts alike.

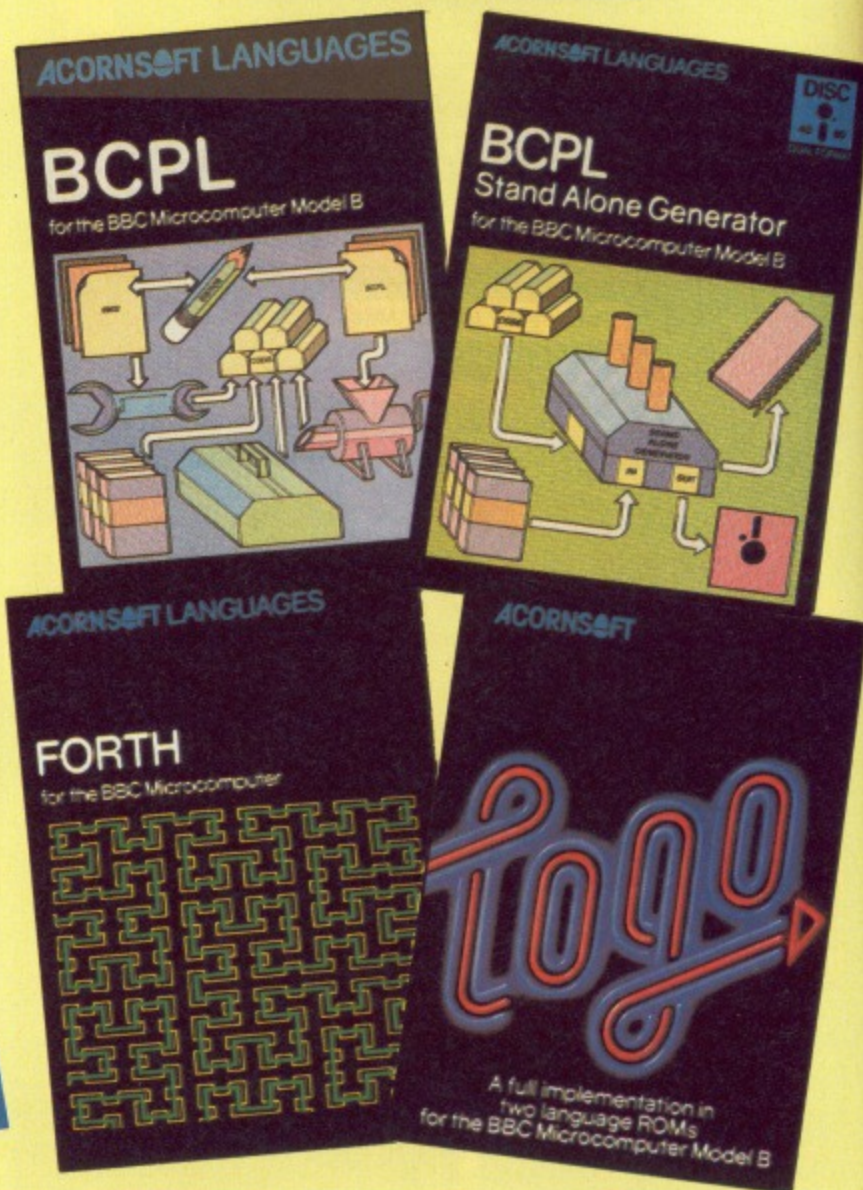
Normally £49.85
Offer Price £19.95

Save £30!

- Acornsoft Logo is a full implementation of the Logo language widely used in schools. Special features include multiple screen turtles, extensive sound and graphics commands, and list processing facilities. The package includes two roms, three manuals, a reference card, one disc and a cassette.

Normally £69.00
Special offer £29.95

Save £39!



MUSIC

Make your micro sound sensational!

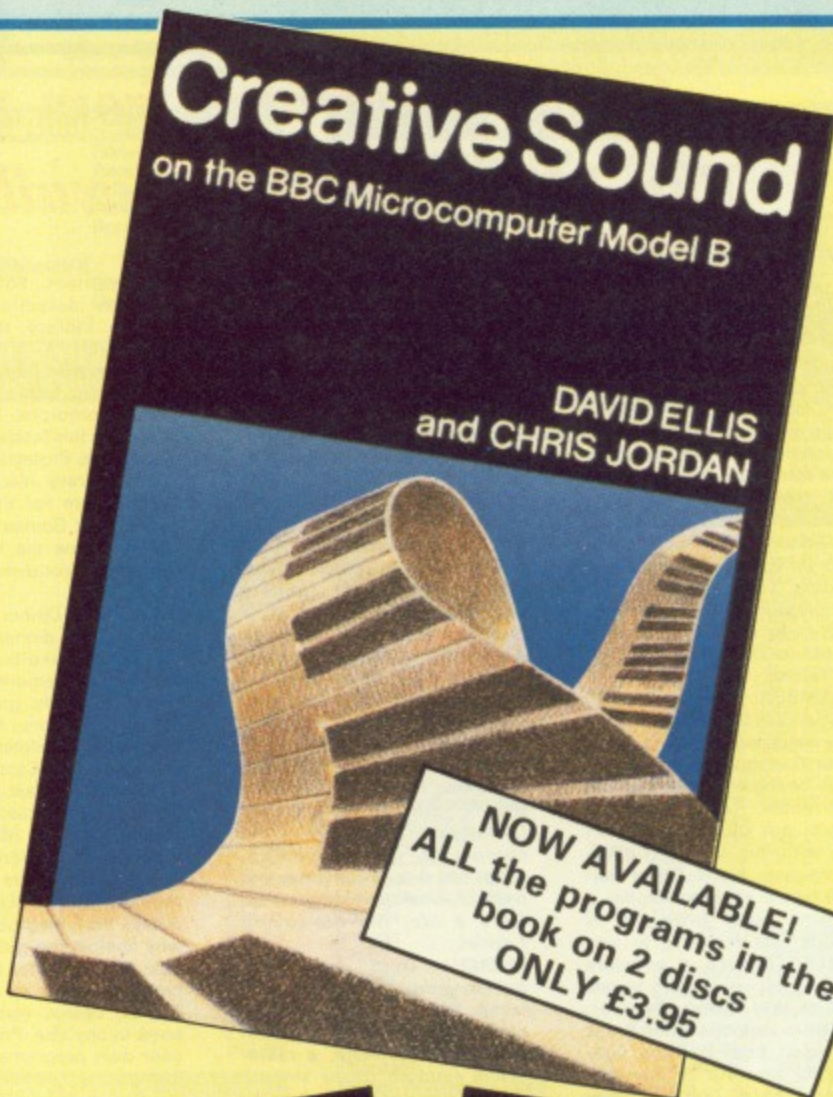
Creative Sound is a beautifully presented 320 page book, packed with everything you need to know about music on the BBC Micro.

The authors are musician, composer and programmer David Ellis, and Chris Jordan, who designed the BBC Micro's sound system as well as the Acorn Music 500 and 5000.

There are more than 30 program listings, including programmable synthesisers, sequencer, music compiler, example tunes, Mozart's Musical Dice Game, composition aids, pitch trainer, scales program – and sound effects galore.

Creative Sound
Normally £9.95
Offer Price £4.95

Save £5!



EDUCATION

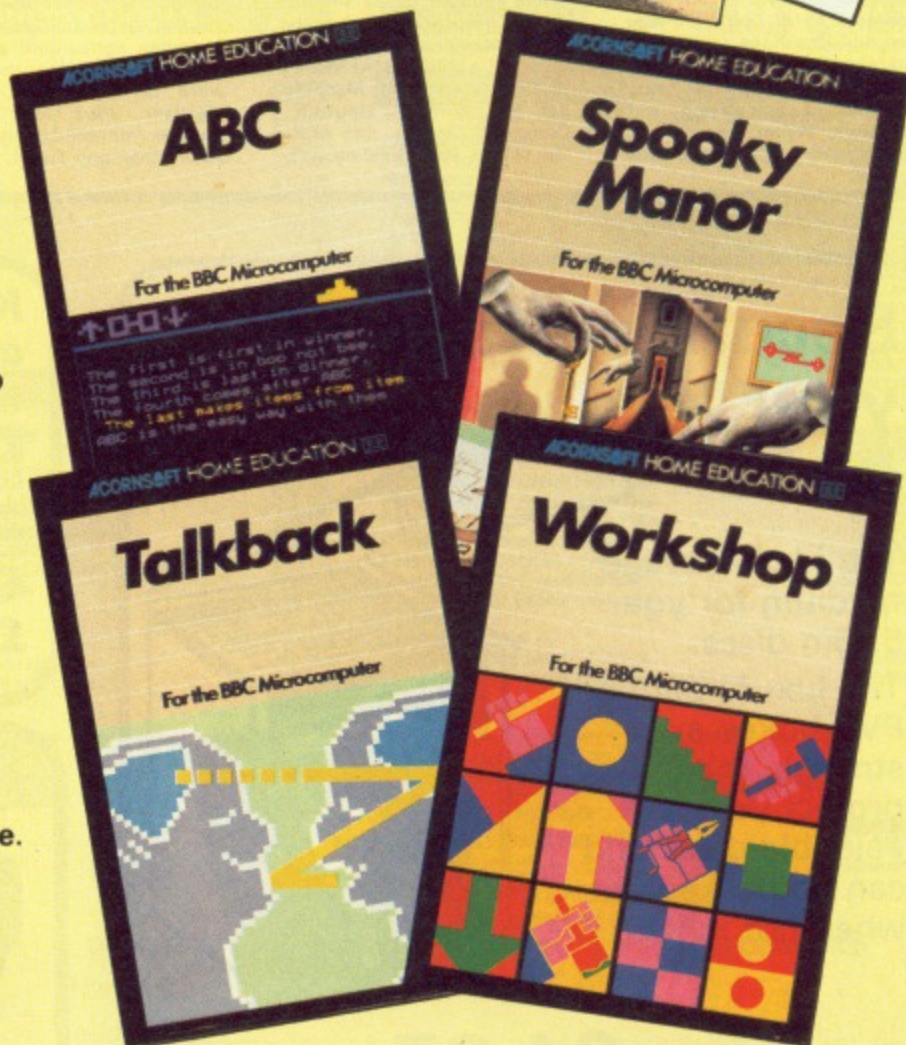
For the younger micro user . . .

- ABC is a unique writing tool for seven year olds and upwards, designed to be easily operated and quickly understood.
- Spooky Manor is an adventure game for up to four players that encourages planning and logical thinking.
- In Talkback you can hold conversations with the computer by typing in sentences – and even create your own computer characters.
- Drill, cut, squash and paint your creations using the machines in the Workshop. Suitable for children from the age of three upwards.

Previously each package cost £9.95 – now you can buy all four tapes together for the same price.

Educational extravaganza
Normally £39.80
Offer price £9.95

Save £30!



TO ORDER TURN TO THE FORM ON PAGE 141

*All the programs from the last 12 months of
The Micro User are available on tape and disc!*

NOVEMBER: Maltese Cross, play this superb domino simulation. Life, the generation game to produce colourful patterns. Star Print, a clever routine to give easy access to print styles. View Ruler, a handy program to provide View with a cursor on its ruler line. Shadows, an educational program to throw some light on the subject. Dual Screens, a routine to store two screens in memory at once. BOS Editor, a superb on-screen editor for Basic programs. Body Building, three programs for your pressure sensitive devices. *PLUS three more files for Any Questions (Office practice, DIY, and Tables).*

DECEMBER: Santa's Sleigh, help Santa in his gift warehouse - but watch out for the monster spider. Christmas Box, a superb game of logic to test the old grey matter. Tables, take the tedium out of multiplication tests with this short but effective routine. Flood Fill, a versatile fast fill routine. Scroller, a machine code program to provide fast scrolling in any direction. Speech, a software utility to get your micro to talk back to you. Break Recover, hold on to variables when Break is pressed. Body Building, software for the relative humidity measure. *PLUS Two more files for Any Questions (Arithmetic and Home Economics).*

JANUARY 1987: Ayo, the game of Africa, needing strategy and foresight. Flying Fingers, put your typing to the test in this

fast arcade style test. Function keys, access 16 function keys while retaining full cursor editing. Disassembler, handles all 6502 and CMOS 65C02 instructions. ADFS Menu, step your way quickly through the hierarchical menu system. Tweetie, illustration of some of your micro's superb graphics capabilities. Body Building, the program for your BBC Micro drumkit. *PLUS Two more files for Any Questions.*

FEBRUARY: Rhondo, a fast-action shooting gallery spectacular. 6502 Games, a demonstration of collision detection routines. Choice, develop your child's decision making skills. Map test, grid reference game Date Stamp, save time when filing. List Hold, stop that scrolling screen. Wordwise Plus Index, indexing plus file description. Compressor, variable name compactor. Body Building, super fast A to D converter and multi channel oscilloscope. *Plus Save a life, the life-saving tutorial.*

MARCH: Dino, ride the gobbosaurus in this prehistoric romp. Birthday Mystery, discover the implement of a serious crime. Half-Life, a radioactive random decay simulation. Compressor II, create multi-statement lines. Teletext Carousel, a utility for the Morley Teletext Adapter. Hac Man, the Jet Set Willy II Upgrade. Command Clashes, rom problem solved. Body Building, soft-

ware for temperature measurement. 6502 Games, collision detection demonstration. Library, three useful routines.

APRIL: Hunkie Egg, collect the eggs in our fast action Easter game. Biomorphs, create creatures with this fascinating simulation. Disc Protection, a utility to stop piracy disc. Counting, the program for the DIY keyboard. 6502 Games, make your sprites follow the leader. *Plus four more routines from the Library.*

MAY: Ducks Dinner, help Daffy Duck get his dinner and avoid the poison skulls. Ludo, an excellent implementation of the popular family game. Interactive Programs, incorporate the wealth of teletext into your programs. Disc Cataloguer, find misplaced files fast. Sid and the Beetle, a simple teaching aid for logical thinking. 6502 Games, programs to get sprites moving in a window. *Plus four more routines from the Library.*

JUNE: Prof McBrolly, pit your wits against the goblins in this race against time. Checksums, type in listings in confidence. Raglan, design your own patterns to any size. Prommer, run your own programs from rom. Button, double the firepower of your Compact. Cansim, a Canadian agricultural simulation. Body Building, the software to drive your video digitiser. *Plus four more routines from the Library.*

JULY: Diamond Quest, dodge

boulders to collect the jewels. Espionage, infiltrate an enemy base. Printer Buffer, work while you print. Super Line Editor, powerful Basic line editor. Encrypt, a disc-based utility. Basic Repair, cancel those Bad program errors. Basdat, bytes to Basic - a unique data creation program. Logo-Talk, train your imagination and visual memory. Computers in Action, verify your payslip. *Reply, add new star commands. *Plus more routines from the Library.*

AUGUST: Survive! Fast action beat the computer or two player game. Address Book, short and powerful utility. Ram Arrays, increase your Basic capacity by 8k or more. Computing in Action, wallpaper calculator. Programming Adventures, more on how to create your own quests. *Plus more routines from the Library.*

SEPTEMBER: Soccer Manager, take your team to the top of the First Division. Disc Copy, a great utility to banish those file transfer blues. Fuel Consumption, find out how much your car uses. Body Building, taking a step in the right direction with the map measurer listings. Programming Adventures, learn how to write better Basic with routines to squeeze bytes into bits. *Plus many more high quality routines from the Library.*

OCTOBER: Space Arena, fight to the death in this fast action two player space game. Hit the Beat, lay down that rhythm and

super screen design program. see how long a sequence you can play. MicroWorks, let your imagination run wild with a Point of Interest, how much is your loan really costing? Disc Servicing, Don't lose your valuable disc data. Late News, world events in print at the speed of light from CEEFAX. Ample Music, learn the best techniques for programming your Hybrid system. Checksums, check your typing accuracy fast with machine code checksums. *Plus five more routines from the Library.*

Save wear on your fingers and ensure all your programs are error-free by using our monthly tapes or discs. They are only:

£3.95 cassette
£4.95 5 1/4" disc
£7.75 3 1/2" disc

You can also take out a year's subscription and have them posted to you each month.

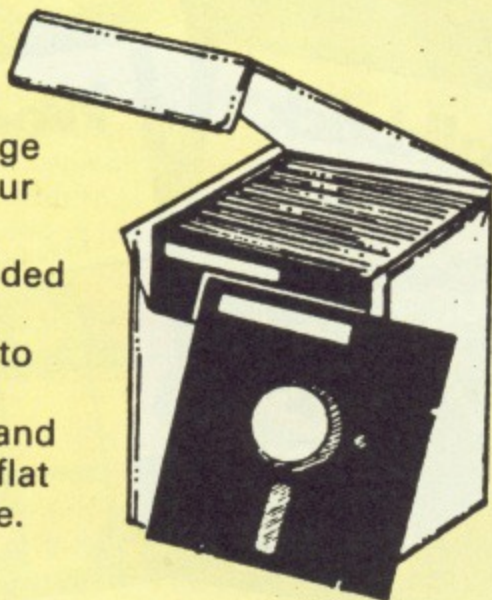
Cassette £35
5 1/4" disc £50



**Secure storage for
your
discs**

The ideal storage medium for your 5.25in discs.

The luxury padded PVC boxes are strongly made to protect your valuable discs and can be packed flat when not in use.



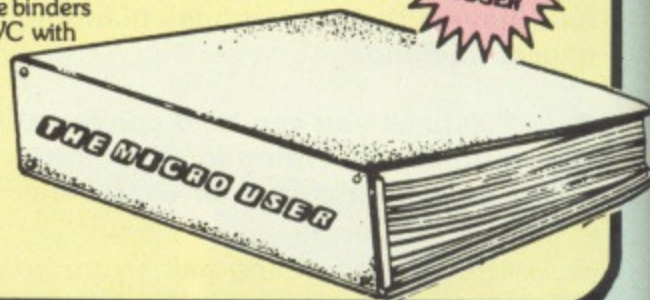
Box holds up to
60 5.25in discs

£4.95

**Keep your copies neat
and complete**

These handsome binders are bound in PVC with the Micro User Logo in gold blocking on the spine

**Only
£4.95**



**Your BBC Micro needs
protecting!**

Our luxury dust cover is made of soft pliable water-resistant transparent vinyl, bound with strong cotton and decorated with the Micro User logo in black.

Only £3.95



p h

p&h electronics Ltd

5 THE PARADE · YATELEY
HANTS
TEL: 0252 877222

24 HR SALES LINE
0252 878107

22/24 GUILDFORD ROAD
BAGSHOT · SURREY
TEL: BAGSHOT 0276 74533

Acorn Systems/Upgrades

| | |
|-----------------------------|----------|
| Master 128K | £435.00 |
| Master Turbo Upgrade | £115.00 |
| Master 512 Upgrade | £200.00 |
| Master Eprom Cartridge | £14.00 |
| Compact with TV Modulator | £395.00 |
| Compact with Mono Monitor | £435.00 |
| Compact with Colour Monitor | £599.00 |
| Compact 2nd 3.5" drive | £110.00 |
| 1770 Disk Upgrade Kit | £46.00 |
| A305 Basic | £918.85 |
| Mono | £976.35 |
| Colour | £1148.85 |
| A310 Basic | £1006.25 |
| Mono | £1063.75 |
| Colour | £1236.25 |
| A410 Basic | £1608.85 |
| Mono | £1723.85 |
| Colour | £1838.85 |
| A440 Basic | £2643.85 |
| Mono | £2701.35 |
| Colour | £2873.85 |

Printers

| | |
|-----------------------------------|---------|
| Panasonic KXP 1081 | £179.00 |
| Citizen 120D + Parallel Interface | £199.00 |
| Epson LX800 NEW | £270.00 |
| Panasonic KXP1082 | £250.00 |
| Printer Lead (Centronics) | £12.00 |

Amstrad Systems

DISCOUNT WITH SERVICE

| | EX VAT | INC VAT |
|---|----------|----------|
| PCW8256 | £385.00 | £442.75 |
| PCW8512 | £480.00 | £552.00 |
| PC1512 SDMM | £435.00 | £500.25 |
| PC1512 SDCM | £585.00 | £672.75 |
| PC1512 DDMM | £535.00 | £615.25 |
| PC1512 DDCM | £700.00 | £805.25 |
| PC1512 HD20MM | £865.00 | £994.75 |
| PC1512 HD20CM | £1030.00 | £1184.50 |
| PC1512 Business Pack Twin Drive - Mono + Printer + W/P + Spreadsheet S/Ware | £670.00 | £770.50 |
| PC1640 SDCM | £760.00 | £874.00 |
| PC1640 DDCM | £940.00 | £966.00 |
| PC1640 HD20CM | £1125.00 | £1293.75 |

Computer Books

| | |
|-------------------------------------|--------|
| 15 Hour Word Proc Use BBC View | £5.95 |
| 30 Hour BASIC Standard Ed. | £7.95 |
| 40 Best Mach Code Routine BBC | £7.95 |
| 6502 Develop Pack (6502 2nd Pro) | £7.50 |
| Advanced BASIC ROM For the BBC | £9.95 |
| Advanced Disk User Guide | £16.95 |
| Advanced Graphics with the BBC | £9.95 |
| Advanced User Guide (BBC) | £15.95 |
| Advanced User Guide - Binder | £3.91 |
| Applied Assembly Language BBC | £9.95 |
| Assembly Language Prog for the BBC | £8.95 |
| BASIC ROM User Guide (BBC/Electron) | £11.95 |
| BBC B Compendium | £5.95 |
| BBC Master 128/ High Flyers | £10.95 |
| BBC Micro Advanced Programming | £9.95 |
| BBC Micro Disk Companion | £8.95 |
| BCPL The Language & Compiler | £7.50 |
| Beginners Guide Word Proc BBC | £7.95 |
| Complete Disc Manual - BB | £7.95 |
| Creative Assembler BBC/Electron | £5.95 |
| Disk Programming Tech for BBC | £10.95 |
| File Handling on BBC Micro | £6.95 |
| Interfacing & Robotics on BBC | £15.95 |
| Interfacing your BBC Micro | £8.95 |
| Introducing CP/M-2nd Processor | £9.95 |
| Making Most Your BBC Disc system | £5.95 |
| Mastering Assembly Code BBC | £8.95 |
| Mastering Music BBC | £6.95 |
| Mastering the Disc Drive | £7.95 |
| Step by Step Prog BBC Book 2 | £5.95 |
| Structured Basic | £7.25 |
| The BBC Micro Rom Book | £10.95 |
| Within The BBC Microcomputer | £13.95 |
| Wordwise Plus | £9.95 |
| Practical Disc File Techniques | £5.95 |
| 6502 Applications | £13.95 |
| 6502 Assembly Lang Subroutines | £19.95 |
| 6502 Reference Guide | £9.95 |
| Programming the 6502 | £16.95 |
| 6502 Ass Lang Prog 2nd Ed. | £19.95 |

Roms/Utilities

| | | |
|--|------|--------|
| Intersheet | Rom | £50.00 |
| Interword | Rom | £49.00 |
| Interchart | Rom | £34.00 |
| Printmaster | Rom | £26.00 |
| Vine Replay (State Disc VF) | Rom | £33.00 |
| Master Replay (NEW) | | £38.00 |
| Island Logic Music Cassette 1 Cassette 2 | | £13.50 |
| Island Logic Music | Disc | £27.00 |
| Fleet Street Editor | Disc | £38.00 |
| Spell master (NEW) | | £53.00 |

Compact Software on 3.5" Disc

| | |
|-----------------------------|--------|
| Micropower Magic 10 | £8.50 |
| Acornsoft Hits Vol 1 | £13.50 |
| Acornsoft Hits Vol 2 | £13.50 |
| Best for Language | £18.00 |
| Best for Maths | £18.00 |
| Beta Base | £24.50 |
| Birdie Barrage Golf | £11.50 |
| Care Disc | £22.50 |
| Citadel | £13.50 |
| Commonwealth Games | £10.50 |
| Compilation One | £18.00 |
| Compilation Two | £18.00 |
| Elite | £18.00 |
| Galatforce | £13.50 |
| Games Disc | £13.50 |
| Games Disc 1 | £11.50 |
| Games Disc 2 | £11.50 |
| Karate Combat | £13.50 |
| Mousetrap | £10.50 |
| Repton 2 | £13.50 |
| Repton 3 | £13.50 |
| Revs 4 Tracks | £18.00 |
| Speech | £13.50 |
| Steve Davis Snooker | £11.50 |
| Strykers Run | £13.50 |
| US Drag Racing | £10.50 |
| Viewsheet | £52.00 |
| Vindaloo | £10.50 |
| Winter Olympics | £10.50 |
| Superior Collection 1 | £13.50 |
| Superior Collection 2 | £13.50 |
| Grand Prix Construction Set | £13.50 |
| Repton Around the World | £9.00 |
| Codename Droid | £13.50 |
| Crazee Rider | £14.50 |

Acornsoft Books

| | |
|--------------------------------|--------|
| Graphs and Charts | £7.50 |
| Forth Manual | £7.50 |
| Comal Manual | £10.00 |
| BCPL Manual | £15.00 |
| ISO Pascal Manual | £10.00 |
| View Guide | £10.00 |
| Viewsheet Guide | £10.00 |
| Viewstore Manual | £10.00 |
| Master Reference Manual Part 1 | £14.95 |
| Master Reference Manual Part 2 | £14.95 |
| Logo Manual | £7.50 |
| Microtext Manual | £10.00 |
| BBC User Guide | £12.95 |
| Into View 2.1 | £5.00 |
| Micro Prolog | £10.00 |
| Turtle Graphics | £7.50 |
| Creative Sound | £9.95 |

Accessories

| | |
|---|---------|
| Data Recorder | £29.00 |
| Data Recorder - BBC Lead | £4.00 |
| Full Proportional Joy Stick | £12.50 |
| Full Proportional Joy Stick Pair | £20.00 |
| Voltmace 14b Joystick | £14.50 |
| Modem Nightingale with Commstar | £149.00 |
| Modem Auto Answer Board + Software | £75.00 |
| Sideways ROM Board (APTL) | £43.00 |
| 5.25in Discs 10 in Library Case DS/DD 96tpi | £16.00 |
| TV Aerial/Computer Switch | £2.50 |
| Function Key Mask | £3.00 |
| Computer Covers Soft | £5.50 |
| Printer Covers -State type | £6.50 |
| Disc Drive Covers - State type | £5.00 |
| Digital Mouse (by NIDD) with software | £33.00 |

Acornsoft View

| | |
|-------------------------------------|-----------------------|
| View - Wordprocessor ROM | £45.00 |
| View 3 inc. Printer Drivers | £70.00 |
| Viewsheet - Spreadsheet ROM | £45.00 |
| ViewStore - Database ROM | £45.00 |
| Viewspell | £32.00 |
| Viewplot | £23.00 |
| Printer Driver Generator - Cassette | £9.00 |
| View Professional (NEW) | Disc £10.00 £90.00 |

Cumana Disc Drives

(The best and Beab approved) See our low prices

| | |
|---|---------|
| CSX100 100K 40T | £105.00 |
| CSX400/S 400K D/S 40/80T Switchable | £140.00 |
| CS100 100K 40T With Power supply | £135.00 |
| CS400/S 400K D/S 40/80 With Power supply | £165.00 |
| CDX800/S Dual 400K 40/80 Switchable | £260.00 |
| CD800/S Dual 400K 40/80 With Power supply | £315.00 |

Top Games

| | | |
|-----------------------------|-------------|-------------|
| Elite | Cass £11.50 | Disc £13.50 |
| Revs | Cass £11.50 | Disc £13.50 |
| Repton 3 | Cass £9.50 | Disc £10.50 |
| Commando | Cass £9.50 | Disc £12.50 |
| Airwolf | Cass £9.50 | Disc £14.00 |
| Scrabble | Cass £12.50 | Disc £17.00 |
| Monopoly | Cass £12.50 | Disc £14.50 |
| Ravenskull | £8.50 | Disc £10.50 |
| Aviator | Cass £13.50 | Disc £16.50 |
| Strykers Run | Cass £8.50 | Disc £10.50 |
| Superior Collection I | Cass £8.50 | Disc £10.50 |
| Superior Collection II | Cass £8.50 | Disc £10.50 |
| Starquake | Cass £7.50 | Disc £10.50 |
| XOR | Cass £9.00 | Disc £11.50 |
| Grand Prix Construction Set | Cass £9.00 | Disc £10.50 |
| Computer Hits 5 | Cass £9.00 | |
| Colossus Chess | Cass £9.00 | Disc £13.50 |
| Crystal Castles | Cass £9.00 | Disc £13.50 |
| Micropower I 10 Hits | Cass £7.50 | Disc £7.50 |
| Micropower II 10 Hits | Cass £7.50 | Disc £7.50 |
| Kayleth | Cass £7.50 | |
| Imogen | Cass £8.50 | Disc £ 9.50 |
| Cholo | | Disc £16.50 |
| Tarzan | Cass £9.00 | Disc £12.00 |
| Don Junz | Cass £2.99 | Disc £7.95 |
| Paper Boy | Cass £9.50 | Disc £14.50 |
| World War I | Disc Only | £12.95 |
| Round Heads | Disc Only | £12.95 |
| Phantom | Cass £7.50 | Disc £12.00 |
| Repton Around the World | Cass £6.50 | Disc £7.50 |
| Codename Droid | Cass £9.00 | Disc £10.50 |
| Crazee Rider | Cass £9.00 | Disc £11.50 |

AMX Mouse Products

(Please state - B, B+, Master 128, Compact)

| | |
|-----------------------------|--------|
| New Mouse III with Superart | £75.00 |
| Picture Gallery | £22.00 |
| Stop Press | £45.00 |
| New Mouse III (only) | £32.00 |
| Superart only | £45.00 |
| Max | £18.00 |
| Pagemaker | £45.00 |
| Extra Extra | £22.00 |
| Design Cad | £63.00 |
| 3D Zicon | £22.00 |
| Xam | £22.00 |
| Mind Games | £13.50 |
| Paint Pot | £13.50 |
| Desk | £22.00 |
| Mouse Mat | £5.00 |

Monitors

| | |
|---|---------|
| Philips BM7502 Green High Res | £79.00 |
| Philips BM7522 Amber High Res | £95.00 |
| Philips BM 7542 White High Res | £95.00 |
| Philips swivel stand for above | £9.00 |
| Philips CM8833 RGB + Mono + Sound (NEW) | £280.00 |
| Microvitec 1431 Colour std res | £225.00 |
| Microvitec 1451 Colour med res | £270.00 |

CTV/MONITORS

| | |
|--|---------|
| Ferguson MC05 14" CTV +RGB | £195.00 |
| Monitor to Master/BBC/Compact lead to suit | £4.50 |

MAIL ORDER COUPON

P&H ELECTRONICS LIMITED

22/24 GUILDFORD ROAD · BAGSHOT · SURREY GU19 5JN

Please send me: (or order by letter)

1 _____ at £ _____ P&P _____

2 _____ at £ _____ P&P _____

3 _____ at £ _____ P&P _____

I enclose cheque/PO for £ _____

Or please debit my Access/Barclaycard/Visa* (delete as applicable)

Card Number _____ Expiry Date _____

FAST VAT FREE EXPORT SERVICE ON ORDERS OVER £15 NETT
PLEASE ALLOW FOR CARRIAGE COSTS OR REQUEST CARRIAGE QUOTATION

CARRIAGE COSTS - Micros - Monitors - Printers: £7.00
Disc Drives - Data Recorders: £5.00
Accessories -£2.00 per item

SOFTWARE - GAMES - BOOKS CARRIAGE FREE UK
ACCESS/BARCLAYCARD/VISA ORDERS WELCOME

CREDIT FACILITIES Instant credit up to £1,000, deposit 10% FOR CALLERS ONLY

Name _____
Address _____

Telephone _____

MU 10 87

BeebDOS version 1.10 from MicroBoss

Software for BBC and IBM file interchange

Runs on IBM-PC-XT-AT or compatibles and supports DOS 2.0 or later
Supplied on 360k IBM diskette with manual and plastic wallet the software includes:

| | |
|---------------|---|
| BCOPY | Copy files BBC-IBM, IBM-BBC, BBC-BBC (wild cards allowed) |
| BCONV | Flexible IBM file translate facility enabling text to be passed between VIEW, WORDSTAR and Displaywrite 3 amongst other uses. |
| BGRAPH | Convert BBC mode 0,1,4,5 screen format (AMX Art included) files to IBM standard colour (CGA) for use in presentations |
| BCAT | Catalogue BBC disks |
| BFORM | Format BBC disks (boot option & title can be specified) |
| BBACK | Backup BBC disks |
| BWIPE | Delete BBC files (wild cards allowed) |
| BACC | Lock or unlock BBC files (wild cards allowed) |
| BCOMP | Compact BBC disks |
| BREN | Rename BBC files |
| BTOPT | Alter the title or boot option of a BBC disk |

**£35.00
Inclusive**

BBC double density diskette formats supported are Watford, Solidisk, UDM, and OPUS DDOS. Acorn single density DFS is only supported when running BeebDOS on an IBM AT or XT/286 fitted with a 360k disk drive. Please send for an information sheet.

CHEQUE OR POSTAL ORDER TRADE/EDUCATIONAL ENQUIRIES WELCOME
MICROBOSS LTD 3 HADLEIGH RD FRINTON ESSEX CO13 9QQ TEL (02556) 71095

LABELMASTER

THE MOST VERSATILE LABEL-PRINTING PROGRAM

All your label-printing requirements available in one easy-to-use program
Message labels - hundreds of uses for home and business, e.g. labelling samples, products, packaging, books, discs etc., using a variety of print styles and sizes.
Address labels - create mailing lists and print them onto labels.
All formatting is done for you. Accepts wide variety of label sizes.
Too many features to list - telephone us for details.
Requires 80-column screen and Epson-compatible printer (address labels can also be printed on daisywheel).

Single colour version £18 **Multi-colour version (for colour printer) £23**
Available on 40- or 80-track disc for all models of BBC (OS 1.2 onwards) including Master & Compact and also Electron (DFS only). Please state model when ordering. Please add £1 for 3.5" discs.

ALSO

15K BUFFER KIT FOR JUKI 5510

Fitted in minutes - no soldering required - full easy-to-follow instructions provided

ONLY £18

All prices include VAT and P&P

Calderdata, High Lee, Luddenden Foot, Halifax HX2 6LB Tel: 0422 885202

VERY HIGH QUALITY VERY LOW PRICES

5.25" COMPUTER DISKS - BULK PACKED - TOP QUALITY

| QTY | SS 48TPI | SS 96TPI | DS 48TPI | DS 96TPI | DS 48 C/R | DS 96 C/R |
|-----|----------|----------|----------|----------|-----------|-----------|
| 10 | £5.95 | £6.95 | £6.95 | £7.95 | £8.95 | £9.95 |
| 25 | £10.99 | £11.99 | £11.99 | £12.99 | £14.99 | £17.99 |
| 50 | £19.99 | £20.99 | £20.99 | £21.99 | £27.99 | £32.99 |
| 100 | £36.99 | £37.99 | £37.99 | £41.99 | £45.99 | £57.99 |
| 150 | £52.99 | £55.99 | £55.99 | £57.99 | £63.99 | £80.99 |
| 250 | £85.99 | £87.99 | £87.99 | £91.99 | £103.99 | £126.99 |

C/R = Coloured or reversible disks - reversible disks have two holes and two notches!
Boxes of 10 disks are supplied in plastic cases (worth £1.49).

These disks are packed with a protective jacket (envelope) and come with a full user set, including a label and a write protect tab. The disks are manufactured to top international standards and have a hub ring for added protection.

3.5" COMPUTER DISKS - BULK PACKED - with labels etc ...

| QTY | SS 135TPI | DS 135TPI |
|-----|-----------|-----------|
| 10 | £14.95 | £16.95 |
| 25 | £29.95 | £35.95 |
| 50 | £55.95 | £62.95 |
| 100 | £105.95 | £119.95 |
| 150 | £149.95 | £169.95 |
| 250 | £239.95 | £269.95 |

STORAGE BOXES

THE BEST RANGE!

| Lockable Storage Boxes from Centec | |
|------------------------------------|-------|
| 3.00" Lockable-Holds 60 | £9.95 |
| 3.50" Lockable-Holds 40 | £7.99 |
| 3.50" Lockable-Holds 90 | £9.95 |
| 5.25" Lockable-Holds 50 | £7.99 |
| 5.25" Lockable-Holds 100 | £9.95 |

COMPUTER MONITORS - FULL RANGE STOCKED - BEST PRICES!

| | |
|--|---------|
| Philips CM 8533/CM 8833 - Colour Monitor IRGB for Nimbus/BBC etc | £269.95 |
| Philips CM 8852 - Colour/RGB/TTL/Linear Inputs | £299.95 |
| Philips BM 7502 - High Res Green Screen Monitor - Composite | £79.95 |
| Philips BM 7522 - High Res Amber Screen Monitor - Composite | £89.95 |
| Philips BM 7542 - High Res White Screen Monitor - Composite | £89.95 |
| Microvitec 1431 - Standard Resolution Colour Monitor | £179.95 |
| Microvitec 1451 - Medium Resolution Colour Monitor | £229.95 |
| Microvitec 1441 - High Resolution Colour Monitor | £379.95 |

REMEMBER - All Monitors are delivered free by Securicor! No extras to pay!

CENTEC ELECTRONIC SYSTEMS LTD

UNIT 3, THE METRO CENTRE
BRIDGE ROAD, ORPINGTON
KENT BR5 2BE

TEL: (0689) 61947/62103 (24 hours)

Remember - all prices include VAT and delivery!
There are no hidden extras to pay!

CLP

| PAPER | PER BOX | 1 BOX | | LABELS | IMPERIAL | 1000 | 5000 |
|----------------|---------|--------|--------|-----------------------|----------------|-------|--------|
| | | 1 BOX | 5 PLUS | | | | |
| 11x9.5 | | | | 1/15 VERTICAL SPACING | 3 1/2 x 1 1/16 | £4.10 | £17.00 |
| 80 GSM PLNMUS | 2000 | £11.90 | £ 9.80 | 2 WIDE | 4 1/16 | £4.40 | £18.50 |
| 80 GSM MICRO P | 2000 | £12.40 | £10.50 | | 5 1/16 | £5.40 | £20.30 |
| 70 GSM MICRO P | 2000 | £13.90 | £11.92 | | 3 1/2 x 1 1/16 | £4.10 | £17.00 |
| 70 GSM PLNMUS | 2000 | £13.10 | £11.12 | 3 WIDE | | | |
| 2PART NCR | 1000 | £19.53 | £15.90 | 1/4 VERTICAL SPACING | 3 1/2 x 1 1/16 | £4.20 | £16.00 |
| 11x14.5 | | | | 1 WIDE | 3 1/2 x 1 1/16 | £4.10 | £17.00 |
| 80 GSM PLNMUS | 2000 | £17.00 | £12.85 | | 4 1/16 | £4.40 | £18.50 |
| 70 GSM PLNMUS | 1750 | £17.40 | £12.74 | | 3 1/2 x 1 1/16 | £3.00 | £11.50 |
| TRUE A4 | | | | 2 WIDE | 4 1/16 | £5.50 | £17.50 |
| 90 GSM | 1500 | £17.90 | £16.09 | | 2 1/2 x 1 1/16 | £4.10 | £15.00 |
| 70 GSM | 2000 | £19.50 | £14.40 | 3 WIDE | 3 1/2 x 1 1/16 | £5.50 | £22.00 |

RIBBONS

| | | 1-5 | | | 1-5 |
|---------|------------------|------|----------|------------------|------|
| Amstrad | 8512/85256 | 3.71 | Epson | MX/FX/RX1000/105 | 3.15 |
| | Coloured | 4.82 | | Coloured | 4.23 |
| | Longlife | 4.76 | | LQ/LP 1500 | 2.95 |
| Brother | Coloured | 6.27 | LQ2500 | 4.83 | |
| | M1009 | 3.10 | Coloured | 3.60 | |
| | Coloured | 4.45 | Shinwa | CP80 | 3.78 |
| Cannon | HR15/25/35 | 3.03 | Coloured | 5.01 | |
| | Coloured | 3.81 | Star | Gemini 10/15 | 1.40 |
| | PW1156/1080 | 2.89 | Coloured | 1.90 | |
| Epson | FX/MX/FT/RX80/85 | 2.75 | NL10 | 4.63 | |
| | Coloured | 3.81 | Coloured | 5.80 | |
| | LX80 | 2.52 | Radix 15 | 2.65 | |
| | Coloured | 3.50 | Coloured | 4.45 | |

* Special Offer Parrott DS/DD 48tpi £39.50 for 50 *

* More quantity - More discount *

* All prices inc. delivery - Just add VAT *

* Ring for full price list and samples *

* Try us for size *

Phone CLP on (0258) 89 400

Freeport Blandford Dorset DT11 7BR

DABS PRESS

*Serious BBC Micro
users start here.....*

Master Emulation ROM by David Spencer

This amazing ROM gives you virtually all the software features of a Master 128 on your BBC B or B+. *SRLOAD and *SHADOW work if hardware (ie, Solidisk) present. All 1770 DFS extras implemented. *CONFIGURE and *STATUS, *LIBFS etc. Full spec. on request. £19.95 ROM or £14.95 as Sideways RAM image on disc. Available late September 1987. Priority orders being taken now.

Master Operating System - by David Atherton

The long-awaited and only advanced user guide for the Master 128, Compact and BBC B+. 272 pages covering 65C12 opcodes, The Tube, Shadow and Sideways RAM, CMOS/EEPROM chips, and much more never published before.

VIEW: A Dabhand Guide by Bruce Smith

The definitive guide to the VIEW wordprocessor. 248 pages packed with expert guidance on using all features, including printers and drivers, macros, highlights, rulers, ViewSpell and ViewIndex. Practical throughout with hints, tips and utility programs.

Both books are spiral bound and cost £12.95, or £17.95 for book and disc containing all programs in the book plus many more.

Other Dabs products

| | |
|--|-------|
| Fingerprint - Complete machine code monitor for just | £9.95 |
| Conversion Kit - Programmers collection of routines only | £7.95 |
| Assembler Bundle - two books, two discs 90 programs | £9.95 |

Prices inc. VAT and p&p in UK. ACCESS/VISA accepted by post/phone. Full catalogue free on request. Add £2 for 3.5" discs. Add £2 per order if outside UK. Official and dealer orders welcomed.

DABS PRESS 76 Gardner Road Prestwich Manchester
M25 7HU Tel: 061-773 2413 • Prestel 942876210

YOU TOO CAN BE GINGER BAKER

Matthew Holroyd's
bright new look at
the Simon game

THUNDER Drums is based on the concept of the popular Simon game and provides a new addictive approach to the game.

Type in and save the program, using the checksums to ensure you have made no mistakes. When the program is run it

relocates itself to make room for the variables. The drum kit is drawn using circle and ellipse routines and so takes time. When everything is done there is a flash of light and you're ready to play.

I suggest you select option three at first and smash your way around the drums until you are familiar with the keys. Each time you hit a drum key the drum or cymbal flashes red.

When you play the game the computer chooses a random drum or cymbal to be hit and adds it to the sequence generated, then it plays the sequence.

You must repeat the sequence and each time you strike a drum PROCcheck is called to see if the number of the drum struck is equal to the number in the sequence. If it is then the program returns to the keyboard and awaits the next drum strike. If not then the computer has won and the game stops.

Game two is exactly the same as game one but the drum heads do not flash red when the sequence is being demonstrated. This means the player must rely on his knowledge of the drum sounds as well as memory when repeating the sequence.

Thirty notes must be successfully repeated to win. If this is too much for you change the value of *seqlen* in line 50, which alters the value being tested in line 520.

Scratch them skins, crash them cymbals and the best of luck in those frustrating hours ahead.

MAIN PROCEDURES

hit Handles all the calculations and decisions each time a drum is struck.
sound() Makes the appropriate sound.
auto Plays the sequence so far and adds a new note to it.
check Checks each note against the note in the sequence.
wrong Stops the game, resets the variables and restarts the game.
set Sets up the game.
start Gives the three game choices.
vars Sets up the variables.
win Plays a drum solo and prints the winning message.
keys Displays the keys on the drums in Practice mode.
inst Displays the instructions and waits for the game to be started.

MAIN VARIABLES

Q% The game choice.
D% The number of the drum being played.
len% The length of the sequence so far.
T Flag. 0 is players turn, 1 is computers turn.

```

10 REM Thunder Drums
20 REM by Matthew Holroyd
30 REM (c) The Micro User
40 REM =====
50 PROCreloc(&1100):seqlen=30
60 MODE2:DIMseq(seqlen),cd(36),sd(36)
70 FOR W%=10 TO 360 STEP 10:cd(W%/10)
=COSRADW%:sd(W%/10)=SINRADW%:NEXT
80 PROCvars:PROCinst:PROCset:PROCstar
t
90 IF Q%<3 AND T=0 THEN PROCauto
100 PROCkeys:IF INKEY-17 PROCvars:PROC
start:GOTO90
110 IF D%>0 THENPROChit
120 IF W%=1 THEN PROCvars:PROCstart
130 GOTO90
140 DEFPROChit:IF Q%<3 AND T=1 THENPRO
Ccheck
150 IF Q%<3 AND count=len% THEN T=0
160 IF Q%=2 AND T=0 THEN GOTO 180
170 VDU19,D%,1,0;0;
180 PROCsound(D%-6)
190 TIME=0:REPEAT UNTIL TIME=7
200 IF D%>12 THENVDU19,D%,3,0;0; ELSE
VDU19,D%,7,0;0;
210 ENDPROC
220 DEFPROCkeys
230 IF D%>0 THEN GOTO 340
240 Z%=FNkey
250 IF Z%=98 D%=7:ENDPROC
260 IF Z%=104 D%=8:ENDPROC
270 IF Z%=97 D%=9:ENDPROC
280 IF Z%=66 D%=10:ENDPROC
290 IF Z%=82 D%=11:ENDPROC
300 IF Z%=99 D%=12:ENDPROC
310 IF Z%=88 D%=13:ENDPROC
320 IF Z%=65 D%=14:ENDPROC
330 IF Z%=81 D%=15:ENDPROC
340 D%=0:REPEAT UNTIL Z%<>FNkey
350 ENDPROC
360 DEF FNkey:LOCAL AX:AX=12:
370 =(USR(&FFF4)AND&FF00)DIV&100
380 DEFPROCsound(S)
390 ON S GOTO 410,420,430,440,450,460,
470,480,490
400 ENDPROC
410 SOUND1,1,5,1:SOUND0,2,2,1:GOTO400
420 SOUND1,1,10,1:SOUND0,2,5,1:GOTO400
430 SOUND1,3,20,1:SOUND0,-12,2,1:GOTO4
00
440 SOUND1,3,16,1:SOUND0,-12,2,1:GOTO4
00
450 SOUND1,3,12,1:SOUND0,-12,2,1:GOTO4
00
460 SOUND1,3,5,1:SOUND0,-12,2,1:GOTO400
0
470 ENVELOPE4,2,0,0,0,2,3,4,126,0,0,-2
,126,126:SOUND0,4,4,2:GOTO400

```

Turn to Page 130 ►

UTILITY

◀ From Page 129

```

480 ENVELOPE4,2,0,0,0,2,3,4,126,0,0,-4
,126,126:SOUND0,4,5,2:GOTO400
490 ENVELOPE4,8,-1,-1,0,1,1,4,126,0,0,
-18,126,126:SOUND0,4,6,1:GOTO400
500 DEFPROCauto
510 TIME=0:REPEAT UNTIL TIME=120
520 IF Len%=seqLen THEN PROCwin:wr%=1:
ENDPROC
530 Len%=Len%+1:seq(Len%)=RND(9)+6
540 FOR W%=1 TO Len%
550 TIME=0:REPEAT UNTIL TIME=25
560 D%=seq(W%):PROChit
570 NEXT W%
580 count=0:T=1:D%=0:ENDPROC
590 DEFPROCcheck:count=count+1
600 IF D%=seq(count) THEN ENDPROC ELSE
PROCwrong
610 ENDPROC
620 DEFPROCwrong:wr%=1
630 SOUND0,-15,2,5:COLOUR2:PRINTTAB(6,
3);"WRONG!";:TIME=0:REPEAT UNTIL TIME=20
0:PRINTTAB(6,3);" ";
640 ENDPROC
650 DEFPROCset
660 VDU17,128,12:RESTORE960
670 VDU23,1,0;0;0;0;:FOR W%=7 TO 15:VD
U19,W%,0,0;0;:NEXT W%:VDU19,6,4,0;0;19,3
,0,0;0;
680 ENVELOPE1,1,2,0,-3,1,1,2,120,0,-13
,-6,126,126:ENVELOPE2,1,0,0,0,1,1,2,120,
0,-15,-5,126,126:ENVELOPE3,2,1,0,-1,1,2,
1,123,0,-4,-19,124,126

```

```

690 PROCthree("THUNDER KING",250,1000,
4,3)
700 VDU18,0,3:step=200:pos=0:FOR W%=1
TO 6:pos=pos+step:MOVE0,pos:DRAW1279,pos
:step=step/2:NEXT W%
710 FOR W%=1 TO 29
720 IF W%=1 OR W%=13 OR W%=14 OR W%=15
THEN READ FX,EX,RX,CX:PROCcirc(FX,EX,RX
,CX):NEXT W%
730 IF W%=17 THEN VDU18,0,132,24,810;2
30;1090;370;16,26
740 IF W%=21 THEN VDU18,0,132,24,510;3
60;770;450;16,26
750 READ FX,EX,AX,BX,CX:PROCell(FX,EX,
AX,BX,CX)
760 NEXT W%:FORMW%=0 TO 15:VDU19,W%,1,0
;0;:NEXT W%:TIME=0:REPEAT UNTIL TIME=10:
FORMW%=1 TO 7:VDU19,W%,W%,0;0;:NEXT W%:FO

```

```

830 IF INKEY(-50) THEN QX=2:GOTO860
840 IF INKEY(-18) THEN QX=3:GOTO860
850 GOTO 820
860 VDU28,0,5,16,2,12,26
870 IF QX=3 THEN PROCshow
880 ENDPROC
890 DEFPROCcirc(FX,EX,RX,CX)
900 VDU18,0,CX,29,FX;EX;:n=0:th=2*PI/3
0:MOVE RX,0:FOR TX=1 TO 30:n=n+th:SX=RX+
COS(n):AX=RX*SIN(n):MOVE0,0:PLOT85,SX,AX
:NEXT TX:VDU29,0;0;
910 ENDPROC
920 DEFPROCell(FX,EX,AX,BX,CX)
930 VDU18,0,CX:MOVE FX+AX,EX:FOR TX=1
TO 36:cos=cd(TX):sin=sd(TX):RX=1/SQR(cos
*cos/(AX*AX)+sin*sin/(BX*BX)):XZ=RX*cos:
YZ=RX*sin:MOVE FX+AX,EX:PLOT 85,FX+XZ,EX
+YZ:NEXT TX
940 ENDPROC
950 REM * base shell *
960 DATA 640,330,200,4
970 REM * mid tom *
980 DATA 640,580,120,80,6,640,580,115,
75,0,640,580,105,65,10
990 REM * left tom *
1000 DATA 415,500,120,80,4,425,530,120,
80,6,425,530,115,75,0,425,530,105,65,9
1010 REM * right tom *
1020 DATA 860,470,120,80,4,860,520,120,
80,6,860,520,115,75,0,860,520,105,65,11
1030 REM * base skin *
1040 DATA 640,300,200,6,640,300,190,0,6
40,300,180,7
1050 REM * floor tom *
1060 DATA 950,220,150,45,6,950,230,145,
45,4
1070 DATA 950,370,150,45,6,950,370,140,
35,0,950,365,130,35,12
1080 REM * snare *
1090 DATA 640,365,135,40,6,640,375,130,
40,4
1100 DATA 640,460,135,40,6,640,460,130,
35,0,640,460,120,25,8
1110 REM * cymbals *
1120 DATA 1000,750,175,70,13,400,730,15
0,60,15,280,640,170,80,0,275,635,170,80,
14
1130 DEFPROCvars
1140 T=0:Len%=0:count=0:wr%=0
1150 ENDPROC
1160 DEFPROCwin:VDU19,6,2,0;0;
1170 DATA 9,6,9,6,11,6,9,6,9,6,11,3,11,
3,10,3,10,3,12,3,12,3,9,6,9,6,11,6,9,6,9,
6,12,3,11,3,11,3,10,3,11,3,11,6,9,6,9,6,
11,6,9,6,12,3,11,3,11,3,10,3,12,3,11,3,
11,3,10,3,7,25,15,20,8,3,8,3,8,3,7,3,8,3,
8,3,8,3,8,3
1180 DATA 12,3,8,3,12,3,12,3,11,3,14,6,
9,3,9,3,10,3,10,3,11,3,11,3,12,3,12,12,7,
3,8,12,15,3,13,0
1190 RESTORE1170
1200 FOR W%=1 TO 62
1210 READ D%,time
1220 PROChit
1230 TIME=0:REPEAT UNTIL TIME=time
1240 NEXT W%
1250 VDU19,6,6,0;0;
1260 PROCthree("WELL DONE",335,900,5,7)
1270 *FX15,0
1280 AS=GETS:VDU28,0,5,18,2,12,26

```

This is one of hundreds of programs now available FREE for downloading on **MicroLink**

```

RWX=8 TO 12:VDU19,W%,7,0;0;:NEXT W%
770 VDU19,13,3,0;0;19,14,3,0;0;19,15,3
,0;0;19,0,0,0;0;:D%=8:PROChit:D%=15:PROC
hit
780 ENDPROC
790 DEFPROCstart
800 VDU17,6:PRINTTAB(1,2);"1";TAB(1,3)
;"2";TAB(1,4);"3";TAB(3,5);"Press 1,2 or
3";
810 VDU17,3:PRINTTAB(3,2);"Game 1";TAB
(3,3);"Game 2";TAB(3,4);"Practice";
820 IF INKEY(-49) THEN QX=1:GOTO860

```



| | | |
|--------------|--------------|--------------|
| 10 = 00 | 310 = B862 1 | 610 = ED0F F |
| 20 = 00 | 320 = 5A35 6 | 620 = 9445 0 |
| 30 = 00 | 330 = C81E 5 | 630 = 63A1 3 |
| 40 = 00 | 340 = 1127 A | 640 = ED0F F |
| 50 = 506A A | 350 = ED0F 2 | 650 = 2F29 F |
| 60 = FF09 D | 360 = 431B D | 660 = 21CA B |
| 70 = 3D7A D | 370 = 2462 E | 670 = 91DA 1 |
| 80 = 635C D | 380 = 9B0D F | 680 = 2F4E 0 |
| 90 = EF57 2 | 390 = E760 1 | 690 = 870D B |
| 100 = F1C E | 400 = ED0F 1 | 700 = 5EB6 5 |
| 110 = 6692 2 | 410 = 7905 3 | 710 = 4FEE 9 |
| 120 = F7AD A | 420 = 6D0F 2 | 720 = 43DB 9 |
| 130 = 9438 1 | 430 = B299 3 | 730 = 45DC E |
| 140 = 88FA 0 | 440 = 6108 7 | 740 = D84 5 |
| 150 = 5018 D | 450 = B7C4 9 | 750 = 274 8 |
| 160 = 672 1 | 460 = 8A44 A | 760 = BA64 A |
| 170 = BCE2 8 | 470 = F968 D | 770 = CA9D F |
| 180 = BE97 2 | 480 = A041 8 | 780 = ED0F C |
| 190 = 7628 3 | 490 = BF29 E | 790 = 363B 4 |
| 200 = 9374 F | 500 = D468 8 | 800 = 3802 F |
| 210 = ED0F C | 510 = E091 A | 810 = 7EBA 9 |
| 220 = 5A41 5 | 520 = D1F F | 820 = 8383 C |
| 230 = 6271 4 | 530 = F985 B | 830 = 7A9C 1 |
| 240 = 1238 C | 540 = A13E 6 | 840 = 656A 7 |
| 250 = 5891 F | 550 = AF52 1 | 850 = 1A07 1 |
| 260 = 579A 5 | 560 = E178 4 | 860 = 68EA C |
| 270 = 9A52 2 | 570 = D845 2 | 870 = B8B7 7 |
| 280 = ABB1 6 | 580 = BB14 9 | 880 = ED0F 5 |
| 290 = 399A 5 | 590 = 40E8 C | 890 = 8DE6 C |
| 300 = B34 2 | 600 = 1FD2 4 | 900 = 4B79 2 |

| | | |
|---------------|---------------|---------------|
| 910 = ED0F 0 | 1210 = 67F2 C | 1510 = 6008 0 |
| 920 = DBEB 9 | 1220 = CF4E F | 1520 = EFA3 E |
| 930 = CE6E 7 | 1230 = 5428 5 | 1530 = D8F4 6 |
| 940 = ED0F 9 | 1240 = D845 2 | 1540 = 9728 1 |
| 950 = 0 9 | 1250 = F7BD D | 1550 = C169 9 |
| 960 = 74FA 5 | 1260 = 4E76 1 | 1560 = BD53 2 |
| 970 = 0 5 | 1270 = 6C86 C | 1570 = CA6D A |
| 980 = CECE D | 1280 = 3734 4 | 1580 = 45C1 7 |
| 990 = 0 D | 1290 = ED0F A | 1590 = AD0E 2 |
| 1000 = 3BD3 2 | 1300 = 6087 F | 1600 = D845 F |
| 1010 = 0 2 | 1310 = 4FA2 2 | 1610 = 4752 8 |
| 1020 = BC3A E | 1320 = 1447 0 | 1620 = 2A6D E |
| 1030 = 0 E | 1330 = 6031 8 | 1630 = 84B1 C |
| 1040 = A370 B | 1340 = A1F4 E | 1640 = B0F A |
| 1050 = 0 B | 1350 = EE75 4 | 1650 = 5801 8 |
| 1060 = 49CB D | 1360 = 6F25 A | 1660 = 9E32 0 |
| 1070 = 67EB 1 | 1370 = 427A 3 | 1670 = EECA 5 |
| 1080 = 0 1 | 1380 = A4C1 5 | 1680 = 2610 C |
| 1090 = CBB4 2 | 1390 = 3A62 9 | 1690 = 29BC 6 |
| 1100 = 7A96 6 | 1400 = 4DC1 6 | 1700 = EA77 3 |
| 1110 = 0 6 | 1410 = 8AB1 3 | 1710 = F5B1 7 |
| 1120 = D50D D | 1420 = F819 7 | 1720 = 2BF0 7 |
| 1130 = 785A 5 | 1430 = 7CA7 E | 1730 = B330 B |
| 1140 = 180F 9 | 1440 = 77F2 5 | 1740 = 3FA9 4 |
| 1150 = ED0F E | 1450 = 427A 6 | 1750 = 94AF 0 |
| 1160 = 3660 5 | 1460 = A4C1 D | 1760 = DD92 B |
| 1170 = B8E4 F | 1470 = 3A62 A | 1770 = 889C F |
| 1180 = 78BD 3 | 1480 = 52AB 2 | 1780 = 6C22 9 |
| 1190 = D869 0 | 1490 = 8AB1 2 | 1790 = 200B A |
| 1200 = 3241 4 | 1500 = D845 1 | |

Turn to Page 132 ▶



**QUALITY HARDWARE AND FIRMWARE
FOR ACORN MASTER AND BBC
COMPUTERS**

We have pleasure in listing below our products for Acorn computers. All items are the result of careful design and clever programming, enhancing our reputation for high-quality accessories and value-for-money.

ACORN MASTER

The MASTER REPLAY tape to disc utility is packed full of useful features and cannot be surpassed for its efficiency and ease of use. Built-in formatting, verification and automatic file creation with the saving of as much memory as required into a maximum of 22 files per disc, are only some of the facilities included. Operated by single key presses and a built-in switch the system is invisible when not in use. 'Anti-piracy encoding' restricts REPLAY discs to personal use. Available as self-contained, or as an add-on to the ROMBOARD '3'.

***MASTER REPLAY (Self-contained) – £41.95**

***MASTER REPLAY (Add-on) – £36.95**

The MASTER to 'B' conversion kit enables most BBC 'B' tapes to be used and transferred to disc on the Master (M/REPLAY must be present). MASTER/B conversion kit – £14.95, (state which M/REPLAY).

Use the ROMBOARD '3' to overlay up to three extra ROMs in place of the unused built-in ROM software. Optional switches (extra) can be used to change over as required.

***ROMBOARD '3' – £19.95.**

Switches: 1–£2.00, 3–£4.00

***IMPORTANT** – Because all the above products require the 1Mbit ROM (IC24) to be extracted please ensure that this ROM is not soldered into the baseboard.

N ROMBOARD '4' may be used instead of, or in addition to, ROMBOARD '3'. Up to four new ROMs can be supported, 'over-laying' the RAM banks or cartridge slots, various combinations may also be set by links. This board incorporates a built-in read/write-protect switch for the RAM banks.

ROMBOARD '4' – £29.95

Independent write-protect switch for one or both RAM banks.

WRITE-PROTECT SWITCH – £8.95

BBC 'B' and 'B+'

The REPLAY System for tape to disc transfer is still the market leader. Easy-to-use routines allow the saving of memory to disc. Extra features allow a screen display to be printed through a suitable printing program, there is a pause facility and mid-play stop and save. Anti-piracy encoding restricts discs to personal use. Versions available to suit all popular disc interfaces.

BBC REPLAY – £35.00

(Please state which disc interface is fitted).

The B+ to B conversion kit expands the number of tape programs available to the B+ user. A board carrying the O.S.1.20 ROM is plugged into the computer and a switch allows selection of normal or 'B' mode.

**'B+ to B' Conversion – £25.95,
or without O.S. ROM – £15.95**

BBC 'B', 'B+' and ELECTRON

The ADDCOMM ROM extends the BASIC language of the computer by forty Toolkit/Graphic commands, and is a firm favourite with all its users as well as excelling in comparison tests published in the leading computer monthlies.

ADDCOMM ROM – £28.00

The MATRIX ROM was developed in co-operation with the Civil Engineering Dept., University of Southampton, and offers a fast, reliable means of performing matrix operations and solving linear simultaneous equations – an invaluable tool for all engineers.

MATRIX ROM – £41.40

(25% discount on two or more)

All products fully documented

No soldering or track-cutting required

Step-by-step instructions allow easy home installation

Prices include VAT, also postage when ordered direct

Any item may be ordered through your own Dealer

Further details of any product sent on request

**VINE MICROS,
MARSHBOROUGH, Nr. SANDWICH,**

KENT CT13 0PG.

Tel.: 0304 812276



AUTUMN SALE

PLEASE READ THIS

WHOLESALE PRICES TO YOU THE USER

★ BUY 5.25" DISKS

Plain label by leading manufacturers ie. R.P.S. Wabash etc.

| | 25 | 50 | 100 | 200 | 500 |
|-------------|--------|--------|--------|--------|---------|
| SS/SD 48tpi | £10.00 | £19.00 | £35.00 | £68.00 | £164.00 |
| SS/DD 48tpi | £10.50 | £20.00 | £38.00 | £74.00 | £174.00 |
| DS/DD 48tpi | £11.00 | £21.00 | £40.00 | £78.00 | £190.00 |
| DS/DD 96tpi | £11.50 | £22.00 | £42.00 | £82.00 | £200.00 |

All above inc. envelopes, label sets and hub rings

UK MADE Library cases bought with above only £0.95 EACH

3.5" DS/DD DISKS

Plain label. Made in Japan

| | 10 | 20 | 50 | 100 | 200 |
|--|--------|--------|--------|---------|---------|
| | £15.00 | £26.00 | £64.00 | £110.50 | £198.00 |

**LOCKABLE DISK BOXES AND
LIBRARY CASES**

| | |
|--|--------|
| 5.25" 10 Capacity Ref. VIS 10 Library case | £1.30 |
| 5.25" 50 Capacity Ref. YU-DD50L | £7.50 |
| 5.25" 100 Capacity Ref. YU-DD100L | £10.00 |
| 3.5" 10 Capacity Ref. MCS 10 | £1.30 |
| 3.5" 40 Capacity Ref. YU-DD40L | £8.50 |
| 3.5" 80 Capacity Ref. YU-DD80L | £9.75 |

SPECIAL OFFERS

★ EXCEPTIONAL VALUE ★

25 5.25" DS-DD DISKS
PLUS
100 CAPACITY LOCKABLE DISK BOX
FOR
ONLY £17.60

OR

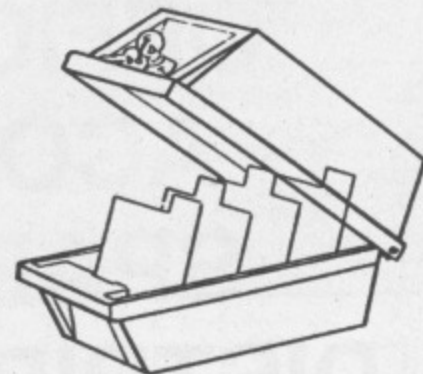
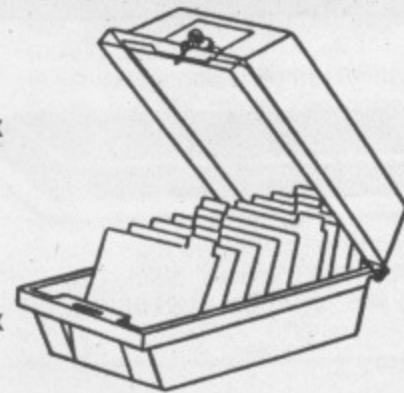
50 5.25" DS-DD DISKS
PLUS
100 CAPACITY LOCKABLE DISK BOX
FOR
ONLY £27.10

20 3.5" DS-DD DISKS

PLUS
40 CAPACITY LOCKABLE BOX
FOR
ONLY £29.50

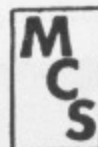
OR

50 3.5" DS-DD DISKS
PLUS
90 CAPACITY LOCKABLE BOX
FOR
ONLY £68.20



**REMEMBER THE PRICE YOU SEE IS ALL
YOU PAY (UK ONLY).
THEY INCLUDE VAT AND CARRIAGE**

Cheque or Postal Order to:



Manor Court Supplies Ltd

Dept MU9, Glen Celyn House, Penybont,
Llandrindod Wells, Powys LD1 5SY
Telephone: 0597 87784 or 0597 87792

Orders accepted from educational & government depts.
Dealer enquiries invited.

◀ From Page 130

```

1290 ENDPROC
1300 DEFPROCthree(MS,X,Y,B,G)
1310 VDU5,18,0,G
1320 MOVEX,Y:PRINTMS
1330 VDU18,0,B
1340 MOVEX+10,Y-4:PRINTMS
1350 VDU4,23,1,0;0;0;0;:ENDPROC
1360 DEFPROCshow
1370 RESTORE1510
1380 FOR WX=1 TO 9
1390 READ KS,UX,IX,LX
1400 COLOUR LX+128:COLOUR1
1410 PRINTTAB(UX,IX);KS;
1420 NEXT WX:COLOUR128:PRINTTAB(1,2);Q
-Quit;
1430 *FX15,1
1440 AS=GETS
1450 RESTORE1510
1460 FOR WX=1 TO 9
1470 READ KS,UX,IX,LX
1480 COLOUR LX+128:COLOURLX
1490 PRINTTAB(UX,IX);KS;
1500 NEXT WX
1510 DATA "Spce",8,23,7,"?",10,17,8,"Z",
,6,15,9,"X",9,13,10,"C",13,15,11,"V",14,
20,12,"J",15,8,13,"A",4,11,14,"S",6,8,15

```

```

1520 VDU17,128,28,0,5,13,2,12,26:ENDPROC
1530 DEFPROCinst
1540 RESTORE1620
1550 VDU17,132,12
1560 FOR WX=1 TO 35
1570 READ MS,X,Y,V
1580 PROCthree(MS,X,Y,V,0)
1590 IF WX=18 THEN AS=GETS:CLS
1600 NEXT WX
1610 AS=GETS:IF AS=" THEN ENDPROC ELSE
GOTO1610
1620 DATA "THUNDER KING",250,1000,3
1630 DATA "After the drum kit",64,900,7
,"is drawn (takes",160,850,7,"about 47 s
ecs)",192,800,7,"There is a choice",96,7
50,7,"of :",96,700,7,"Game 1",352,650,6,
"Game 2",352,600,6,"Practice",352,550,6
1640 DATA "Game 1",64,450,3
1650 DATA "The computer will",100,400,7
,"play a series of",100,350,7,"drum stri
kes and",100,300,7,"you must repeat",100
,250,7,"this sequence to",100,200,7,"pro
gress. Each",100,150,7,"time a new note",
100,100,7,"is added.",100,50,7
1660 DATA "THUNDER DRUMS",250,1000,3
1670 DATA "Game 2",64,900,3
1680 DATA "This is a more",100,850,7,"d

```

```

ifficult version",100,800,7,"of Game 1.
As the",100,750,7,"notes are played,",10
0,700,7,"the drum heads do",100,650,7,"n
ot light up.",100,600,7
1690 DATA "Both games are won",64,500,6
,"when 30 notes have",64,450,6,"been rep
eated",64,400,6,"correctly.",64,350,6
1700 DATA "Practice",64,250,3,"This cho
ice shows",100,200,7,"the keys & allows",
100,150,7,"free practice.",100,100,7,"P
RESS SPACE",250,50,3
1710 DEF PROCreloc(QX):CLS:*TAPE
1720 PX=PAGE:IF PX<=QX ENDPROC
1730 LX=TOP-PX:PRINTCHRS129CHRS136'ReLo
cating...;
1740 FOR MX=0 TO LX-1 STEP 4
1750 QX!MX=PX!MX:SOUND17,-4,255*MX/LX,1
1760 NEXT:PAGE=QX:AX=138:XX=0:*FX15
1770 $&100="OLD"+CHRS13+"RUN"+CHRS6+CHR
$13
1780 FOR LX=&100 TO &108:YX=?LX
1790 ZX=USR&FFF4:NEXT:VDU21:END

```

This listing is included in this month's tape & disc offer. See order form on Page 141.

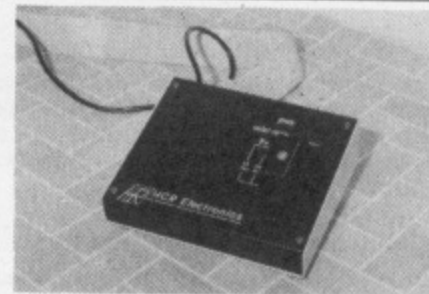
DRAM
ELECTRONICS LTD.

**OFFICIAL
ACORN
SPARES
DISTRIBUTOR**

Please phone for prices
Dealer Enquiries Welcome

DRAM ELECTRONICS LTD.

Unit 12, Kingston Mill, Chestergate,
Stockport SK3 0AL.
Tel: 061-429 0626. Tlx: 312242



128K EPROM PROGRAMMER

Again a quality-built product, cased in steel two tone case and comes complete with software in rom, zif socket and all cables. This is the follower of the well proven 64K Micron and Eprom Programmer

THE SPECIFICATION

- 2716, 2732, 2764, 27128, 27256, 2532, 2564, 27512, 27513, 2516, 27011, 2732a, Programmes 2764A ETC.
- Programs all Eproms up to 27512 (64K) in a single pass (Master only).
- Programs all Eproms up to 32K in a single pass (BBC B).
- Fully buffered.
- Software selectable programming voltage 12.5/12/25 volt.
- Normal or high speed algorithmic method of programming (software selectable).
- Continuous display of option selected.
- Zif socket powered down when not in operation.
- Mains derived self contained power supply.
- VCC is raised to 6V during programming in line with manufacturers recommendations.

SOFTWARE ON ROM INCLUDES:

- Fully menu driven.
- Automatic verification on completion of programming and fault listing.
- Built in full screen memory editor (buffer is 32K long).
- Software allows blank check of Eprom and automatically lists faults.
- Will copy Eproms to buffer or file.
- Will generate checksum.
- BBC format rom images may be created using a number of images of basic or machine code programs.
- More than one image can be stored on one rom.

This programmer has been designed and manufactured by H.C.R. Electronics to industry standard. Our engineers are on hand for queries relating to this product.

PRICE ONLY £68.00

ORDERS TO:
H.C.R. ELECTRONICS, H.C.R. HOUSE,
BAKERS LANE, INGATESTONE,
ESSEX CM4 0BZ. Tel: (0277) 355407/8



MICRO USER CLASSIFIEDS

Has upgrading your BBC Micro given you hardware you no longer need? Or have changing interests left you with unwanted software? Then THIS is the place

to advertise your surplus items.

Our 179,000 readers are always on the lookout for a bargain and this is the first place they'll look!

An added bonus!
Your advert will be automatically displayed on MicroLink, the electronic mail service operated in association with Telecom Gold. This means it will be seen by thousands of computer enthusiasts who can send an instant response.

- BBC B, 128k ram, CDC 40/80 DS/DD disc drive, Epson P40 printer, joystick and lots of software £350 o.n.o. Tel: 0706 341041.
- Digimouse software and manuals for sale boxed, hardly used only £26. Tel: 01 656 5620 day time ask for Sam.
- Scythe Toolkit Rom £10. Selection of original games, tapes £2 each. Tel: 0922 51923.
- Seikosha GP100A printer, excellent condition, recent service £59 for quick sale. Tel: 0843 32761.
- Challenger 512k drive £150, AMX Pagemaker (Challenger Version) Superart Mouse £70, Inside Out £9. Tel: 01 435 7664.
- Z80 Acorn 2nd processor package, & Wordstar, DBase II £199 o.n.o. Tel: Bedford (0234) 67067.
- Acorn 6502 2nd-Processor (New) £110 o.n.o. Acorn Z80. 2nd Processor £240 o.n.o. BBC Tapes/Disks From £1. Tel: 01 654 2534.
- Penman Plotter complete with disc software £180 o.n.o. Tel: Bristol 566479.
- Epson RX80FT+ with 8177 NLQ Board, spare print head and ribbons. Connecting lead required £175 o.n.o. Chenery Tel: 09277 63689, 201 Toms Lane, Kings Langley, Herts.
- BBC B+ OS 2.1, Single 40/80 DSDD disc drive, Watford DDFS+,

- Interword, Diagram, AMX Mouse, Superart, Ravenskull, Uncased Mono Monitor £420. Second 40/80 DSDD Disc Drive £80. Tel: 0256 724866.
- BBC B Acorn DFS 16k SWR £220, Colour TV £100, 2nd Processor £85. Tel: 01 360 4499 Evenings.
- BBC B Opus Challenger 3 disk drive and cassette recorder with all leads and software. £400 o.n.o. Tel: 0384 263909.
- Acorn Compact with AMX Mouse and super art, Printmaster, Beebug Command, Interword, RS232 interface and reference manuals £350. Tel: 0442 825972.
- BBC Master, 512 Processor, Cumana Twin 40/80T Drives, Taxan Supervision 3 Colour Monitor Plus Software And Manuals £950 o.n.o. Tel: 0283 222130.
- Dual 3½", 40T Cumana disc drive £70. Tel: 0628 22187

- Evenings.
- BBC B, DFS, Econet, Epson P40 Printer, joystick, software. £260 o.n.o. Tel: Brighton (0273) 735743.
- BBC Master 128, Monitor, dual 40/80T double sided drive, software worth over £1000. Reference manuals, Cartridge, Roms. £600. Tel: 0925 763601.
- Modem Nightingale little used £65 o.n.o. J Crabtree, 10 Pathfields, Dartmouth, Devon.
- AMX Mouse and Super Art £25.00, Peartree Mini-Rom board £10.00 instructions and original packaging. Tel: 0342 311049.
- BBC B Solidisc DFS/ADFS, side/shadow Ram RTC DS 80T disc Mono Monitor + software £475 o.n.o. Tel: 01 579 0607.
- Napoleonic wargame "Horse and Musket" for two or three players, BBC micro knows all the rules and displays map in eight colours. Two discs include game

- and map design utilities, £12 from R Wills, 55 Spring Walk, Gunville, Isle of Wight, or send SAE for description and screen dump.
- Viglen Console unit for BBC £25.00, ATPL Sideways Rom/Ram board £20.00 o.n.o. Tel: Salisbury (0722) 27057.
- Texas 'Silent 700' data terminal comprising keyboard and printer. Operates with BBC or Electron. With eight rolls paper. For quick sale £55. Tel: Kent (0227) 372284.
- Tandy four colour Printer Plotter Cable for BBC pens and paper £50 also wanted Linkword French for BBC. Tel: (Romford) 04023 77138.
- BBC B 1770 DFS, ADFS, Acorn speech light pen, Data Recorder, many games, joystick £380. Tel: (0226) 203221 after 6pm.

Ads will be accepted under the following conditions:

- This service is EXCLUSIVELY for the use of private readers. No trade ads will be allowed.
- To avoid encouraging software piracy, all ads will be carefully vetted before they are accepted.
- Ads can only be accepted on this form (or a photocopy of it).
- There is no maximum to the number of words you include in your ad. If there is insufficient room on the form, continue on a separate sheet of paper.
- The cost is 20p per word, with a minimum of 10 words.
- We GUARANTEE your ad will appear in the November issue (on sale October 7 providing it is received by September 4).

PLEASE PRINT THIS AD IN THE NEXT MICRO USER

| | | | | | |
|--|--|--|--|--|--|
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |

Cheque enclosed for £ _____ (minimum £2 for 10 words)

Name _____

Address _____

I certify that any software offered for sale is original and not a copy
Signed _____

POST TO: Micro User Classifieds, Europa House, 68 Chester Road, Hazel Grove, Stockport SK7 5NY.

POOLSWINNER II

THE ULTIMATE POOLS PREDICTION PROGRAM

- **MASSIVE DATABASE** Poolswinner is a sophisticated Pools prediction aid. It comes complete with the largest database available - 22000 matches over 10 years.
- **PREDICTS** Not just SCOREDRAWS, but ALWAYS, HOMES and NO SCORES.
- **SUCCESSFUL SELEC guarantee** that Poolswinner performs significantly better than chance.
- **ADAPTABLE** Probabilities are given on every fixture - choose as many selections as you need for your bet. The precise prediction formula can be set by the user - you can develop and test your own unique method.
- **SIMPLE DATA ENTRY** All team names are in the program. Simply type in the reference numbers from the screen. Or use FIXGEN to produce fixture list automatically (see below).
- **LEAGUE AND NON-LEAGUE** All English and Scottish League teams are supported, and also the non-league sides often used on pools coupons.
- **PRINTER SUPPORT** Full hard copy printout of data if you have a printer.



Boxed, with detailed instruction booklet

PRICE £15.00 (all inclusive)

FOOTBALL FOLLOWER

RESULTS DATABASE SYSTEM

- **THE PERFECT PROGRAM** for everyone interested in Football - Soccer Fans, Pools Punters, amateur league secretaries and team managers.
- **POWERFUL DATABASE** designed to store league results and all important statistics for all clubs.
- **SET UP** to handle English and Scottish league matches, but can be easily converted to non-league, amateur and Australian football.
- **FULL PRINTER SUPPORT:** Fixture lists, results, league tables, statistical records etc. can be printed out if you have a printer, or copied from the screen.
- **UPDATED:** The package is supplied with this season's football results already entered into the program.
- **INTEGRATED** with POOLSWINNER and FIXGEN: information can be exchanged between programs. (Can be used to update Poolswinner.)

PRICE £15.00 (all inclusive)

FIXGEN 87/8

AT LAST: No more struggling for hours to get the fixture list into the computer. FIXGEN has been programmed with all English and Scottish League fixtures for 1987/8. Simply type in the date, and the full fixture list is generated in seconds. Fully compatible with Poolswinner and Football Follower. Yearly updates available. (Published under licence from the Football League and Scottish Football League.)

POOLSWINNER with FIXGEN £16.50 (for both)
FOOTBALL FOLLOWER with FIXGEN £16.50 (for both)



FOR SOCCER FANS, the best combination is Football Follower with Fixgen.
FOR POOLS PUNTERS who want a ready made system, Poolswinner with Fixgen is the best combination.
FOR POOLS PUNTERS who want to do more detailed analysis and develop their own system, the complete suit of all three programs is available at a special price:

POOLSWINNER + FOOTBALL FOLLOWER + FIXGEN
£26.50 (all inclusive) (ask for "COMBO PACK")

COURSEWINNER V3

NOT JUST A TIPSTER PROGRAM, Coursewinner V3 can be used by experts and occasional punters alike.

THE PUNTERS COMPUTER PROGRAM
You can develop and test your own unique winning system by adjusting the analysis formula, or use the program in simple mode. Coursewinner V3 uses statistical analysis of major factors including past form, speed ratings, course statistics, prize money, weight, going, trainer and jockey form etc. etc. It outputs most likely winners, good long odds bets, forecasts, tricasts etc. The database includes vital course statistics for all British courses. You can update the database - never goes out of date. **FULL PRINTER SUPPORT.**

PRICE £15.00 (all inclusive) includes Flat AND National Hunt versions.

AVAILABILITY... All programs available for:

AMSTRAD CPC's, PCW's, PC1512
All BBC's
All SPECTRUMS
COMMODORE 64/128

All programs supplied on tape, but automatically transfer to disc or microdrive. AMSTRAD PCW and PC1512 supplied on disc (add £3.00).

Send Cheques/POs for return of post service to...



phone 24 hrs



phone 24 hrs

37 COUNCILLOR LANE, CHEADLE, CHESHIRE SK8 2HX. ☎ 061-428 7425
(Send for full list of our software)

WITH PAYROLL

A LOW COST DISC BASED PROFESSIONAL ACCOUNTING PROGRAM

For the BBC Computer

"Micro-Trader"

INTEGRATED SALES PURCHASE AND NOMINAL LEDGERS

Designed for business use by a business man. "Micro-Trader" offers full Sales and Purchase Ledger facilities including SALES INVOICE and STATEMENT PRINTING with a capacity of up to 1,000 accounts and 5,000 transactions per month.

Nominal Ledger features quick and easy entry of everyday transactions. Up to 6 Bank Accounts, full V.A.T. facilities, Journal Posting. Full Reporting for individual accounts, Audit Trail, Trial Balance, Profit & Loss and Balance Sheet.

"MICRO-STOCK"

Stock Control program, fully integrated with "Micro-Trader". 4,000 Stock Items with user defined Codes. Invoice and Credit Notes and Cash Sales routine. Full Stock Held Reports.

£75.00 + V.A.T.



"EXTENDED PAYROLL"

Micro-Aid Full Feature Extended Payroll. For use stand alone or integrated with "Micro-Trader".

£49.95 + V.A.T.

"MICRO-MAILER"

A Mailmerge program, fully integrated with "Micro-Trader". With a user Database.

£30.00 + V.A.T.



PHONE TODAY FOR A FREE FACT SHEET

MEADOW COMPUTERS

11, LONDON STREET, WHITCHURCH, HAMPSHIRE, RG28 7LH

Telephone: Whitchurch (0256) 892008

MICROS - MONITORS - DRIVES PRINTERS - 8271/1770 & COMPONENTS

BBC MASTER

Master 128 inc Software £428.95 (d)
512 Upgrade 2nd processor £209.90 (c)

PRINTERS AND MONITORS

Full range - see or call
VIGLEN CONSOLES
BBC B Console £47.50 (c)
Master Console (Professional) ... £55.50 (c)
Look! Only £4.60 carriage

WINCHESTER - Fully compatible

Well known make-Phone, SAE Leaflet
(Master-Plug-n-Go-B requires 1770 and/or ADFS)

10MB (ex VAT £425.00) £488.75 (d)
20MB (ex VAT £491.30) £565.00 (d)
28MB (ex VAT £534.78) £615.00 (d)
UFD 2000 20MB Hard Drive +SW (400K)

Floppy+PSU & Monitor Bridge £799.95 (d)

5.25" 40/80 TRACK D/SIDED DRIVES

-new switched cased drives with leads
(Famous Japanese mechanisms)
SINGLE (400k) Look only £105.95 (c)
DOUBLE (800k) £4.60 carr £205.95 (c)
Master Bridge-Twin (800k)

with PSU £245.00 (d)
5.25"+3.5" Combo with PSU £261.95 (c)
Single 3.5" (400k) with PSU £127.95 (c)
Double 3.5" (800k) with PSU £226.95 (c)

DFS KITS with fitting instructions

8271 DFS Kit (inc DNFS Rom) ... £53.50 (a)
1770 DFS Kit (inc. Acorn Rom) .. £44.95 (a)
1770 (DFS without Rom) £34.90 (a)
Acorn ADFS with utilities £27.50 (a)

THIS MONTHS SPECIAL

5% off 1770 Kit ~~£44.95~~ Now £42.70 (a)
Single (400k) Drive+1770 DFS
Package Price
Save over £6 £144.50 (c)

UNIVERSAL DISCS

Up to 80T DSDD Clear plastic case inc.
Box of 10. Look! Only £6.95 (b)

ADVANCED COMPUTER PRODUCTS

Adv 1770 DFS or Adv Disc T-kit. £32.50 (b)
Advanced Disc Investigator £27.25 (b)
Electron plus1 £49.95 (c)
Electron ACP 4 Disc Interface £79.90 (c)

CONTROLLERS, CPU'S, ETC

8271 £36.95 (a)
WD1770/72 £14.80 (a)
6502A CPU £4.90 (a)
65C02 Low Power CPU £8.20 (a)

MEMORIES

4416-15NL (TMS or NEC) £2.45 (a)
41464-12 (Solidisk 41254-12) £4.90 (a)
41416-15 (Watford 48415) £2.45 (a)

EPROMS VPP 21V as available, or 12.5V

2764-250ns £2.65 (a)
27128-250ns £3.65 (a)
27256-250ns £4.95 (a)
27C256-250ns £6.35 (a)

TTL-DFS CHIPS ETC

7438 £0.40 (a)
74LS04 £0.25 (a)
74LS10 £0.30 (a)
74LS123 £0.70 (a)
74LS136 £0.35 (a)
74LS163 £0.55 (a)
74LS174 £0.55 (a)
74LS244 £0.70 (a)
74LS245 £0.85 (a)
74LS393 £0.85 (a)
CD4013B £0.55 (a)
CD4020B £0.70 (a)

ALL PRICES INCLUDE V.A.T.

Mail order only to:

Cp microsystems

32-34, Surbiton Road, Kingston upon Thames, Surrey KT1 2HX.

Please note new telephone number

☎ 01-394 1452 (Answerphone - we're despatching orders, we'll ring back).

Carriage & Ins.- (a) £0.65, (b) £1.25, (c) £4.60, (d) £8.00.

More than one item? All sent in one parcel.
Choose rate for your dearest item.
ALL GOODS NORMALLY IN STOCK
Local Auth. Orders accepted

LETTERS

£10 Prize letter

ALTHOUGH I am very happy with InterWord I have found underlining text can be time consuming. I normally underline as I type rather than doing it afterwards.

This usually involves a tedious process of placing a marker at the position of the first letter of the section to be underlined, another marker immediately after the section, then moving back into the section, pressing Shift+f4 and then moving forward again ready to continue typing.

It struck me that it should be easy to set up a function key to help with this. However, the InterWord manual is not very helpful here as it does not list the relevant codes. The supplement provided with my manual does list most of the codes but not those for Shift+function keys or for Control+function keys. I have worked out these codes to be the following:

| | |
|---------------|--------------|
| Shift+f4 !!:D | Ctrl+f3 !!:S |
| Shift+f5 !!:E | Ctrl+f4 !!:T |
| Shift+f6 !!:F | Ctrl+f5 !!:U |
| Shift+f7 !!:G | Ctrl+f6 !!:V |
| | Ctrl+f7 !!:W |
| Ctrl+f1 !!:Q | Ctrl+f8 !!:X |
| Ctrl+f2 !!:R | Ctrl+f9 !!:Y |

I now use the following key definition to make underlining easier:

```
*K.4 !:#!;!;!DI!-
```

Using this the sequence is simply to put in the first marker, type the section and press Control+Shift+f4.

Here are a few other simple ideas for making use of the function keys in Interword.

To set up f0 to underline the word at the cursor use:

```
*K.0 !ZI!ID
```

and

```
*K.1 !ZI!IE
```

sets up f1 to embolden the word at the cursor.

These two can be extended

Easier underlining

to underline or embolden the word just typed by moving the cursor back a space, underlining or emboldening and then moving the cursor forward a space ready for further typing:

```
*K.2 !!,IZI!ID!:-
*K.3 !!,IZI!IE!:-
```

If you want to increase the column width you can have:

```
*K.5 !!IQ!-!{{Q}}
```

and to decrease column width you can use:

```
*K.6 !!IQ!;!I
```

or you could just cycle through the width using f5. You can change the whole page layout with a function key:

```
*K.7 !!ITIM72IM4IM4IM7
BI[
```

This example gives a page of 72 lines, a top space of 4, a bottom space of 4 and puts the footer on line 70. And to return to the default setting:

```
*K.8 !!ITIM66IM6IM6IM6
3I[
```

I use a dot matrix printer at home and a daisy wheel at work. The key definition below, used from the main menu (you just press the key and not Shift+Ctrl as well), sets up InterWord for the daisy wheel.

Assuming that InterWord starts with the default settings and pause between pages set to off, this definition will change it for use with a 1200 baud serial printer, line feeds on and pause between page set on.

It also loads in the appropriate control codes which have been previously saved as codes1. Note that the X in the middle of the definition is deliberate to skip the Press any key prompt.

Obviously another key can

be used to change the set-up back to that appropriate for another printer if needed.

Because of the power of InterWord it is less necessary to define function keys than it is with other word processors but useful savings of time can still be made as I hope the above examples indicate. I'd be very interested to see other people's ideas. — Mick Gregson, Nottingham.

Faster checksums

PAGE 119 of the August issue of The Micro User has a very useful name and address program. You state that, once typed in, you can check it using checksums.

I must have missed the issue that gives details of how this is done and the program used. I would appreciate it very much if you could give me some help. — E.H.D. Jones, Ashford, Kent.

● The checksum program and full details of how to use it are given in the June issue of The Micro User. There were some other alterations and improvements in the Letters section of the September issue.

On this month's magazine disc is a machine code version of the checksum program which operates much faster than the original.

PTR# "bug" in Basic II

DURING the last few months while writing a Basic family of programs I have noticed what I am sure is a bug concerning the file PTR# command in Basic II.

It is said that in the use of an IF THEN statement it is optional as to whether the THEN is included, but if you need to use the PTR#

Win a tenner

● Want to write to The Micro User? The address is: Letters, The Micro User, Europa House, 68 Chester Road, Hazel Grove, Stockport SK7 5NY. Writers of the most interesting letters receive a £10 prize.

command in an IF — THEN statement as in the example below, the line will not function properly unless the THEN part of the statement is included:

```
IF PTR#fileX=0 PTR#fileX=PTR
#fileX+10
```

This will not work, and generates a syntax error, but:

```
IF PTR#fileX=0 THEN PTR#fil
eX=PTR#fileX+10
```

will work. Also if you have a line that has only the first of the three PTR# commands similar to the example, it should work without any problems:

```
IF PTR#fileX=20 THEN REM do
something else
```

or

```
IF PTR#fileX=20 REM do some
thing else
```

will both work. If you have any such statement such as the first or second examples in your Basic programs and then use the *CRUNCH command in Beebugsoft's Toolkit+, be sure to re-insert the THENs where appropriate, as it will remove them, thus crashing your programs for seemingly no reason. — Patrick Thornberry, Taunton, Somerset.

● This is not strictly speaking a bug, but a feature of how Basic tokenises lines.

The PTR# keyword has two

Turn to Page 136 ►

LETTERS

◀ From Page 135

tokens, one for when it's on the left hand side of an assignment and one for the right hand side.

When Basic is tokenising an IF statement and it comes across the PTR# without the THEN it still thinks it is evaluating the IF condition and so tokenises it using the right hand side token.

This results in an error when the program is run.

Kick your way through

I HAVE completed all the screens in Yie ar Kung Fu II, and here are some hints for tackling it:

To kill Yen-Pei, which is not difficult, just throw normal punches. Lang-Fang is killed by jumping at her if you can. Keep on using ankle punches.

Pochin is quite easy, just

jump at him and do a high kick. Wen-hu is quite hard really but just use ankle punches again.

Wei-chin, who throws a boomerang, is not too hard to beat. Jump at her then punch each time she throws a boomerang. Mei-lang, who throws knives, is easy sometimes. Again jump at her then do ankle kicks.

Han-Chen throws bombs and is not as easy as he appears, try to get near him, then do ankle kicks. Lastly, Lei-jein, is, I think, the easiest of all. Dodge the lightning and when you get near him do ankle or hook punches before he disappears.

The way to get past the midgets is to jump round them. After that the game goes back to the beginning, but gets faster.

If some of these tips don't work and you start to run short of energy press T and you get a new supply (cheating really). — A.S. Shakoer, Ilford, Essex.

Master 128 harbours a bug

I WOULD like to draw your attention to a bug I have found on my Master 128. The problem arises when the following is entered, which is legal with HIMEM set at its default value:

```
DIM AX(255,255)
```

Following a short delay, the screen clears and the cursor does not reappear, although the machine will accept some input (only about 10 characters) after which it freezes and a Control+Break is needed to regain control. — Stephen J. Allinson, Bardsey, W. Yorkshire.

● This one really is a bug, Basic allocates and sets up the array before checking whether it has the space. If you use the value 254 Basic recognises the error and reports it, but anything greater than 255 is accepted

without error and doesn't crash the machine (and we were not using an Archimedes).

However, in the case of values greater than 255 the entire memory map becomes part of the array and reading from the higher elements of the array returns the machine code values from the roms.

Vertical tabbing LX80

THE attached test program demonstrates the results of vertical tabbing on the Epson LX80 printer.

Unfortunately for Y=10 or X-Y=1, a form feed is inserted before the third string is printed. Is this a program error or a bug?

```
10 REPEAT INPUT X,Y
20 AS="Line 0"
30 BS="Line "+STR$(X)
40 CS="Line "+STR$(Y)
50 *FX3,10
60 VDU 27,64:REM Init
70 VDU 27,66,X,Y,0
80 REM " Set tabs "
90 PRINT AS:VDU 11
100 PRINT BS:VDU 11
110 PRINT CS:VDU 13,13
120 *FX3,4
130 UNTIL FALSE
```

— Alan W. Grey, Ravenshead, Notts.

● This is odd, and definitely a fault with the printer. Can a reader shed any light, and does it apply to other printers?

Telling the printer

I HAVE recently bought a DMP 3000 dot matrix printer and, although I can get it to print ordinary letters satisfactorily, I have found that all the computer-controlled instructions included in the user manual are incompatible with BBC Basic, being intended for another form of Basic.

A typical command takes the form:

```
LPRINT CHR$(27) + "x" \ CHR$(1)
```

to select NLQ. Also included with every function is a shortened version, such as ESC x SOH. I was wondering how to convert these instruc-

£10 Prize letter

SEEING Huw Woolley's 10 minute game in the July edition of The Micro User reminded me of two programs I've written.

In Shoot you have one minute to shoot as many creatures as you can. Each hit scores 10 points, but a miss deducts a point from your score. As your score increases, the creatures become more and more restless.

The random motion is determined by RND(100) in line 20. Increasing the value makes the game easier. The keys to use are Z, X and Return.

In Caterpillar you have to guide an ever-lengthening caterpillar around the screen without colliding with anything. It's harder than it sounds because the screen scrolls in eight directions.

And just to complicate matters, you are not allowed to travel in a straight line for very long. The beep changes tone just before you must change course.

The maximum length of the

Speedy pair of games

straight path is determined by C%>20 in line 50: If this check were not included it would be possible to keep going left or right indefinitely because of the way the screen lines wrap around. The warning signal is given by C%>16 in line 40.

```
10 VDU&FF17;&3C42;&7E54;
&8DE7;&8181;&FE17;&1010;&38
38;&3838;&9254;:@X=4:REPEAT
MODE1:S=0:VDU23,1;0;0;0,1
9,2,12;0::COLOUR-3:PRINTSPC
5"Score:"SPC12"Time:"SPC12T
AB(0,30)SPC40::T=20:M=T:GCO
L3,2:TIME=-6000:J=32
20 REPEATM=M+(M<38)*INKE
Y-67-(M>0)*INKEY-98:IFRND(1
00)<S T=T+RND(2)*2-3:IFT<0T
=0 ELSE IFT>38T=38
30 COLOUR-4:VDU31T,2J,-1
J,31M,28J,-2J:IFINKEY-74MOV
EM+J+44,128:PLOT17,0,832:SO
UND&11,-15,150,1:S=S+(S>0):
PLOT17,0,-832:IFT=M SOUND&1
0,-10,4,5:VDU31T,2J,J,J:T=R
ND(38):S=S+11
40 COLOUR-3:PRINTTAB(12,
0)S TAB(29,0)ABSTIME DIV100
:UNTILTIME>0:COLOUR2:PRINT
AB(12,15)"You scored ";S:RE
PEATUNTILINKEY-99:UNTILFALS
E
```

Listing I: Shoot

The keys for this game are Z X] and Shift (you can go diagonally by pressing two keys at once). — R.M. O'Leary, Morriston, Swansea.

```
10 DIMFX2562:REPEATMODE1
:GCOL0,2:FORZX=1TO300:PLOT6
9,RND(1279),RND(1023):NEXT:
SX=83000:XX=0:YX=640:NX=0:0
X=0:CX=0:TX=0:EX=0:TIME=0:R
EPEATAX=16*(INKEY-98-INKEY-
67):BX=640*(INKEY-89-INKEY-
1):IF(AXORBX)IF(AX<>XXORBX<
>YX)XX=AX:YX=BX:CX=0
20 SX=&3000+(SX+XX+YX+&2
000)MOD&5000:*FX19
30 VDU23;12SXDIV2048;0;0
;0;23;13SXMOD2048DIV8;0;0;0
:M=&3000+(SX+&46C0)MOD&5000
0:EX=?M&AND15:!M=&F070701:
M=!4=&107070F:M=!8=&F0E0E08
:M=!12=&80E0E0F
40 IFTIME<TXAX=FX!0XAND&
FFFF:0X=(0X+2)MOD2560:!AX=0
:AX!4=0:AX!8=0:AX!12=0:ELSE
TX=TX+20:SOUND1,-8,CX>16,1:
CX=CX+1
50 FX!NX=M:NX=(NX+2)MOD
2560:UNTILEXORCX>20:SOUND0,
-15,4,5:CLS:PRINTTAB(10,5)"
You lasted ";TIME DIV100" s
econds":REPEATUNTILINKEY-99
:UNTILFALSE
```

Listing II: Caterpillar

LETTERS

tions for my micro.

Also how it is possible to use Mini Office II with mail merge using database files? I have tried the embedded commands:

```
GD"filename" FL1
```

but this does not seem to work. Please advise me. — **William Rayner, Huddersfield, West Yorkshire.**

● It is very simple to convert the printer commands to your BBC Micro. Taking your example from above, you can just use the VDU command from Basic:

```
VDU 27,ASC"x",1
```

From a word processor you need embedded commands:

```
CC 27,120,1
```

for Mini Office II and replace the CC with OC for Wordwise. The value 120 is the Ascii value of the letter x. You can find out other Ascii values by using Basic:

```
PRINT ASC("x")
```

A full explanation of the mail merge facility of Mini Office II was given in the October 1986 issue of *The Micro User*.

Ribbons for T shirts

I UNDERSTAND from a friend that a few months ago you reviewed a printer ribbon which enabled designs to be printed on T shirts. I have spent some time looking through your back issues but cannot find a reference to it.

I would therefore be very grateful if you could tell me the phone number of the company which markets the ribbons. — **Graham Lake, Woodford Green, Essex.**

● The ribbons are available from MGA Microsystems, 05806 4278.

Automatic rejection

I USE the disc version of View 2.1 and find it an excellent word processor for my purposes, with the exception of

one feature I cannot control, the page eject.

If I type a paragraph of text in and proceed to test print it, the page ejects every time. Can page eject be cancelled in View 2.1 or do I need an upgraded version of View. — **R. Dean, Loughborough, Leics.**

● Other readers have complained about this. Any solutions?

£10 Prize letter

Functions finder

I HAVE spent many hours tracking down procedures in various programs such as those on the Welcome disc.

I therefore decided to write a program that would search through a listing, picking out all the functions and procedure definitions, listing the line number and name as it searched.

First load a program with functions and procedures in, then add the search program to the end so that you can test it to make sure it works.

```

32000 DEF PROCLDEF:PX=PAGE:
KX=0
32010 REPEAT PX=PX+KX
32020 IF PX?0<>13 PRINT"Bad
program":ENDPROC
32030 IF PX?1=255 UNTIL TRU
E:ENDPROC
32040 LX=PX?1*256+PX?2:KX=P
X?3:JX=4
32050 IF JX<KX IF PX?JX=32
REPEATJX=JX+1:UNTILPX?JX<>3
2 OR JX=KX
32060 IF JX=KX OR PX?JX<>0
D UNTIL FALSE
32070 PRINTLX" DEF ";JX=JX
+1
32080 IF PX?JX=32 REPEATJX=
JX+1:UNTIL PX?JX<>32 OR JX=
KX
32090 IF JX=KX UNTIL FALSE
32100 IF PX?JX=8A4 PRINT"FN
";
32110 IF PX?JX=8F2 PRINT"PR
OC ";
32120 QX=0:REPEATJX=JX+1:BX
=PX?JX
32130 IF BX=13 OR BX=ASC":"
OR BX=ASC"=" QX=-1:ELSEVDU
PX?JX
32140 UNTILJX=KXORQX:PRINT:
UNTILFALSE

```

When you have entered the search program you can test it by entering:

```
PROCLDEF
```

To save it first delete all the lines below line 32000 and then save it with:

```
SAVE"FP-SRCH"
```

To put it to use, load in a program to search through, find TOP less 2 (using PRINT -TOP-2) and then enter:

```
*LOAD FP-SRCH (top less 2)
```

followed by:

```
PROCLDEF
```

— **David Hill, Lechlade, Glos.**

Design a super game

MY friend and I love designing games. All the preliminary steps in making up games like plotting maps, characters and game background are all

fun — but we cannot program them.

This is where I hope you will be able to help. I wonder if you could have a Game Design competition in which people could write in with designs of games with the winning design being picked by Hac-man. Then you could have a competition for people to write the game. — **Paul Tatham & Anton Howarth.**

● We think this is a great idea so come on you arcade games designers send us your unwritten games to Game Design Competition, The Micro User, Europa House, 68 Chester Road, Hazel Grove, Stockport SK7 5NY.

Make sure you include as much detail as possible about the plot, the characters, the screen design and so on — but remember it's for a BBC Micro with 32k ram, not an Archimedes 410!

Turn to Page 138 ►

Address Book

I HATE to sound ungrateful (because I'm not) but a couple of things need mentioning which didn't come out in my Address Book article in the August issue of *The Micro User*.

The label-printing and Ascii-spooling routine in PROCprs (lines 1330-1440 in Addrbk) relies entirely on the first nine fields being:

| Field | Description |
|-------|--------------------------------------|
| 1 | Name |
| 2 | a birthday or other non address item |
| 3 | Address line 1 |
| 4 | Address line 2 |
| 5 | Address line 3 |
| 6 | Town |
| 7 | County |
| 8 | Post code |
| 9 | Country |

Otherwise some mighty odd address labels are going to be printed. Field 2 was designed that way to allow a birthday search at the beginning of each month to print out a set of labels for the whole month, with the date in the month appearing at the right-hand end of the same line (cunning, eh?).

The post code appears after field 5, offset from the county

name if given. This is shown in this sample label:

```
Lorna Goatly
3 Ribley Avenue
Apple Green
MAIDENHEAD
Berks.
```

A way out of the straitjacket is this short fix to replace lines 1350-1400

```

1350 L=0:INPUT#X,dummyX
1360 REM Replace 'number'
with the number of address
fields, including name
1370 FOR XX=1 TO number
1380 INPUT#X,u$
1390 u$=FNtrim(u$)
1400 IF u$=""NEXTELSEPROCp
(u$+CHR$13):L=L+1:NEXT

```

I have tried this and it works. The only restriction on screen design is that you will have to use field 1 for name and fields 2 to number for the address.

By the way, when you get the Empty record? not saved message it is only because the cursor is in an empty window and the program is protecting you from adding blank records which cannot then be deleted. — **Bruce Goatly, London.**

LETTERS

◀ From Page 137

Spreadsheet with Pagemaker

AS an owner of a BBC B, an AMX Mouse and Pagemaker and also your highly acclaimed Mini Office II, I feel I should let you know that the spreadsheet program will not work with the Pagemaker roms installed.

The frustrating Basic I or II missing message always appears when trying to load the spreadsheet module. If I owned a Master this would be no great problem because I could simply *UNPLUG the offending Rom. However as I have no unplug command may I suggest the following poke:

```
?&2AX=0
```

Where X=the number of the rom socket+1, for example ?&2AF=0 (would disable the rom in socket E).

This works fine until you press Break and since you have to !BOOT up the Mini Office II disc I have written this short program which you run instead of booting the disc:

```
10 ?&2AX=0
20 PRINT"INSERT MINI O
FFICE II disc now and pre
ss SPACE"
30 REPEAT UNTIL GET=32
40 *RUN !BOOT
```

I hope this will be of some use to anyone else in a similar situation. Thanks for an excellent magazine. — Andrew Westthorp, Lanchester, Durham.

One view to many

I AM the proud owner of a BBC model B series 7 micro with a 0.9 DFS and a 1.2 operating system with View 2.1, I have just purchased Viewsheet and Viewstore. I opened the computer to fit them, only to find that I have no sockets to fit Viewstore without removing one of the others.

The children need Basic for their games, my wife needs View for writing and I would

ALL programs printed in this magazine are exact reproduction of listings taken from running programs which have been thoroughly tested.

However, on the rare occasions when mistakes occur corrections are published as a matter of urgency. Should you encounter error messages when you type in a pro-

gram, they will almost certainly be the result of your own typing mistakes.

Unfortunately we can no longer answer personal programming queries concerning these mistakes. Of course letters about suggested errors will be investigated without delay, but any replies found necessary will only appear in the mail pages.

like to use Viewsheet and Viewstore and interchange files between all the View programs. Is there a cheap solution, as I have already spent too much at the moment?

I also have a further problem in that Viewstore suggests that a 1.2 or later DFS is desirable. Please could you tell me what effect having a 0.9 DFS will have? — Bob Ridout, Haslingfield, Cambridge.

● Your only solution is to buy a sideways rom board. There are plenty on the market. Select one which adds a few rom sockets — you won't need extras like sideways ram or a clock.

As for the Viewstore problem, we recommend that you get a DFS 1.2 otherwise you can't be sure what will work.

dual 40/80 Mitsubishi disc drive including psu, also fairly new.

I would like to insure my kit against damage or theft. — G. H. Lyons, Northwood, Middx.

● You should always insure equipment at replacement value, that is how much it would cost to replace the unit. So typical prices are:

```
Taxan Supervision II £269
AMX Mouse & MAX £ 55
Master Turbo £493
Twin drives with PSU £204
```

That's a grand total of £1021. On the second hand market you could get between £600 and £700 for the full set.

Speeding up View programs

I OWN a Master 128 and do a lot of my own programming, normally straight into Basic, but after reading The Basic Process by Will Gallagher in the July edition of The Micro User I thought I would try programming in View.

After a few hours I decided that it was too slow, in that you have to WRITE the program to disc then do *Basic followed by *<filename> and finally RUN just to test it, which I like to do every so often.

Then you have to write down the errors, re-enter View, READ in the file and make the changes, which is a very long process for something as simple as changing the position of a character on the screen.

My method is to start in the word processor and write the program and when I want to test it WRITE it to disc then *BASIC followed by

*<filename> and finally RUN as in the normal process to spot the errors.

I then edit the program in Basic followed by *SPOOL <filename>, LIST, *SPOOL, create a file that can be READ into View in the normal way.

The program will appear with the line numbers already in place and without *BASIC or AUTO. Just put AUTO at the bottom of the program followed by the next line and *Basic at the top.

I think it speeds up the editing of small errors or changes very dramatically. — R. Newport, Lechlade, Glos.

No flies on this Master

I HAVE just discovered a bug in the Master's Basic rom and I am sure that your readers will be interested to hear it.

If you run this program:

```
10 PX=&900
20 [
30 EQUQ &6000 leq
uate a double byte
40 EQUW &FFFF6000 leq
uate four bytes
50 ]
```

the following output is produced:

```
0900 00 60 00
00 EQUQ &6000
0904 00 60 EQUW &FFFF6
000
```

instead of the expected:

```
0900 00 60 EQUQ &6000
0902 00 60 FF
FF EQUW &FFFF6
000
```

While this bug will not affect most programs, it means that some assembler programs will not assemble correctly and so the resultant machine code will contain errors.

Finally, I like the new style of magazine, especially the new, crisper, listings. — R.W. Orwin, Wednesbury, West Midlands.

● We're afraid you are a bit mixed up, EQUQ assembles four bytes of data and EQUW assembles two bytes — not the other way round. Basic IV on the Master is correct.

Treat for the Elite

HERE is a little treat for all those who have a copy of Tube Elite: Take your copy and boof it so that either the Cobra Mk III or the Asp Mk II is rotating on the title screen and leave it for two to three minutes and see what happens.

As far as I know this does not occur on the Master or the original copies of Elite. Fascinating isn't it? — M.A. Overthrow, Harlow, Essex.

Insuring equipment

PLEASE can you tell me how much my equipment is worth: A new Taxan Supervision II monitor, new AMX mouse with MAX, BBC Master Turbo, which is six months old and a

Learning CAN be fun

- Use your BBC Micro or Master to teach and amuse your children at the same time.
- Three packages crammed full of educational programs – and so easy to use!
- Each program has been educationally approved after extensive testing in the classroom.

Reduced prices!
 £3.95 tape
 £4.95 5¼" disc
 £6.95 3½" disc



- Ages 2-5**
- Alphabet
 - Colours
 - Counting
 - House
 - Magic Garden
 - Matchmaker
 - Numbers
 - Pelican
 - Seaside
 - Snap



PELICAN
 Teach your children to cross the road safely at a Pelican crossing



HOUSE
 Select the colours to draw a house – hours of creative entertainment

- Ages 5-8**
- Balance
 - Castle
 - Derrick
 - Fred's Words
 - Hilo
 - Maths Test
 - Mouser
 - Number Signs
 - Seawall
 - Super Spell



NUMBER SIGNS
 Provide the correct arithmetic sign and aim to score ten out of ten



BALANCE
 Learn maths the fun way. Type in the answer to balance the scales

- Ages 8-12**
- Anagram
 - Codebreaker
 - Dog Duck Corn
 - Guessing
 - Hangman
 - Maths Hike
 - Nim
 - Odd Man Out
 - Pelmanism
 - Towers of Hanoi



HANGMAN
 Improve your child's spelling with this fun version of the popular game



ODD MAN OUT
 Find the word that does not fit – before your time runs out

TO ORDER TURN TO THE FORM ON PAGE 141

Drive into a new dimension!

Grand Prix Construction Set from Superior Software is an all-action racing game with a difference.

Using the built-in editor you can design your own circuits by choosing from a range of bends, chicanes, hump-backed bridges and more.

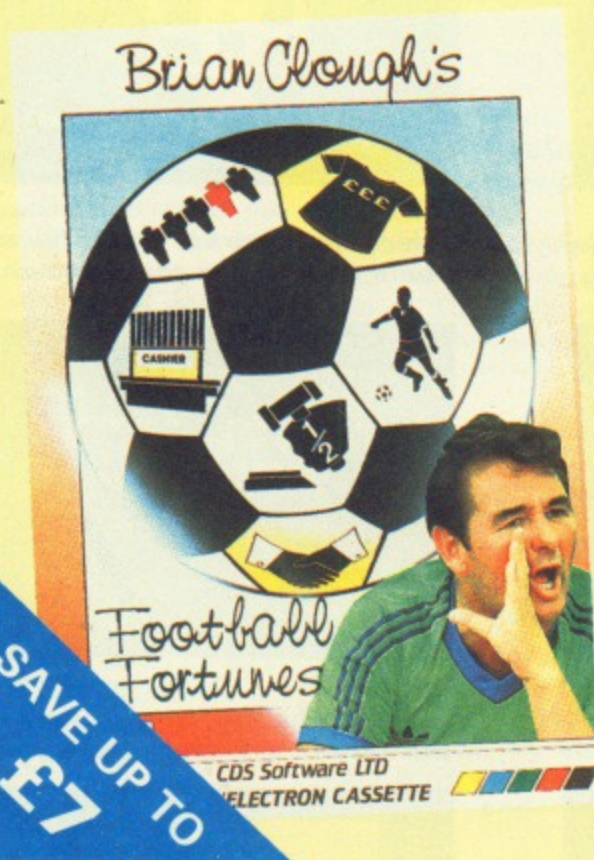
But to get you started there are 18 pre-defined race-tracks for you to try out.

Together with the one or two-player option, and the spectacular split-screen view, this has to be one of the most exciting games for the BBC Micro in a long time!

'The construction set is excellent, and the race section...has sufficient thrills and spills to keep you on the edge of your seat.' – James Riddell, The Micro User, June 1987



SAVE UP TO £5



SAVE UP TO £7

Play football's first interactive computer and board game!

Brian Clough's Football Fortunes is an exciting football management game with a difference – it combines an excellent range of computer-based features with a fascinating board game.

The result for the players is a package which is as much fun and as skillful to play as other best-selling board games, combined with the flexibility and speed of play which only a computer can supply.

Up for the Cup!

- CONTENTS INCLUDE**
- BBC software
 - Playing board
 - Five coloured counters
 - 112 Player cards
 - 10 spare Player cards
 - Six immunity cards
 - Pack of money

- FEATURES**
- Two to five players
 - Four skill levels
 - Variable game length
 - Computer die
 - Teleprinter
 - Constantly updated league tables
 - Assessments of each manager's performance

'A great family game – and no crowd trouble!'
Niels Reynolds, The Micro User, July 1987

| Suitable for | Product | Format | RRP | Special reader offer | YOU SAVE | Offer including subscription | YOU SAVE |
|--------------|-------------------------------|------------|--------|----------------------|----------|------------------------------|----------|
| BBC Micro | Grand Prix Construction Set | Tape | £9.95 | £7.95 | £2 | £19.95 | £5 |
| BBC Micro | Grand Prix Construction Set | 5.25" Disc | £11.95 | £9.95 | £2 | £21.95 | £5 |
| BBC Micro | Grand Prix Construction Set | 3.5" Disc | £14.95 | £12.95 | £2 | £24.95 | £5 |
| BBC Micro | B. Clough's Football Fortunes | Tape | £14.95 | £11.95 | £3 | £22.95 | £7 |
| BBC Micro | B. Clough's Football Fortunes | 5.25" Disc | £17.95 | £14.95 | £3 | £25.95 | £7 |

TO ORDER TURN TO THE FORM ON PAGE 141

Valid to October 31, 1987
Orders subject to availability
Please tick items in box below

Overseas orders:
ALL GOODS NOW SENT AIRMAIL

Annual subscription

| | | | |
|------------------------------|-----|------|--------------------------|
| UK | £15 | 2001 | <input type="checkbox"/> |
| Europe (incl Eire) : Surface | £25 | 2365 | <input type="checkbox"/> |
| Overseas Surface | £31 | 2366 | <input type="checkbox"/> |
| Overseas Air | £42 | 2004 | <input type="checkbox"/> |

Commence with _____ issue

Renewals

| | | | |
|------------------------------|-----|------|--------------------------|
| UK | £15 | 2002 | <input type="checkbox"/> |
| Europe (incl Eire) : Surface | £25 | 2114 | <input type="checkbox"/> |
| Overseas Surface | £31 | 2367 | <input type="checkbox"/> |
| Overseas: Air | £42 | 2113 | <input type="checkbox"/> |

Annual subscription for cassettes and discs

| | | | | |
|---|------------------|-------------|----------|-------------------------------|
| | UK | Europe/Eire | Overseas | |
| <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> | BBC 'B' cassette | £35 | £45 | 2005 <input type="checkbox"/> |
| <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> | 5.25" disc 40T | £50 | £60 | 2006 <input type="checkbox"/> |
| <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> | 5.25" disc 80T | £50 | £60 | 2007 <input type="checkbox"/> |

Commence with _____ (state month)

Renewals

| | | | | |
|---|------------------|-------------|----------|-------------------------------|
| | UK | Europe/Eire | Overseas | |
| <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> | BBC 'B' cassette | £35 | £45 | 2009 <input type="checkbox"/> |
| <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> | 5.25" disc 40T | £50 | £60 | 2010 <input type="checkbox"/> |
| <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> | 5.25" disc 80T | £50 | £60 | 2111 <input type="checkbox"/> |

Grand Prix Construction Set

| | | | | |
|---|------------|-----------|-------------|---------------------------------|
| <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> | | With sub* | Without sub | |
| <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> | Cassette | £4.95 | £7.95 | 2058/9 <input type="checkbox"/> |
| <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> | 5.25" disc | £6.95 | £9.95 | 2060/1 <input type="checkbox"/> |
| <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> | 3.5" disc | £9.95 | £12.95 | 2062/3 <input type="checkbox"/> |

* These offers only available if sent with subscription order or renewal

Brian Clough's Football Fortunes

| | | | | |
|---|----------------|-----------|-------------|---------------------------------|
| <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> | | With sub* | Without sub | |
| <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> | Cassette | £7.95 | £11.95 | 2064/5 <input type="checkbox"/> |
| <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> | 5.25" disc 40T | £10.95 | £14.95 | 2066/7 <input type="checkbox"/> |
| <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> | 5.25" disc 80T | £10.95 | £14.95 | 2068/9 <input type="checkbox"/> |

* These offers only available if sent with subscription order or renewal

Acornsoft Specials

Language Roms

| | | | | |
|---|---------------------------|--------|------|--------------------------|
| <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> | BCPL Bundle * Not ADFS | £29.95 | 2045 | <input type="checkbox"/> |
|---|---------------------------|--------|------|--------------------------|

Add £5 for Europe (inc Eire), £19 Overseas

| | | | | |
|---|-------|--------|------|--------------------------|
| <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> | Forth | £19.95 | 2046 | <input type="checkbox"/> |
|---|-------|--------|------|--------------------------|

Add £2 for Europe (inc Eire)/Overseas

| | | | | |
|---|------|--------|------|--------------------------|
| <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> | Logo | £29.95 | 2047 | <input type="checkbox"/> |
|---|------|--------|------|--------------------------|

Add £4 for Europe (inc Eire), £15 Overseas

Education

| | | | | |
|---|---|-------|------|--------------------------|
| <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> | ABC, Workshop, Talkback and Spooky Manor (four cassettes) | £9.95 | 2048 | <input type="checkbox"/> |
|---|---|-------|------|--------------------------|

Add £2 for Europe (inc Eire), £4 Overseas

Music

| | | | | |
|---|---------------------|-------|------|--------------------------|
| <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> | Creative Sound Book | £4.95 | 2049 | <input type="checkbox"/> |
| <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> | Two 5.25" discs 40T | £3.95 | 2056 | <input type="checkbox"/> |
| <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> | Two 5.25" discs 80T | £3.95 | 2057 | <input type="checkbox"/> |

Add £2 for Europe (inc Eire), £4 Overseas

Games

| | | | | |
|---|--|-------|------|--------------------------|
| <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> | Revs, Revs 4 Track and Aviator (3 cassettes) | £9.95 | 2050 | <input type="checkbox"/> |
|---|--|-------|------|--------------------------|

Add £4 for Europe (inc Eire), £7 Overseas

Micro User back issues

| | | | | |
|----------|-------|-----------|------|--------------------------|
| UK | £1.75 | June 1986 | 2403 | <input type="checkbox"/> |
| Europe | £2.25 | July 1986 | 2404 | <input type="checkbox"/> |
| Overseas | £3.75 | Aug 1986 | 2405 | <input type="checkbox"/> |
| | | Sept 1986 | 2406 | <input type="checkbox"/> |
| | | Oct 1986 | 2407 | <input type="checkbox"/> |
| | | Nov 1986 | 2408 | <input type="checkbox"/> |
| | | Dec 1986 | 2409 | <input type="checkbox"/> |
| | | Jan 1987 | 2410 | <input type="checkbox"/> |
| | | Feb 1987 | 2411 | <input type="checkbox"/> |

| | | |
|------------|------|--------------------------|
| March 1987 | 2500 | <input type="checkbox"/> |
| April 1987 | 2501 | <input type="checkbox"/> |
| May 1987 | 2502 | <input type="checkbox"/> |
| June 1987 | 2503 | <input type="checkbox"/> |
| July 1987 | 2504 | <input type="checkbox"/> |
| Aug 1987 | 2505 | <input type="checkbox"/> |
| Sept 1987 | 2506 | <input type="checkbox"/> |

Monthly cassettes/discs

| | | | | | | | |
|---|-------------------------------|-------|---------|--|--|--|--|
| | | 1986 | | | | | |
| | | | | | | | |
| <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> | Witch Hunt+ Quasimodo's Quest | Oct | 2440/43 | | | | |
| <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> | Maltese Cross | Nov | 2444/47 | | | | |
| <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> | Santa's Sleigh | Dec | 2448/51 | | | | |
| <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> | Ayo | Jan | 2452/55 | | | | |
| <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> | Rhondo | Feb | 2456/59 | | | | |
| <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> | Dino | Mar | 2468/71 | | | | |
| <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> | Hunkie Egg | April | 2472/75 | | | | |
| <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> | Duck's Dinner | May | 2476/79 | | | | |
| <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> | Professor McBrolly | June | 2480/83 | | | | |
| <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> | Diamond Quest | July | 2484/87 | | | | |
| <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> | Survive | Aug | 2488/91 | | | | |
| <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> | Soccer Manager | Sept | 2492/95 | | | | |
| <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> | Arena | Oct | 2496/99 | | | | |

Disc Storage Box

(holds up to 60 5.25" discs)

NEW
£4.95 2052

Knitwear Designer

| | | | | |
|---|------------|--------|------|--------------------------|
| <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> | Cassette | £8.95 | 2031 | <input type="checkbox"/> |
| <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> | 5.25" Disc | £9.95 | 2032 | <input type="checkbox"/> |
| <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> | 3.5" Disc | £10.95 | 2051 | <input type="checkbox"/> |

Add £2 for Europe. Add £5 for Overseas

Nursery Rhymes

| | | | | | |
|---|--|----------------|-------|------|--------------------------|
| <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> | | cassette | £5.95 | 2070 | <input type="checkbox"/> |
| <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> | | 5.25" disc 40T | £6.95 | 2071 | <input type="checkbox"/> |
| <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> | | 5.25" disc 80T | £6.95 | 2072 | <input type="checkbox"/> |
| <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> | | 3.5" disc | £7.95 | 2073 | <input type="checkbox"/> |

Mini Office II

| | | | | | |
|---|--------------------|----------------|---------|------|--------------------------|
| <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> | BBC B, B+ | Cassette | £14.95* | 2368 | <input type="checkbox"/> |
| <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> | | 5.25" disc 40T | £16.95* | 2369 | <input type="checkbox"/> |
| <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> | | 5.25" disc 80T | £16.95* | 2370 | <input type="checkbox"/> |
| <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> | BBC Master | 5.25" disc 80T | £19.95* | 2028 | <input type="checkbox"/> |
| <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> | BBC Master Compact | 3.5" disc | £21.95* | 2029 | <input type="checkbox"/> |

Instant Mini Office II

| | | | | |
|---|-----------------|---------|------|--------------------------|
| <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> | 4x32k Rom Board | £59.95† | 2372 | <input type="checkbox"/> |
|---|-----------------|---------|------|--------------------------|

* Add £2 for Europe. Add £5 for Overseas

† Add £3 for Europe. Add £8 for Overseas

French on the Run

| | | | | |
|---|------------------|--------|------|--------------------------|
| <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> | BBC 'B' cassette | £9.95 | 2359 | <input type="checkbox"/> |
| <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> | 5.25" disc 40T | £11.95 | 2360 | <input type="checkbox"/> |
| <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> | 5.25" disc 80T | £11.95 | 2361 | <input type="checkbox"/> |
| <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> | 3.5" disc | £13.95 | 2362 | <input type="checkbox"/> |

Fun School

| | | | | | | | | |
|---|----------|---------|--|--|--|--|--|------|
| <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> | Age 2-5 | 2338/41 | | | | | | 2076 |
| <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> | Age 5-8 | 2342/45 | | | | | | 2077 |
| <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> | Age 8-12 | 2346/49 | | | | | | 2078 |

Magic Sword

| | | | | |
|---|---------------------|-------|------|--------------------------|
| <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> | BBC 'B' Cassette | £5.95 | 2228 | <input type="checkbox"/> |
| <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> | 5.25" Disc 40T/80T* | £6.95 | 2229 | <input type="checkbox"/> |

*Add £2 for Europe. Add £5 for Overseas

Classic Card and Board Games

| | | | | | | |
|---|-------|--------|--|--|--|--|
| <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> | | | | | | |
| <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> | No.1 | 2460/2 | | | | |
| <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> | No. 2 | 2464/6 | | | | |

Micro User Binders

| | | | | | |
|----|---------------|-----------------|--------|------|--------------------------|
| UK | £4.95, Europe | £8.25, Overseas | £10.25 | 2221 | <input type="checkbox"/> |
|----|---------------|-----------------|--------|------|--------------------------|

Dust Covers

| | | | |
|--------------------|-------|------|--------------------------|
| BBC B & B+ | £3.95 | 2220 | <input type="checkbox"/> |
| BBC Master | £3.95 | 2222 | <input type="checkbox"/> |
| BBC Master Compact | £3.95 | 2224 | <input type="checkbox"/> |

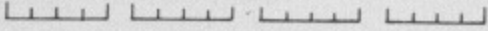
Readers in Europe (inc Eire) add £2. Overseas add £4 per item unless otherwise indicated*

Don't forget to fill in your name and address overleaf.

TOTAL

Payment: please indicate method (✓)

Access/Mastercharge/Eurocard/Barclaycard/Visa



Cheque made payable to Database Publications Ltd.

Expiry Date

____/____

BLOCK CAPITALS PLEASE

Name _____

Address _____

_____ Post Code _____

Tel: _____

Signed _____

Please allow 28 days for delivery

You can also order by phone, Prestel or MicroLink/Telecom Gold

- Any of the goods listed here can be ordered by telephone.
- Micronet subscribers and other users of Prestel can also use the Prestel mailbox.
- MicroLink subscribers and other users of Telecom Gold can also use the MicroLink mailbox.

Orders: 061-429 7931
24 hours
Enquiries: 061-480 0171
9am-5pm.

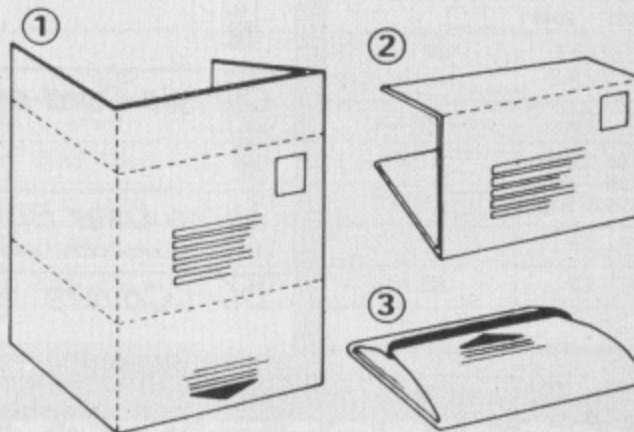
Prestel
Key Page 89, then send your order to:
614568383
24 hours

MicroLink/Telecom Gold
72:MAG001
24 hours

Don't forget to quote your credit card number AND your full address.

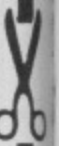
**The Micro User,
FREEPOST,
Europa House,
68 Chester Road,
Hazel Grove,
Stockport SK7 5NY.**

**NO
POSTAGE
NEEDED
(IF POSTED IN UK)**



TUCK INTO FLAP

Don't forget to provide: Your address, your cheque/credit card No. If you've ordered discs have you indicated which format?



STACK COMPUTER PRODUCTS

LIGHTPEN + DRAW SOFTWARE + 10 GAMES



£28

- VERY ACCURATE
- TAPE & DISK
- B, B+, 128 MASTER
- ALL MODES

- ANALOGUE JOYSTICK
- STEEL-SHAFTED
- SELF-CENTERING
- ADJUSTABLE AXES



£10.95

- EAST TO USE
- SPECIAL TOUCH SWITCH
- FULL YEARS WARRANTY (SPECIFY 40/80T DISK)

DIGIMOUSE & GRAFIK B, B+, MASTER etc.



£34.95

- 100% AMX COMPATIBLE
- LINEAR LOCK FEATURE
- FREE SOFTWARE (40T DISK)
- BRITISH QUALITY PRODUCT
- COMPACT VERSION AVAILABLE

ANAMOUSE & MOUSEPAINT BBCB, ELECTRON +1.



£40

- ANALOGUE MECHANISM
- COLOUR SOFTWARE (TAPE)
- PRINTER DUMP
- THUMBWHEEL
- FULL YEAR WARRANTY

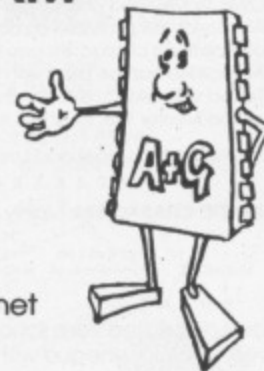
FREE 40 PAGE CATALOGUE
ON REQUEST PRICES
INCLUDE VAT P & P £1.90
(FREE OVER £20)

MEEDMORE LIMITED
28 Farriers Way, Netherton
Merseyside L30 4XL
Tel: 051-521 2202



BBC B Sideways RAM

32K Unit £16.00
16K Unit £13.00



- Fool proof fitting - No soldering
- 16K Unit Rom Board Compatible
- RW Protect switch as standard
- Each unit requires one rom socket
- Compatible with tape, disc & econet
- Low power slimline units

Sideways RAM & Utility Software Pack v3.0

SWR software (requires 1x16K SWR) includes:
- Intelligent menu-driven s/w for load/save/test/clearing SWRam
- Wordwise mem extension -160preview -Toolkit -Printer Buffer
Utility software (no SWR req'd) includes 25+ useful programs:
- Damaged disc recovery -Flood-fill -Disc Imager -Char definer
- Graph plotter -Screen enlarger/flip/compacter plus much more.

Please state 40/80 track, sold with SWR £3.00, separate £8.00

Switching Boxes

| | User Port | Printer | RS423 |
|--------|-----------|---------|--------|
| 1 to 2 | £24.00 | £24.00 | £14.00 |
| 1 to 3 | £28.00 | £28.00 | £17.00 |
| 1 to 4 | £37.00 | £39.00 | £22.00 |
| 1 to 5 | £43.00 | £44.00 | £27.00 |
| 1 to 6 | £48.00 | £49.00 | £32.00 |

Prices apply to changers and sharers. Lead length 1 metre

Special prices: AMX compatible mouse ONLY £25 ARCHIMEDES POA

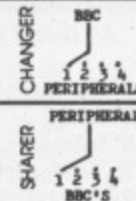
Please send for free catalogue

A&G ELECTRONICS
14 HURSTWOOD AVE.
BEXLEY,
KENT, DA5 3PH
(MAIL ORDER ONLY)

BT GOLD:72MAG90461
PRESTEL 322522315
TRADE & SCHOOL
DISCOUNTS AVAILABLE

ALL PRICES INCLUSIVE

Tel: 0322 521949



New! - SCRAPBOOK

A new free-format system for storage & retrieval of all types of information including colour and graphics. Incorporating two screen designers and facilities to search, sort, browse, print, extract etc. Forget fields, records etc. you store it how you want it.
Disc. (40 or 80 Track) and almost un-necessary manual £12.95 incl. P & P.

Instant On-Screen Help

All BBC models can now have On-Screen help with our range of ROMs and Discs. Switch to and from any COMPANION with only one command from Basic or Wordprocessor.

WORDWISE COMPANION

For Computer Concepts Wordwise and Wordwise Plus wordprocessors.

BASIC COMPANION

Instant help for getting to grips with BASIC programming.

PROGRAMMERS COMPANION

Colours, Graphics, Sounds, VDU codes, ASCII codes, *FX commands etc.

MACHINE CODE COMPANION

Assembly language help, OS routines, 6502 Instructions, Addressing Modes, Vectors etc.

All the above ROMs come with easy to follow fitting instructions £19.95 incl. P & P.
SPECIAL OFFER! Buy any TWO and get one FREE!

STEPPER MOTOR CONTROLLER

Control two stepper motors and a relay direct from BASIC with 20 new 'star' commands. Ideal for plotters, turtles etc. With full instructions and program examples.
Combines the ease of use of Basic and the speed of machine code.

ROM with easy fitting instructions £14.95 incl. P & P.

STEPPER MOTOR INTERFACE

Boxed unit which plugs into the User Port to control two 12V stepper motors and a relay. With an information leaflet on driving stepper motors.

VERSION 1. Powered from BBC auxiliary power supply. £23.00 incl. P & P.
VERSION 2. With mains Power supply (optically isolated) £46.00 incl. P & P.

Master and Compact Owners

Avoid the problem of limited ROM sockets. The above ROMs are also available in ROM IMAGE form on disc ready for loading into sideways RAM.
40 or 80 track disc. (Please state) £8.95 incl. P & P.

Disc Versions

Disc versions of Basic, Programmers and Machine code Companions. £9.95 incl. P & P.
All three Disc Companions on one disc. 40 or 80 Track £19.95 incl. P & P.

Demonstration Disc

With interactive demonstration and samples from all four Companions. £1.00 incl. P & P.

Telephone (0686) 27549 For Details. (Anytime)

MICRO HELP

P.O.Box 17, NEWTOWN, POWYS. SY16 1ZZ.

DOUBLE PHANTOM?

YES! This IS the program demonstrated on BBC TV's "Micro Live". The Worlds first micro multi-user combat flight simulation is now available direct from DOCTOR SOFT via our 'HOT LINE' FIRST CLASS MAIL ORDER service.

DOUBLE PHANTOM is basically a TWO computer version of the highly acclaimed PHANTOM COMBAT simulation. At least one BBC must have a disc system. A hardware link (included) then links the machines which become separate aircraft sharing the same airspace, each VISIBLE and VULNERABLE to the other!

DOUBLE PHANTOM has all the usual PHANTOM features including the fastest and smoothest 3D colour graphics around (15fps). RAF Phantom pilot Paul Courtnage's verdict: "Marvellous... quite the best micro flight simulation I've ever seen... Totally captivating!"

Phone: Mail Order Hot line 0903 776000 with VISA/ACCESS. Mail: PO BOX 66, East Preston, West Sussex BN16 2TX. Most orders despatched SAME DAY, FIRST CLASS, POST FREE.

| | | |
|---------------------------|--------------------------|------------|
| DOUBLE PHANTOM (inc link) | BBC ★ | disc 19.95 |
| LINK separately | BBC | cable 9.95 |
| PHANTOM COMBAT | BBC ★ | disc 12.95 |
| PHANTOM COMBAT | Electron & BBC | cass 9.95 |
| 747 | BBC B only | disc 9.95 |
| 747 | BBC B only | cass 8.95 |
| 747 | Electron | cass 7.95 |
| 747 | Commodore 64 | cass 12.95 |
| 747 | Commodore 64 | disc 14.95 |
| 747 | Commodore 64(USA format) | disc 14.95 |

(Overseas orders, equiv currency, add air mail at cost)

JOYSTICKS optional with all programs

BBC means all machines from 32k up

★ SPECIFY DFS when ordering discs

£2 discount on multiple order

DOCTOR SOFT - THE FLIGHT SIMULATION SPECIALIST

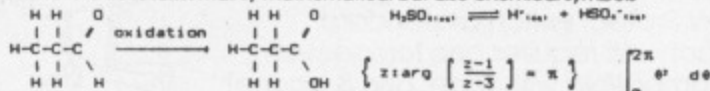
Sciways for Scientists

- Over 350 defined characters accessible with simple 2-key codes
- All characters printable on both screen and printer
- User defined characters can be stored on disc
- All facilities can be used with word processors or with BASIC
- Tested with BASIC I & II, Wordwise, Wordwise Plus, View 2.1, View 3.0, on the Master 128, B+ & Model B, and with Epson/compatible printers

GREEK ALPHABET: Upper and Lower case, upright and Italic

Α Β Γ Δ Ε Ζ Η Θ Ι Κ Λ Μ Ν Ξ Ο Π Ρ Σ Τ Υ Φ Χ Ψ Ω

SCIENTIFIC CHARACTERS: Mainly mathematical but also chemical symbols



Orders accepted from schools, colleges, establishments, etc.
Private orders - cheque with order, please

PRICE £38.52 inc VAT, p&p
16k ROM, 40/80 disc & manual
(not compatible with Inter-Word,
or external shadow RAM boards)

Mayhew Telematics,
376a Ringwood Road,
Poole, Dorset BH12 3LT
Tel: (0202) 747695

BRANDED DISKS Incredible prices

All disks supplied in original packing and fully guaranteed

Prices per box of ten

| | | |
|-------------------------|---------------------|--------|
| 3.5" Verbatim Datalife | SSDD 135tpi MF350 | £21.75 |
| 3.5" Sony | SSDD 135tpi OMD3440 | £19.45 |
| 3.5" Memorex | DSDD 135tpi MX 3460 | £24.30 |
| 5.25" Verbatim Datalife | SSDD 48tpi MD525 | £12.75 |
| 5.25" Verbatim Datalife | DSDD 48tpi MD550 | £15.35 |
| 5.25" Verbatim Verex | SSDD 48tpi MD200 | £11.00 |
| 5.25" Verbatim Verex | DSDD 48tpi MD250 | £12.45 |
| 5.25" Maxell | DSDD 48tpi MD2-D | £15.00 |

All inclusive prices. No extra to pay.
Government and educational orders welcome.

Please make cheques or postal orders payable to:

ORIOLE LIMITED
DEPT. SLT, P.O. Box 297, London N3 2TS

SELECTION OF NEW & USED BARGAINS

VISA

Acoustic Modem 1200/1200 and 1200/75 BT approved only £19.95
Master 128 only £395.00

ROMS for BBCs at Special low cost prices
Intersheet £35.00, Interword £44.00, Interchart £22.00. All three for only £90.00.
Spell Master £45.00, Wordwise £20.00, Interbase £50.00
ADFS Rom £19.95, Comal £25.00, Printmaster £17.50
Games-Revs £6.95, Elite £6.95.

USED
Z80 2nd Processor as new £100.00
BBC Model B £225.00 with DFS £275.00
(3 months warranty with all used goods)

SPECIAL OFFER

View for Electron £9.95
Send S.A.E. for full list of games. All prices exclude VAT. Carriage Free in UK.
We specialise in hardware upgrades and exchanges: Phone now for details.
Approved Amstrad and Acorn Dealers.

Phone: 031-657 2988 between 9.30-5.30 Mon.-Sat.
PORTOBELLO TRADING COMPANY
196 PORTOBELLO HIGH STREET, EDINBURGH, EH15 2AS.

SPIDER 2 REAL-TIME CONTROL FOR THE BBC MICRO

Watch the SPIDER!

- Powerful new BASIC commands for invoking PROCs from the User Port, Serial Port or the Keyboard.
- 8 independent countdown timers.
- Easy to install with no soldering.
- Comprehensive manual supplied.

New SPIDER 2 features

- Special keywords for controlling the Serial Port.
- Professional implementation of Foreground/Background processing.
- Reaction timing and pulse trains accurate to 0.1 milliseconds!

from £65 including VAT

SPIDER 2 is a RAM/ROM combination which uses none of the BBC's memory, so BASIC programs are unaffected.

The BBC B+ is fully supported and we supply a complete range of digital, analogue and serial interfaces for use with SPIDER using the 1MHz bus.

Ask now for details. **NOW AVAILABLE FOR THE MASTER**
Paul Fray Ltd
Willowcroft, Histon Road, Cambridge CB4 3JD
Telephone: (0223) 66529



SPIDER - stamps out I/O bugs

FREE



SCHOOL
ORDERS
WELCOME

ALL DISKS ARE
JAPANESE



100% CERTIFIED
BULK PACKED

When you buy 100 disks.
or ONLY £3.76 when you buy 50.
or ONLY £5.76 when you buy 25.
or See games deal below.
(all prices inclusive)

5 1/4" (100 disk capacity)
lockable disk storage
box worth £13.95

STAR OFFER
25 High quality
96tpi disks DS/DD
and box above
ONLY £18.75

Just Disks

PRICES FOR 5.25" DISKS - INCLUSIVE + POST + VAT!

| QTY | SS 48TPI | SS 96TPI DS 48TPI | SS 96TPI DS 48TPI | DS 96TPI DS 48 C/R | DS 96 C/R | ALL |
|-----|----------|-------------------|-------------------|--------------------|-----------|---------|
| 10 | £5.95 | £6.95 | £6.95 | £7.95 | £8.95 | £9.95 |
| 25 | £10.99 | £11.99 | £11.99 | £12.99 | £14.99 | £17.99 |
| 50 | £19.99 | £20.99 | £20.99 | £21.99 | £27.99 | £32.99 |
| 100 | £36.99 | £37.99 | £37.99 | £41.99 | £45.99 | £57.99 |
| 150 | £52.99 | £55.99 | £55.99 | £57.99 | £63.99 | £80.99 |
| 250 | £85.99 | £87.99 | £87.99 | £91.99 | £103.99 | £126.99 |
| 500 | £167.99 | £172.99 | £172.99 | £179.99 | £202.99 | £248.99 |

C/R = Coloured or reversible disks - please state

FREE

(worth £9.95)



90 Capacity Lockable
disk box for 3.5"
disks when you
buy 100 3.5" disks
or only £3.75 when you buy 50
or £5.76 when you buy 25

Prices for 3.5" discs - inc

| QTY | SS 135TPI | DS 135TPI |
|-----|-----------|-----------|
| 10 | £14.95 | £16.95 |
| 25 | £29.95 | £35.95 |
| 50 | £55.95 | £62.95 |
| 100 | £105.95 | £119.95 |
| 150 | £149.95 | £169.95 |
| 250 | £239.95 | £269.95 |
| 500 | £459.95 | £519.95 |

All disks are supplied with full user labels

GAMES GALORE!

(All on 5 1/4" disk)

Deduct 20% off RRP shown!
or Deduct 30% off games RRP
if you are also buying 25 disks
or more !!!!!!!



| RRP | RRP | RRP | RRP |
|--------------------------------------|---------------------------------|------------------------------------|---------------------------|
| Activision Firetrack 14.99 | Incentive Moon Crests 9.95 | Robnak Superior 12.95 | Island Of Xan 12.95 |
| Acornsoft Revs 17.65 | The Kat Trilogy 11.85 | Acornsoft Hils 1 11.95 | Acornsoft Hils 2 11.95 |
| Audiogenic Phycastria 11.95 | Infogrames Apocalypse 14.95 | Around The World In 40 Sowers 7.95 | Collection Vol 1 11.95 |
| Sphere of Destiny 11.95 | Laser Monopoly 14.95 | Collection Vol 2 11.95 | Ctadel 11.95 |
| Thunderstruck 2 11.95 | Scrabble 14.95 | Deathstar/Interceptor 11.95 | Elite 14.95 |
| Powerplay 14.95 | Logotron XOR 12.95 | Galforce 10.95 | Grand Prix Con. Set 11.95 |
| Arcane Durnitz 7.95 | XOR Designer 14.95 | Ravenskull 11.95 | Repton II 11.95 |
| Argus Roundheads 12.95 | S. Fox Strip Poker 12.95 | Repton III 14.95 | Revs + 4 14.95 |
| Besu Jolly Computer Hits Vol 2 14.95 | Tarzan 12.95 | Stryker Run 11.95 | Thrust 11.95 |
| Bubble Bus Starquake 11.95 | War 14.95 | Big K.O. 12.95 | Phantom 12.95 |
| C.D.S. Blue Ribbon II 9.95 | Hobbit 17.95 | Bruce Lee 14.95 | Crystal Castle 14.95 |
| Colossus Chess 4 14.95 | Lord Of The Rings 19.95 | Impossible Mission 14.95 | Master Of Universa 14.99 |
| Football Fortunes 17.95 | Exploding Fist 14.95 | Temple Of Terror 14.95 | |
| S. Davis Snooker 12.95 | Dr. Who 19.95 | | |
| Trivial Pursuit 19.95 | Imogen 40 Track 9.95 | | |
| (Young Players) 19.95 | Imogen 80 Track 9.95 | | |
| Dr. Soft Phantom 12.95 | Micropower Magic 9.95 | | |
| Elite Airoff 14.95 | Micropower Magic 2 7.95 | Tynesoft | |
| Commando 14.95 | Crack Towers 12.95 | U.S. Gold | |
| Paperboy 14.95 | Strike Force Hunter 12.95 | | |
| Firebird Cholo 17.95 | Know Your Own Personality 12.95 | | |
| Seminal 14.95 | Quick Thinking 9.95 | | |
| Griffin Footballer of Year 14.95 | Ocean D. Thomson S. Test 12.95 | | |
| Imagine Ye Ar Kung Fu 12.95 | Hyper Sports 12.95 | | |

ALL PRICES ARE INCLUSIVE OF POST & VAT

Nebulae, Dept. M.I. FREEPOST, Kilroot Park
Industrial Estate, Carrickfergus, Co. Antrim, BT38 7BR
Telephone (09603) 65020 (Monday to Friday 9 to 5)
7 Day delivery. One year guarantee
& 14 day money back period

ORDER BY
PHONE FOR
SAME DAY
DESPATCH
(09603) 65020

We accept orders from all government bodies, schools, universities, PLC's etc.
We despatch on receipt of an official purchase order.
EXPORT - DEDUCT 15% VAT (not applicable)
However add customs handling + postage: Republic of Ireland - add 10%
EEC countries - add 20%. Rest of World (surface postage) - add 30%

FREEPOST YOUR ORDER TODAY - NO STAMP REQUIRED

PERFORM IN-CIRCUIT EMULATION CHEAPER WITH
THE NEW ICE-KING. SINGLE STEP OR BREAK POINT
PROGRAMS - TEST RESULTS IMMEDIATELY!
PLUS STAND-ALONE COMPUTER
AND A FULL RANGE OF
INTERFACE BOARDS
IDEAL FOR SMALL SYSTEM DEVELOP-
MENT, EDUCATION, TRAINING,
ROBOTICISTS, ETC.

COMPLETE SYSTEM £250 + VAT
S.A.E. FOR FURTHER DETAILS:
ICE-KING, LANCASTER
CONSULTANTS,
PO BOX 65,
LANCASTER
LA1 1PG

ICE KING
THE IN-CIRCUIT EMULATOR
TURN YOUR BBC 'B' INTO A
COMPLETE DEVELOP-
MENT SYSTEM FOR
6802-BASED
TARGET
COMPUTERS

**SOLID STATE & MECHANICAL DESK TOP DATA SWITCHES
FULL TWELVE MONTHS GUARANTEE**

- "PRINTERSHARER" Several Micros to one Printer
- "PRINTERCHANGER" One Micro to several Printers
- "PRINTERCROSSOVER" Two Micros to two Printers



FOR LONG CABLES

Keyzone Solid State Switching Devices can use cables from 1m to at least 30m on input & output without any data loss/error

PARALLEL PRINTERSHARER

| Model | Pins | Way | Price |
|-----------------------------|-----------|-----|-------|
| BPS3 | 26 (BBC) | 3 | £60 |
| BPS3C ABOVE WITH INTERLINKS | | | £75 |
| BPS6 | 26 (BBC) | 6 | £110 |
| BPS6C ABOVE WITH INTERLINKS | | | £140 |
| APS2 | 36 | 2 | £75 |
| APS3 | 36 | 3 | £85 |
| IPS2 | 25D (IBM) | 2 | £70 |
| IPS3 | 24D (IBM) | 3 | £80 |

SERIAL PRINTERCROSSOVER

| | | |
|--------|-----------------------------|-----|
| SR23X | Serial RS232-250 (PCB) | £70 |
| SR432X | Serial 5 pin DIN | £45 |
| SR29X | 9 Pin D. (Mac) | £62 |
| SR2CX | 5 Pin DIN (//c)(T-Switches) | £45 |

MECHANICAL T-SWITCHES

FOR SHORT CABLES

| PCB - ALL LINES - NOT HARDWIRED | | |
|---------------------------------|-------------------------|-----|
| T36-2 | Centronics 36 pin 2 way | £60 |
| T36-3 | Centronics 36 pin 3 way | £72 |
| T36-4 | Centronics 36 pin 4 way | £90 |
| T36-X | Centronics 36 pin 2 x 2 | £90 |
| T25-2 | Parallel 25D IBM 2 way | £55 |
| T25-3 | Parallel 25D IBM 3 way | £65 |
| T25-4 | Parallel 25D IBM 4 way | £75 |
| T25X | Parallel 25D IBM - 2X | £75 |

PARALLEL PRINTERCHANGER

| SOLID STATE MANUAL | | | |
|--------------------|-----------|-------|-----|
| BPC3 | 26 (BBC) | 3 way | £60 |
| APC2 | 36 | 2 | £75 |
| APC3 | 36 | 3 | £85 |
| IPC2 | 24D (IBM) | 2 | £70 |
| IPC3 | 25D (IBM) | 3 | £80 |

PARALLEL PRINTERCROSSOVER

| SOLID STATE MANUAL | | | |
|--------------------|-----------|-------|-----|
| BPX | 26 (BBC) | 2 - 2 | £70 |
| APX | 36 | 2 - 2 | £95 |
| IPX | 25D (IBM) | 2 - 2 | £85 |

SOLID STATE AUTOMATIC

| PARALLEL PRINTERSHARER | | | |
|------------------------|--------------------|-------|------|
| APS2A | Parallel 36 pin | 2 way | £105 |
| APS3A | Parallel 36 pin | 3 way | £115 |
| APS4A | Parallel 36 pin | 4 way | £150 |
| IPS2A | Parallel 25D (IBM) | 2 way | £100 |
| IPS3A | Parallel 25D (IBM) | 3 way | £110 |

SERIAL PRINTERSHARER/CHANGER

| PCB - ALL LINES (NOT HARD WIRED) | | | |
|----------------------------------|------------|-------|-----|
| SR232 | 25D-PCB | 2 way | £55 |
| SR233 | 25D-PCB | 3 way | £65 |
| SR234 | 25D-PCB | 4 way | £75 |
| SR43 | 5DIN (BBC) | 3 way | £40 |
| SR292 | 9D (Mac) | 2 way | £52 |
| SR293 | 9D (Mac) | 3 way | £59 |
| SR2C | 5DIN (//c) | 3 way | £40 |

CABLES (STANDARD 6FT)

| | | |
|-----------|--|-------|
| KPC101 | Parallel Interlinks for BBC Switches | £8 |
| KPC101-C | Parallel Interlinks for Compact | £9 |
| KPC103 | BBC Printer Cable | £9.50 |
| KPC103 | Compact Printer Cable | £10 |
| KSC101 | Serial RS232 (10 lines) | £12 |
| KPC106 | Serial RS232 (25 lines) | £14 |
| KSC-101 | Serial IBM Printer Cable (10 lines) | £12 |
| KPC-106 | Parallel Interlink for IBM Switches | £14 |
| KPC-105-6 | Parallel IBM Printer Cable (6 ft) | £15 |
| KPC105-10 | Parallel IBM Printer Cable (10ft) | £17 |
| KPC104R | Centronics Flat Ribbon Cable 36-36pin | £12 |
| KPC104F | Centronics Flex (Round) Cable 36-36pin | £16 |

**CUSTOM CABLE MAKING
SERVICE AVAILABLE**



Add postage: Switches £3.00 each. & cable £0.75 each - 15% VAT

KEYZONE COMPUTER PRODUCTS LTD

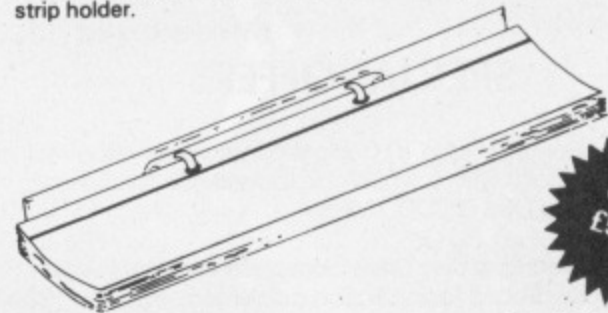
U14 Acton Business Centre
School Road, London NW10 6TD
Telephone: 01-965 1684 1804 Telex 8813271 GECOMSG



COMPUTER REPAIRS (UK)

2 Austins Place, Hemel Hempstead,
Herts. HP25HN Tel: (0442) 217624

Too many function strips, wondering where to put them?
Then maybe you will be interested in our purpose built function strip holder.



**only
£5.50**

Each holder comes with 10 clear plastic sleeves. Easily fitted to the BBC or BBC - Master series.

To compliment this little add-on, we have commissioned a function strip design programme, compatible with Epson dot matrix printers (works in condensed mode), and can also supply blank function strip cards.

- Flip over function strip holder £5.50
- Extra sleeves for above £0.40
- Blank function strip cards £0.25
- 10 for £1.25
- Function strip design software £4.50

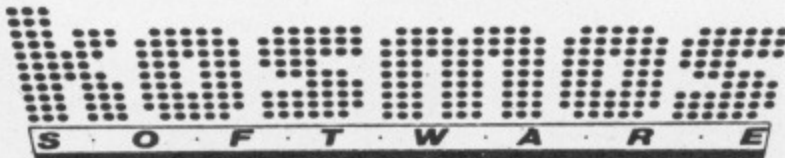
14 day money back guarantee if not satisfied

Available only from Computer Repairs (UK) Please make cheques or postal orders payable to: Computer Repairs (UK), to the above address.

*State whether disc or cassette

P.S. We repair all makes of Micro, got something faulty, why not give us a ring.

Trade enquiries welcome



Whatever your subject...

French, First Aid, Football,
Spelling, Science, Spanish,
Sport, Scotland, England,
English Words, German,
General Knowledge,
Geography, Italian, Arithmetic,
Natural History and Welsh.

**Let your computer
help you learn**

Write or phone for a FREE 20
page illustrated catalogue of
our Leisure and Educational
Software

KOSMOS SOFTWARE LIMITED
FREEPOST (no stamp needed)
DUNSTABLE, Beds. LU5 6BR
Tel: 05255 3942 or 5406

DIALUP

DIALUP

"DIALUP Personal is an excellent package, easy to use, perfect for the first time user" **TELECOM GOLD.**

DIALUP Personal is a comms package with the right features for the serious home user.

You can mail prepared letters, documents, spreadsheets etc, save screens to disc and build a directory of screens. You can also capture text to a file for editing in your WP package.

- menu driven
- auto logon
- professionally packaged and supported
- suitable for accessing Telecom Gold, Prestel, Microlink, Micronet and other services and Bulletin Boards
- XMODEM and KERMIT file transfer protocols
- download free software from Micronet

DIALUP Personal is only £89.95 (inc VAT).



**DIALUP
PERSONAL**

For more information contact
Angela on 021-643 7688.
PMS Communications Ltd,
Norfolk House,
Smallbrook Queensway,
Birmingham B5 4LJ.

DIALUP

DIALUP

EPROMS & D RAMS

| | |
|-------------------------------|-----------------------------|
| 27128-250N/S 21V | (While stocks last) £3.55ea |
| 27128-250N/S 'A' 12V | £3.20ea |
| 27128 (One time programmable) | £2.80ea |
| 2764-250 N/S 21V | (While stocks last) £2.60ea |
| 6264-150N/S | £2.29ea |
| 4164-150N/S | £0.99ea |
| 41256-150N/S | £2.20ea |
| 41257-15 N/S | (While stocks last) £2.20ea |

SPECIAL OFFERS

| | |
|---|----------------|
| 5.25" DS/DD 96tpi | £0.55 |
| Minimum quantity sold in 10 (supplied individually sleeved, all labels and tags with a white cardboard box for storage) | |
| 3.5" JVC Branded Disc DS/DD 135tpi | £1.55 |
| 3" DS/DD Disc | £3.00 |
| 20Mb Winchester Hard Disc Drive complete with WX2 Western Digital Controller Board (connection cable etc.. etc..) | £299.00 |
| TTL & CMOS chips (excl. DFS ROM) to be used with 8271 Disc Drive Controller | each set £2.95 |
| WD1772 | £13.50ea |

All prices include P&P

Send your order by post with cheque or postal order. Or phone through your order by quoting your Access or Barclaycard number

HOT LINE

24 Hrs Service 01-550 6514 24 Hrs Service

Please phone for special price on bulk purchase

If any products purchased from this advert fails to give complete satisfaction. Please return to us unused within 30 days for a full refund or free replacement. This guarantee is offered in addition to your statutory rights.

No VAT is charged (Not VAT Registered)

J & J MICROCHIPS LIMITED
PO Box 18, Essex IG8 0RB

Co. Reg. No: 1965704

ADVERTISERS' INDEX

| | | | |
|-------------------------------------|----------|-----------------------------------|-----------|
| 4mation Educational Resources..... | 78 | Manor Court Supplies... | 131 |
| 21st Software | 46 | Mayhew Telonics | 144 |
| A&G Electronics | 143 | Meadow Computers | 134 |
| Acorn Computers | 6 | Meedmore | 143 |
| Advanced Memory Systems | 35 | Microboss..... | 128 |
| Apex Software..... | 146 | Microdis | 101 |
| B&S Computing..... | 98 | Micro Help | 143 |
| Beebug | 18,19,20 | MicroLink..... | 47 |
| C&F Associates | 96 | Microman Computers .. | 94,95 |
| Calderdata | 128 | Micro Media | 61 |
| Care Electronics..... | 101 | Micronet..... | 3 |
| Carswell Computers | 117 | Microsol | 60 |
| Centec Electronic Systems | 128 | Minerva | 8 |
| CJE Micros | 12 | Minic Business Services | 117 |
| CLP..... | 128 | Mitsubishi..... | 93 |
| Computeraccount | 68 | Nebulae | 144 |
| CompuTECK..... | 146 | Opus Supplies | 11 |
| Computer Concepts .. | 62,63 | Oriole..... | 144 |
| Computer Express..... | 30 | P&H Electronics | 127 |
| Computer Repairs..... | 145 | Panasonic Industrial .. | 24,25 |
| C P Microsystems | 134 | Paul Fray..... | 144 |
| Dabs Press..... | 128 | Peartree Computers .. | 48-51 |
| Dataphone | 96 | Pineapple Software..... | 44 |
| Datastore | 78 | PMS Communications .. | 145 |
| Delta Computers | 121 | Portobello Trading Company | 144 |
| Design Consultancy | 121 | Selec Software..... | 134 |
| Desktop Publishing Show | 21 | Serious Statistical Software..... | 146 |
| Direct Disk Supplies..... | 80 | Software Bargains | 58 |
| Doctor Soft..... | 143 | Solidisk Technology .. | 42,43 |
| Dram Electronics..... | 132 | Superior Software | 2,147,148 |
| Electron & BBC Micro User Show..... | 15 | System Software | 41 |
| H.C.R. Electronics | 132 | Taxan..... | 76,77 |
| Ice-King..... | 144 | Technomatic | 84-90 |
| J&J Microchips | 146 | Tubelink | 121 |
| Keyzone | 145 | Twillstar Computers .. | 36,37 |
| Kosmos..... | 145 | Viglen | 66 |
| Lightspeed..... | 117 | Vine Micros | 131 |
| Linear Graphics..... | 14 | Visioncraft Software..... | 117 |
| Logotron..... | 72 | Watford Electronics. | 102-113 |
| | | Weserve | 94 |

Reach For The Sky

with GLIDER PILOT 2, our comprehensive flight simulator. Features cable launch, thermals, cross country with map and practice option. Extensively machine coded for quick response. Instruction booklet.

With full instrumentation and "solid" colour perspective graphics, this is not a game but an accurate and challenging simulation. Keys or potentiometer joystick. Find the thermals and soar!!

FREE to disc users - "NOTEBOOK" - an easy to use memopad utility. Use it as a flight log for Glider Pilot 2!

B, B+ and MASTER.

Cassette £7.95, 5.25" Disc £8.95, 3" Disc £11.50.

APEX Software, Station Road, Penshaw, Tyne & Wear DH4 7PE. Tel: Durham 091-385 3091.

COMPUTECK Some Points of Interest

A business has to make a profit to survive and you, the customer provide that profit to keep that business trading. Out of that profit comes lots of costs and usually a large one is advertising. We at Computeck keep our advertisements small and running costs to a minimum, then we can pass these savings on to you by way of discounts, as much as 20% on some items. At present we have 800 plus items on our lists of new and used hardware and software. We trade in software and hardware for new items. So send a SAE today for our up to the minute prices from an Archimedes to a Ram chip we have it all - Minerva Systems, Pace, Computer Concepts, AMS, Beebug, ACP, Taxan, Vine Micros, etc. etc. We are also registered Acorn Dealers. So if the above makes sense to you, buy from us and we will be able to pass on bigger and bigger savings to you

Due to large stocks - 10 tape based games £12.95 + £1.50 PP

Telephone 04574 65953 ACCESS and VISA accepted

Computeck (Dept MU)
2 Werneth Road, Glossop, Derbyshire SK13 9LZ

WARNING:

Anyone sending 'pirated' software on any media will be reported to the Software House or Author for legal action by them!

ADVANCED STATISTICAL SYSTEM For BBC Models B, B+ and Master 128

FIRST

Standard, Professional and Academic Features

Fast, robust, accurate, interactive, modular. Full data management. Transforms, dummy variables, data subsets. Scatter & Normal prob. plots. Detailed Univariate Stats., t tests.

Unrivalled regression facilities

(Weighted, through the origin, standardised). Correlation matrix, ANOVA for regression, Residuals, fitted values & confidence intervals. Contour plots from regression, Advanced regression DIAGNOSTICS, VIF's, influential points etc.

Unique ROBUST regression. True NONLINEAR regression

Two and Three-way ANOVA. Cluster analysis. Time Series & smoothing. Nonparametric methods. Distribution generators, Histograms. Chisquared tests. Specialised Linear Calibration. "Outlier" detection. Numerous other powerful options.

Full utilities (data saving, dumps, printing, formatting, etc.)

Comprehensive Manual-Full User Support

Special versions available for 32016 Co-processor ACW, & Archimedes
Price £90-£150 depending on features.

Versions for Industry Standard PC's available

Full details from:

Serious Statistical Software

Lynwood, Benty Heath Lane, Williston, S. Wirral L64 1SD. Tel 051-327 4268

COMPATIBLE WITH THE BBC B, B+, MASTER SERIES, AND ACORN ELECTRON

CODENAME: DROID

Stryker's Run - Part 2



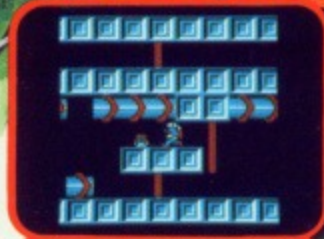
The Dramatic Loading Screen



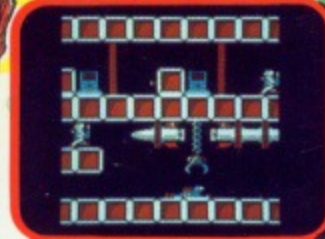
Climbing up a rope (SURFACE DEFENCE)



Flying with a jet-pack (ANCIENT SHRINE)



The elusive "Herbert" Droid (CREW'S QUARTERS)



Crawling under a crane (MISSILE FACTORY)

Commander John Stryker is back in CODENAME: DROID

Stryker's Run was one of our most successful releases of 1986. It stayed at the top of the BBC Micro software charts for six weeks and received several glowing reviews: "The graphics are stunning . . . This should be in every collection" enthused A & B Computing.

Now CODENAME: DROID presents a new challenge for Commander John Stryker. He has been commissioned by the Allied Nations to undertake another perilous mission in their continuing struggle against the warmongering Volgans.

His task is to locate and seize the Volgans' latest weapon: a new spacecraft (codenamed the Z11) which is equipped with the revolutionary matter/anti-matter warp drive facility. Stryker must land on the mysterious planet Volga, penetrate the Volgans' underground defence systems, find the spacecraft and requisition it.

As Stryker descends below the planetary surface, he will pass through 4 different zones of Volgan activity:-

- The Surface Defence — an array of steel girders, ropes and chains lies coldly between the crusted white rock walls.
- The Ancient Shrine — a stone-walled temple bedecked with hideous gargoyles and rusting chandeliers.
- The Crew's Quarters — the Volgans' relaxation area: tables and chairs are arranged invitingly amongst the essential ventilation pipes.
- The Missile Factory — clinical pseudo-metallic walls surround the missiles, bombs, and computers of the evil Volgan race.

Your character in the game can jump, run, kneel, crawl, climb up and down ropes, fire his laser blaster and drop mines. He can also fly for short distances using his jet-pack, and access information via his wrist terminal computer.

HELLO



BBC Micro Cassette **£9.95** Acorn Electron Cassette ... **£9.95**
 BBC Micro 5 1/4" Disc **£11.95** Acorn Electron 3 1/2" Disc. **£14.95**
 BBC Master Compact 3 1/2" Disc **£14.95**

The screen pictures show the BBC Micro version of the game. The graphics of the Acorn Electron version are identical.

Prize Competition

If you complete the entire CODENAME: DROID mission, you can enter our competition. Prizes include 1 talking remote-controlled robot, 5 small remote-controlled robots, £150 in cash, and competition certificates. Closing Date: 29th February, 1988.



ACORNSOFT

Dept. CD2, Regent House, Skinner Lane, Leeds LS7 1AX. Telephone: 0532 459453.

Please make all cheques payable to "Superior Software Ltd".

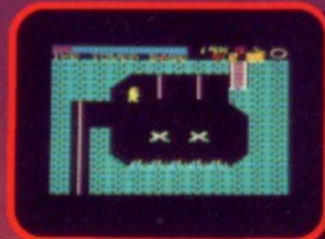


24 HOUR TELEPHONE ANSWERING SERVICE FOR ORDERS

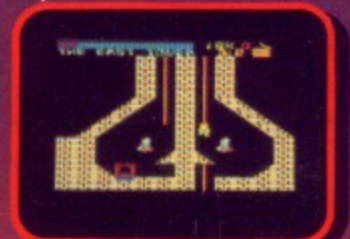
OUR GUARANTEE

- All mail orders are despatched within 24 hours by first-class post.
- Postage and packing is free.
- Faulty cassettes and discs will be replaced immediately.

PALACE of MAGIC



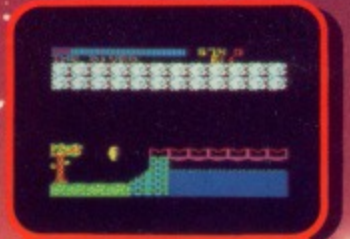
Leaping over deadly swords and spikes



Climbing up the East Tower



Wandering through a patch of woodland



Approaching the meandering river



At the top of the West Tower



Exploring the passages



Greeting the Guardian of the Guards



Down in the dungeons



Over 100 Screens full of Challenging Puzzles and Awesome Foes

By practising acts of benevolence and goodwill, you have offended the evil wizard Caldeti. Summoning forth his satanic powers in order to extract retribution, he has cast two powerful spells upon you: (1) you have been reduced to the size of a dwarf; (2) Caldeti has banished you to one of his old homes, the "Palace of Magic".

The palace and its surrounding land is littered with magical objects and mysterious creatures. It is rumoured that there is also a hidden transporter — your only means of escape from this enchanted place.

After exploring the rooms of the palace, you should venture forth through the enclosing woodland: towards the ancient church and the eerie dungeons, or through the maze of secret passages, or over the river to the princess's house.

On your journeys, you will encounter many strange animals and people including rock monsters, gremlins, imps and guards. Some are good and some are evil. You will need to decide who you can trust to help you in this arduous quest.

PRIZE COMPETITION

The first prize in our competition is a treasure chest containing over £200 worth of mystical and magical artefacts. 10 runners-up will each receive £5 and a signed certificate.

To enter the competition, you must complete the "Palace of Magic" adventure, and note down the congratulatory message you receive. Closing Date: 30th April, 1988.

| | | | |
|-------------------------------|--------|------------------------------|--------|
| BBC Micro Cassette..... | £9.95 | Acorn Electron Cassette..... | £9.95 |
| BBC Micro 5¼" Disc..... | £11.95 | Acorn Electron 5¼" Disc..... | £11.95 |
| BBC Master Compact 3½" Disc.. | £14.95 | Acorn Electron 3½" Disc..... | £14.95 |

(Compatible with the BBC B, B+ and Master Series computers).



ACORNSOFT

Dept. PM4, Regent House, Skinner Lane, Leeds LS7 1AX. Telephone: 0532 459453

Please make all cheques payable to "Superior Software Ltd".



24 HOUR TELEPHONE ANSWERING SERVICE FOR ORDERS

OUR GUARANTEE

- All mail orders are despatched within 24 hours by first-class post.
- Postage and packing is free.
- Faulty cassettes and discs will be replaced immediately. (This does not affect your statutory rights).

THE MICRO USER



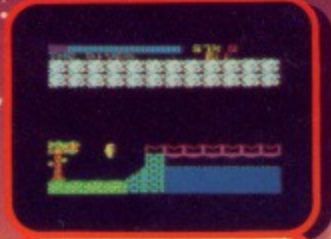
Leaping over deadly swords and spikes



Climbing up the East Tower



Wandering through a patch of woodland



Approaching the meandering river



Exploring the passages



Down in the dungeons



Challenging Puzzles and Awesome Foes

ended
n order
u:
as

After exploring the rooms of the palace, you should venture forth through the enclosing woodland: towards the ancient church and the eerie dungeons, or through the maze of secret passages, or over the river to the princess's house.

objects
dden
place.

On your journeys, you will encounter many strange animals and people including rock monsters, gremlins, imps and guards. Some are good and some are evil. You will need to decide who you can trust to help you in this arduous quest.

PRIZE COMPETITION

The first prize in our competition is a treasure chest containing over £200 worth of mystical and magical artefacts. 10 runners-up will each receive £5 and a signed certificate. To enter the competition, you must complete the "Palace of Magic" adventure, and note down the congratulatory message you receive. Closing Date: 30th April, 1988.

Please make all cheques payable to "Superior Software Ltd".



24 HOUR TELEPHONE ANSWERING SERVICE FOR ORDERS

OUR GUARANTEE

- All mail orders are despatched within 24 hours by first-class post.
- Postage and packing is free.
- Faulty cassettes and discs will be replaced immediately. (This does not affect your statutory rights).

October 1987

ARCHIMEDES

The great software race is under way

CEEFAX

Capture all the news in seconds

GAME

Two-player action in Space Arena

UTILITY

Analysing loans on your micro

EDUCATION

Choosing the right software

REVIEWS

- KXP-1081 printer
- Genie desktop
- SPX colour board



Now

Vol. 5 No. 8