The Aussie Mag for Amstrad owners

THE AMSTRAD USER

WIN A PRINTER OR A DISC DRIVE
COMPETITION
SEE PAGE 51

Issue No. 44 $4.25 September 1988

Walt Disney Mickey Mouse™
The Computer Game

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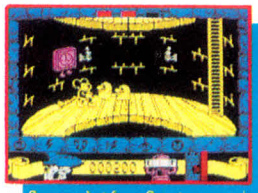
Screen shot from Spectrum version.

Screen shot from CBM 64/128 version.

Screen shot from Amstrad version.

Screen shot from Atari ST version.

- ***Children's Spelling Tutorial type-in for CPCs + advice on programming problems + major games reviews***
- ***Logo Wall chart + Index and Artificial Intelligence type-ins + details of New Edition LocoScript2***
- ***PC Books + part 2 of PC database type-in + more software***

FOR THE NOVICE & EXPERIENCED USER

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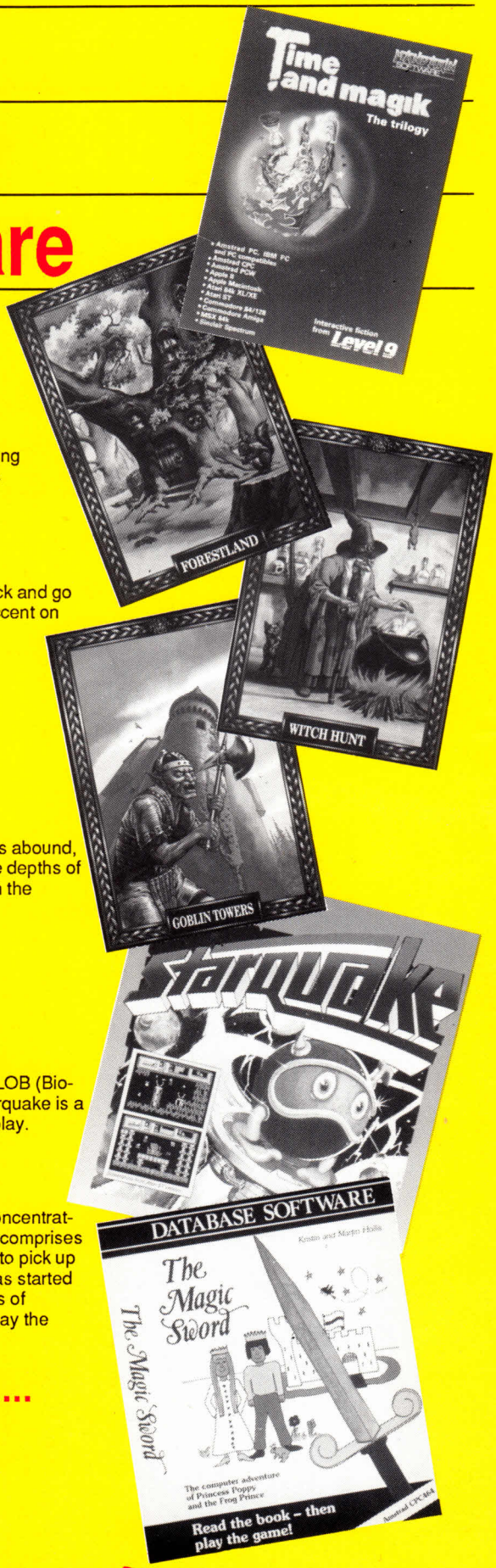

Time and Magik

Time and Magik is a complete trilogy of Level Nine graphic adventures.

- Lords of Time
- Red Moon
- The Price of Magik

Each has been enhanced and enlarged with more text than ever before - 60,000 words, creating Magik and Mystery around every corner. There is a powerful new parser, and all disk versions feature stunning graphics.

Available for CPC (tape and disk), PCW and PC.

Graham Gooch's Test Cricket

You don't have to be into cricket to play Graham Gooch's Test Cricket, just plug in your joystick and go for it - arcade style!! For the serious cricket aficionado there's the simulation mode with the accent on strategy and tactics.

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Goblin Towers

Somewhere in the centre of a huge forest lies an old abandoned castle. Legends and rumours abound, for it has been standing for many centuries, and there are said to be great riches hidden in the depths of the castle. Many have gone to search, but none have returned. Perhaps there is some truth in the legend of the hidden beast that guards the treasure of the castle.

Other titles in the Classic Quest series include:

- Forestland
- Witch Hunt
- Catacombs

Available for CPC (disk only), PCW and PC.

Starquake

There's 500 action packed screens and a gamepley that's second to none as you navigate BLOB (Bio-Logically Operated Being) through underground caverns to re-stabilise the planet's core. Starquake is a classic arcade-style game with brilliantly animated graphics, exciting sound track and game play.

Available for PC only.

Magic Sword

This is a whole new world of educational software. Rather than being based on revision, or concentrating on one topic, Magic Sword is both educational and entertaining at the same time. The set comprises a disk with the program on it, and a full colour story book. First, your child must read the book to pick up the basis of the story line. Then he/she runs the program disk and completes the story that was started in the book. This requires concentration, logic, memory recall, planning and many other facets of learning. Magic Sword is a whole new way of presenting educational software; it's done the way the children like it.

Ask about Fun School, Fernleaf for the CPC .....
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THE AMSTRAD USER

Issue No. 44 - September 1988

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All enquiries and contacts concerning this Publication should be made in the first instance by writing to The Amstrad User, Suite 1, 245 Springvale Road, Glen Waverley, Victoria 3150, Australia. Urgent matters can be phoned through on (03) 233 9661.
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The subscription rate (for Australia) is $42.50 for 12 issues of the magazine only, or $80.00 for 12 issues of the magazine plus tape (for CPC range only) containing programs appearing in that issue. Postage is included in the above prices. For subscriptions to New Zealand, PNG, Solomon Islands or Vanuatu please add $21 airmail. Other overseas prices available upon application.
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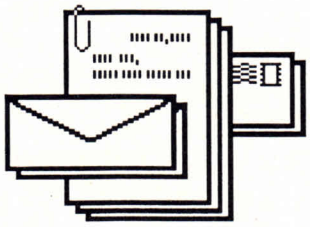
LETTERS TO THE EDITOR



A monthly selection of your comments, hints and tips, advice and news - all shared for the benefit of Australasian Amstrad users.

Can you tell me where I can get a replacement to connect my CPC 6128 to a second Amstrad Disc Drive (3"). I unfortunately mislaid the original cable when moving from Glen Iris to Surrey Hills earlier in the year.

Colin Biswell, Surrey Hills, NSW.

We believe Giltronic holds stock of the cable you require at a cost of $27.00. Ring them on (03) 773 1244.

Do you have a copy of the "Additional Information" booklet referred to in the "Read Me" file on the LocoScript 2.16 disc? If so, could you please send me one.

Also, could you please send me information on how to use the LOCOCHAR files. Thanks for your help.

Christopher Clark, Wahroonga, NSW.

By now you should have received your copy of the booklet. An item in this month's Tip-Offs will help you with Locochar, which incidentally runs under CP/M.

Last week I sent you my original Loco. 2 Disc for upgrading, but it is not concerning this that I am now writing. I have just seen in the April issue of "Amstrad PCW", page 10, a notice concerning Locomotive's publication "SCRIPT".

Is this publication available from you? Do you have the 'Introductory issue', and can you confirm the subscription cost?

I look forward to your reply and clarification concerning "SCRIPT".

Jacquelene George, Dulwich Hill, NSW.

"Script" is only available direct from Locomotive at a subscription cost of £14.95. We believe they are up to issue four.

It is amazing how something minor can drive someone to distraction. I am an owner of a 6128 and some time ago purchased Multiplan. It turns out that the Amstrad conversion is of an older version (1.06) running under CP/M+ and does not have the CURRENCY option of later versions. As it was converted in England, the £ sign is used. This causes me no end of annoyance (Why? Who knows!)

My first reaction was to disassemble and alter the program. 44k, forget it! (It turns out that this may be against the licencing agreement which I never saw.) The English distributors and Microsoft were less than helpful.

I tried using SETKEYS.COM to no avail as this alters the text but not the currency calculations.

then I noticed it uses LANGUAGE 3 as part of the setup. I altered this to LANGUAGE 0 and now I get a # in place of a £. I tried following the workings of LANGUAGE.COM to swap the £ for a $ and rapidly became lost.

Question: What does LANGUAGE.COM do that SETKEYS.COM doesn't, and can anyone explain the workings of LANGUAGE.COM? (The DR CP/M+ Handbook - soft 971 - says little on LANGUAGE.COM).

Congratulations on an excellent magazine. I especially enjoy the sections such as Hot Tips/Hackers Only and your series in general. Also your mail order service is prompt, which is more than I can say for some other suppliers.

Kevin Woods, Bathurst, NSW.

Concerning H.P. Wymer's problems with Cribbage, I agree his findings are distressing, and thanks to the very helpful table of errors I think I have located the source of the trouble.

All the errors occur where 4 cards add up to 15, and it isn't scoring 2 points.

The relevant section of code for scoring 15's is lines 6650 - 6820, especially Line 6710: xhn(var.) is a number 1 to 10, corresponding to ace - 10/J/Q/K: these are all added together to equal k:if k=15 then rscore=rscore+2. Line 6740: This line, in the loop (for z=1to15), subtracts each card in turn from k: if this figure =15, then you get 2 points, and if multiple combinations of 4=15 then it will give 2 points for each (as in example 2.4.6.6. 3).

I suggest H.P. Wymer checks his typing for these 2 lines: if he has wrong subscript no error message will be produced.

I have discovered an error in line 5420, which checks for the rare event of a run of 5 during play. This is the line as published:

```
5420 IF xhn(1)=xhn(2)+1 AND xhn(1)=xhn(3) +
2 AND xhn(1)=xhn(4)+3 AND xhn(1)=xhn(4) +
3 THEN rscore=rscore+5:RETURN
```

The line should read as follows:

```
5420 IF xhn(1)=xhn(2)+1 AND xhn(1)=xhn(3)+2
AND xhn(1)=xhn(4)+3 AND xhn(1)=xhn(5)+4
THEN rscore=rscore+5:RETURN
```

ie. the last logical expression was accidentally repeated in the original instead of checking for the 5th card in the run.

Nick Herrick, Barraghup, WA.

After recently purchasing a copy of the game "ELITE" on cassette I found it impossible to play (ie. I can't dock). Going through my copies of TAU I was unable to find a poke for the game. However, looking in the index provided in issue No. 39 I counted a total of seven "ELITE" pokes that are in issues that I don't have (I'm a late convert). Could you please let me know which issue has the best poke (the one that lets you have a docking computer right from the start) or possibly even print it in the mailbag. And while we are on the subject of ancient pokes how about having space in "CHEAT MODE" for one "oldie but goodie" poke each month for people who are relatively recent subscribers to TAU.

Ryan Hardey, Endeavour Hills, Vic.

Good idea Ryan, we'll give it some further thought. Perhaps the "Elite Complete" cheat which appeared in issue 30, July '87 would be a good one to start at.

I am writing this letter to you because I feel that Richard Monteiro's article on the four best printers was a bit behind the times, he reviewed a superceded model namely the Star NL-10. There is a much better Star printer on the market the NX-1000.

This printer has the following specs. Draft 120 (pica) characters per sec. NLQ 30 (pica) characters per sec. It does all the things that the NL-10 does and then some! There is even a colour model out for another $100.00 extra.

This printer was recommended to me by my local supplier because the DMP 3160 was unavailable from AWA due to to them losing their franchise.

I have no hesitation in recommending it to any owners of a 464 or 6128.

H.R. Scruton, St. Marys, NSW.

Playing around with my CPC6128 recently, I discovered the following interesting "bug".
Reset your 6128 or switch it on.
Type:

```
POKE -1,1:CALL -1
```

The whole screen should scroll sideways one (ie. the first column will be at the extreme right of the screen) and the tape "Press PLAY then any key" message appear. If it doesn't, switch off and try again.

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Now press the ESC key continuously until you reach the bottom of the screen and the screen returns to normal. Then type in the following program:

```
10 FOR i=1 TO 12
20    POKE -1,1:CALL -1
30    PRINT STR$(i)
40 NEXT i
```

RUN this program, and after a little jumping and flashing of the screen you will be treated to a continuously re-displayed graphics pattern which covers the whole screen. Weird eh?

Now the challenge is for some hacker to work out what's happening!

Angus Kidman, Armidale, NSW.

Concerning Helen Bradley's article on LocoScript 2 (July '88). I concede that after having been familiar with the limited features of LayouTs in LocoScript 1, it is especially difficult to master the whole new world which is opened up by their new and very different features in version 2. But although I am very dumb - as well as fairly ancient - I can claim now to know enough about them to assert that even when only partially understood the flexibility and speed of the new LayouT and Header/Footer system leaves the old one for dead. (For example, has Helen forgotten the agony of the arithmetic involved in Header/Footer Sizes and Positions under the old Headers and Footers system?)

I sincerely recommend that she invest a couple of hours solely to set up Stock LayouTs for several diverse LocoScript 2 group templates, and for files within groups, and to play round inserting new LayouTs, changing old ones, replacing and exchanging them, and renaming them. Then she might set up Paper Types for Aerogrammes, A4 SS, A4-continuous and whatever size her scribbling pad happens to be. Then design some box lines with Loco-Char and put them around the addresses used in her letter templates.

Certainly there are some confusing (nevertheless cunningly clever!) nuances in the wording of the new menus; they are there to open up some very useful subtleties in the choices now opened for the user, and are well worth making a determined effort to understand. It's not as hard as it first seems!

The first step when switching from LocoScript 1 to 2 is positively and absolutely to try to delete all LocoScript 1 knowledge from personal memory. Anyone who makes a reasonable attempt to do so may well find that, far from being traumatic, the learning process becomes fun - perhaps even more fun than it was for LocoScript 1, especially with LocoScript 2's comprehensive and well-indexed manual at hand when all else fails.

And let not Helen, or anybody else, be infuriated by hints and messages which "burst into glory right in the middle of the text". Instead simply let them tap that funny button with the sieve on it (number 2 in the keypad group - the one which used to call down the text-editing options in LocoScript 1). Lo, the text-obscuring screen message vanishes instantly, rather than after the standard interval (which is usually too long for my liking also).

At its price, LocoScript 2 to me seems first-class value, even though things like the wordcounter in the spell-checker are optional extras. That is not to say, of course that LocoScript has no room for improvement: my suggestion for the next new feature would be for a "LayouT alternator", worked automatically by a change in page number. That way my book could be printed on both sides of the paper, with its wide margin on the left for odd-numbered pages and on the right for even-numbered pages. I can do that now only by paging through all the file(s) last thing before printing to insert the right Stock LayouT for every page. (It would be nicer still if odd pages could be printed in one run, before turning the paper over to print the sequence of even pages!)

John S. Talbot, Ashburton, Vic.

Thank you for your long letter John, sorry we had to cut it short.

For some time I have been trying to obtain a typing tutor for my CPC6128 without success. I am told that there used to be at least two suitable programs on disc for my two daughters to learn to type but these are no longer available.
Could you suggest any solution if you yourselves don't have a suitable program in stock? Please advise the cost if you do, and I will forward the necessary remittance.

Geoff Thompson, Clayfield, Vic.

Cross our palm with $69.00 and we will send you Touch 'n' Go.

CONTRIBUTIONS

We accept unsolicited articles or program contributions from readers with a view to possible publication, but in the case of programs we must insist that the coding is submitted on either tape or disc. We just do not have the time to key them all in. The tape or disc will be returned if originally accompanied with a stamped and return addressed padded bag.

All letters should be addressed to: *The Editor, The Amstrad User, 1/245 Springave Rd., Glen Waverley, Victoria 3150.* Sorry, but we cannot answer any personal correspondence.

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Classified ads should be phoned or sent directly to The Amstrad User.

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NEWS BREAK

Our monthly update on the gossip, news, releases and the general Amstrad scene from both home and abroad

AMSTRAD CLOSES DEAL WITH IBM

Amstrad have secured the non-exclusive rights to manufacture and sell personal computer products under all of IBM's patents in a cross-licensing patent agreement with IBM. The rights include the PS/2. IBM come out of the deal with non-exclusive rights to all Amstrad patents. Perhaps this gives us all a clue as to the next range of Amstrad computers we will be offered.

In the meantime, IBM are seeking back-royalties on PC sales from 1982 after giving clone-makers the go-ahead on MCA for PS/2 clones. IBM has decreed that patent infringements on its PC copyright will be charged at the rate of 1% per year from 1982. This is certain to hit the small clone makers who forgot to investigate the copyright issue before they started production. In effect, IBM is saying 'pay up or no PS/2 deal'.

Amstrad insist that it will not be affected because "We've been careful - the small people might be worried because they haven't had the resources to avoid infringement".

RECKON ON WINNING

Not only do readers have a chance to win a printer or disc drive in The Amstrad User programming competition, they now also have a chance to win a collection of software from the Reckon range. Simply purchasing any product from the Reckon range (like Scratch Pad Plus, Brainstorm, Touch 'n' Go, Cardbox or others) and returning the registration card to Reckon will entitle the purchaser to be entered in a three monthly draw. If you do enter, keep your eyes peeled for announcements in The Amstrad User of the lucky winners.

SLM ACQUIRED BY YPA

YPA Software Distribution Services recently announced that it has acquired Melbourne-based Software Licensing & Marketing P/L (SLM) who were probably best known for their titles under the Melbourne House, Leisure Genius and PSS labels. Commenting on the transaction, Brain Clayton, YPA Managing Director, said "We are committed to becoming the leading Australian software marketing organisation. The SLM acquisition consolidates and enhances our distribution channels."

YPA is an Australian company, incorporated at the end of 1987 and based at Castle Hill in NSW. It was formed in response to a perceived market requirement for an improved level of marketing, promotion and overall service in the computer software and accessories distribution segment. The company presently has relationships with a number of leading software houses such as Mindscape, Cinemaware, Thunder Mountain, Practical Software, Computer Easy and Power Up, encompassing entertainment, productivity, educational utility and business software. *Trade enquiries to YPA on (02) 899 2277.*

MIGENT UPGRADES

Account-Ability and Page-Ability, two of Migent's key products have been upgraded.

Page-Ability (version 1.01) now supports 31 dot matrix fonts on 8-pin dot matrix printers and 28 on 24-pin dot matrix printers. Other improvements include extended memory for faster printing, 512/640k option and a more flexible installation procedure.

Account-Ability, the book-keeping system, now has rewritten documentation. In addition, new features to the software include audit trail reporting, on-screen report scrolling, and improved export capabilities to other programs including Lotus 1-2-3.

FROM THE AMSTRAD RUMOUR ROOM

It is believed that Amstrad are currently re-designing the circuit board for the CPC range. Apparently the new machines will not be available until next year, but in any case will not look any different from existing models. The re-design is merely a cost saving exercise by using fewer chips than at present. Software compatibility will not alter.

TIMING BY MIRRORSOFT

Mirrorsoft moves into a new business area of time recording and analysis with the release of Timeslips. It is designed to help professionals work out how they spend their time and analyse it with the profit motive in mind. *(I'd never have the time to use it - Ed).*

Timeslips can be used in two modes, either real-time recording of time spent and work done or for batch processing manual records such as time sheets or client record cards. There are also two price levels, the cheapest being the basic version which handles up to 250 activities and clients. Timeslip Plus version handles 3400 clients or matters, 250 users and 250 different activity codes and naturally enough requires a hard disc. We don't know

ARE YOU AWARE?...

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AND DID YOU KNOW?...

...that Pactronics - the "Cat's Whiskers" in Amstrad software and peripherals, proudly announce the arrival of the superb Kempston **MOUSE for the CPC** which comes complete with its own software.

...that Pactronics has the newly released **PROTEXT OFFICE** and **PROTEXT FILER** - two brilliant new programs to run alongside **PROTEXT, PROSPELL, PROMERGE,** etc.

...that Pactronics has the widest range and best educational software from ages 3-16 and will shortly have another full range of programs written in Australia.

AND DID YOU KNOW?...

...that Pactronics have just released the great adventure trilogy **"TIME AND MAGIK"** for the CPC Disc and Tape, and look for our other great games, **GOBLIN TOWERS, FORESTLAND, WITCH HUNT, CATACOMBS, TEST CRICKET** etc.

...that if you have **MONEY MANAGER** and **PLAN-IT** then you really have everything you need for day to day planning, budgeting etc.

SO NOW YOU KNOW!...

...that if there is anything you want for your Amstrad CPC (or PCW or PC for that matter) and that includes **Joysticks, Joystick Cards, Disc Boxes** etc., then ask for the Pactronics product by name at the following stores:

Harvey Norman, Steves Communication (ACT), Grace Brothers, Chandlers, Myer, Computer Base (Sydney), B&B Software (Sydney) or other retailers around Australia.

NSW: Pactronics Pty. Ltd., 33-35 Alleyne Street, Chatswood. (02) 407 0261
VICTORIA: Pactronics Pty. Ltd., 51-55 Johnston Street, Fitzroy. (03) 419 4644
QUEENSLAND: Pactronics Pty. Ltd., 12 Stratton Street, Newstead. (07) 854 1982
SOUTH AUSTRALIA: Baringa Pty. Ltd., (08) 271 1066 ext. 6132
WESTERN AUSTRALIA: Pactronics WA, 113 (rear) High Road, Willetton, 6155. (09) 354 1122
MAIL ORDER: "Software To Go" - (02) 457 8289

Pactronics

if it's available in Australia yet, so interested parties may like to ring Mirrorsoft in the UK on 01-377 4837.

RECKON ON DESKTOP ACCOUNTANT

An extensive advertising campaign has been launched by Reckon Software to promote their fully integrated PC accounts package Desktop Accountant. It started with a full page advertisement in The Amstrad User and will continue in APC over the next few months. Dealers can purchase a full version for evaluation purposes for just $50. *More details from Reckon on (02) 371 9222.*

DTP ACCESSORIES

Just released in the UK are three products for PCW/DTP buffs. "Headline" from Wadd Soft includes 12 extra fonts and many pages of clip art for 'The Desktop Publisher'; Mr. DTP has produced three discs of clip art, also for 'The Desktop Publisher'; and Dragonfly Designs have released a set of scanned original pen and ink drawings as opposed to cartoon style clip art.

MULTIFACE II GOES PLUS

The Multiface II by Romantic Robot is currently under redevelopment. It is a unit which can take control away from a program while it is running. This means that you can examine, edit and backup commercial software. Pirates will be unhappy to note that to reload the software, the Multiface II must be attached.

When in position, the unit remains invisible to any software scanning for it but quickly takes control at the touch of a button.

ADULTS ONLY PC GAME

Romantic Encounters (at the Dome) is probably the first software title to be labelled "recommended for adults - not for use by age 16 and under". It is an adventure set in a sophisticated, hi-tech, private club in Los Angeles and puts a whole new slant on the 'adventure game' genre. US-based Microillusions is responsible for its production and Activision for its distribution.

From the same stable comes Black Jack Academy, featuring both a 5.25" and 3.5" disc in the pack. It is capable of handling five players at a table, multiple table rules (like Las Vegas, Reno etc.) as well as the ability to specify your own rules.

Both titles are available through The Amstrad User at $49.95 each.

MORE ON PC GAMES

Falcon, the F-16 fighter simulation from Mirrorsoft has won three "Oscars" in the US Software Publisher's Association awards - one for Best Technical Achievement, one for Best Action Strategy and one for Best Simulation Program. Apparently over 100,000 copies have already been sold in the US alone.

Another Mirrorsoft title shortly to be released is Strike Force Harrier, a simulation of the famous jet which has a hover capability. It too will feature both 5.25" and 3.5" discs in the same pack.

US Gold has released the exciting game Impossible Mission 2. It was converted by Novotrade (an Hungarian company) and features eight tower blocks (64 rooms) in which you have to work against Elvin Atombender's attempt to become a computer terrorist.

Colossus Mah Jong from CDS has just been released and is written to follow the rules recommended by the British Mah Jong Association. You play as the East Wind against the computer. For the novice, full demo mode and instructions are included.

NOTES FROM NEW ZEALAND

WELLINGTON SHOW

Computing '88 Wellington was staged at the Wellington Show and Sports Centre from 21st to 23rd July. The promoters, "Bits & Bytes" magazine did an excellent job and ensured that the show was well attended. Most dealers sacrificed lunch the first two days so that they could attend to enquiries.

Amstrad had a large stand displaying their range of products and Allen Pollock,Amstrad's Southern Regional Manager was kept very busy with enquiries for both hardware and software. Adverse weather conditions reduced the expected attendance a little on the Saturday but all exhibitors must have been very pleased with the show.

"The Reckon Collection of Business Software" was launched by NZ distributors, RCB Software, who were delighted with the response to their products. It seems that Reckon is filling the gap in the market for small and medium business software for Amstrad and IBM PCs and Amstrad PCW computers.

THE AMSTRAD USER SEIZED BY NZ CUSTOMS

A small consignment of your favourite magazine destined for the Computing '88 Show in Wellington, New Zealand was siezed by the NZ Customs. Apparently they believed that the parcel contained something illegal. Perhaps they misread the documentation as The Amstrad Usurper. Maybe they heard that the front cover of the July issue carried a picture of the newly released "Hunt for Red October" and conjured thoughts of insurgence. We shall never know, nor will we understand why no Customs Official thought to open the parcel to see what was inside.

The delay meant that this particular consignment never made it to the Show. Let's hope that the main consignments despatched via Magazine Distributors each month to New Zealand don't get the same treatment. For the benefit of NZ readers, some back copies of The Amstrad User (May, June and July 1988 are available from RCB Software in Auckland on (09) 521 1867.

PORTABLE PCW?

At a recent Amstrad Show in the UK was the appearance of a portable PCW, about the size and weight of a briefcase. Code named Odessa, it has one or two disc drives, a four-inch monitor (displaying a reduced version of the full 90x32 PCW screen), no printer but took the standard 3" discs and ran LocoScript and CP/M as normal. Its internal rechargeable batteries run for up to four hours and an audible warning is emitted if you try to close the lid while the machine is switched on.

The man behind this prototype is David Rathbone (ex-Nabitchi). He explained that the costs for setting up mass production are huge, but hoped to commence production later this year. Certainly the PCW has proved most successful for Amstrad who announced recently the sale of their millionth machine, but it remains to be seen whether a portable version will capture the same imagination as it's bigger brother.

ADVANCED INFO ON CPC GAMES

Three separate air-mail packets arrived this week (2/8/88) from the UK, containing some interesting software.

The first was a copy of Gremlin's Night Raider, an absorbing game of strategy between the Bismark, 50,000 tons of marine destruction, and The Grumman Avenger, a masterpiece of aeronautical engineering designed to protect fleets from attack by air and sea. "Experience the tense realism as your aircraft sets flight in superb computer simulation and feel the thrill and excitement of combat action as you engage the enemy in aerial combat forcing your way finally to your mission's goal ... destruction of the Bismark." You'll have no time to take a breath. *(Like that last sentence - Ed).*

The second packet contained a copy of Karate Ace, a Star Games/ Gremlin compilation of seven of the most popular Martial Arts games for CPCs. The full list is The Way of the Exploding Fist; Samurai Trilogy; Uchi Mata; Kung Fu Master; The Way of the Tiger; Bruce Lee and Avenger. It will no doubt produce a lot of sweaty hands.

The final packet revealed "Mickey Mouse - The Computer Game" with a chance to win a trip to Disney Land if your entry is returned to the UK by 15th September *(probably invalid from Australia - Ed).* The game takes place in an enchanted Disney Castle in which four pieces of Merlin's magic wand have been hidden. The object is to help Mickey Mouse fight to rescue the pieces.

Reviews and prices (we hope) in next month's magazine.

STEP-BY-STEP BOOKS FOR AMSTRAD PCs

Heinemann Professional Publishers (through The Octopus Publishing Group) have published a number of books to help PC users come to grips with various aspects of their computer. They appear in the "Step-by-Step" paperback series and are all reasonably priced at $29.95.

The following descriptions are taken from the promotional material supplied by Octopus.

Using Ability on the Amstrad PC by Robert Proops. The aim of the book is to make it easy for the new user to get what he or she wants from the program quickly, and to provide the experienced Ability user with a keystroke reference guide for the more complex commands.
Using Printers on the Amstrad PC1512/ 1640 by S. Gee and Kay Ewbank. Explains how to interface a printer to your PC and then shows how to get all of its features to work with DOS and GEM and printer buffers.
Using Desktop Publishing on the Amstrad PC by John Campbell. Provides the reader with a background knowledge and understanding of the basic principles of typography and graphic design and demonstrates how to apply that understanding with the DTP system in question.

Other titles in the series are:
Using the Amstrad PC1512/1640 by Stephen Morris
Simple Basic2 Programs on the Amstrad PC1512/1640 by Robin King
Using MS-DOS on the Amstrad PC1512/1640 by Ian Sinclair.

Also under the Heinemann Newtech logo are:

The Automated Office by Stephen Morris. An overview of office automation equipment and facilities, as well as a description of what the equipment does and how it relates to everyday business tasks as a guidance for managers.
The Desktop Publishing Book by Peter Warlock. In a practical and wide ranging introduction, this book shows the way to get the best out of desktop publishing. Primarily aimed at business practitioners, will also appeal to to educational audience.
Low Cost PC Networking by James, Ewbank and Gee. This book emphasises the low cost and practical aspect of networking and shows how machines such as the Amstrad PC can be used to automate a small to medium sized business.
The Amstrad PC1512/1640 Advanced User's Guide by Jim Reid. Provides the Amstrad PC user with a wealth of technical information about their machine and will prove an essential reference text for programmers and users alike.
Advanced Basic2 Programs on the Amstrad PC by P.K. McBride. For PC users who have some experience in using Basic2 and would like to learn more about the language and its potential. Contains fully documented individual programs on text and number handling, sequential and random access files, and graphics.

As usual, we will try to give readers a more comprehensive look at some of the above in coming months and make them available through our mail order service.

Most of the above titles are expected to be available in Australia at the end of September.

GAMES THAT PEOPLE PLAY

Points of view on another eight CPC titles

BLOOD BROTHERS
Join forces in a two player game from Gremlin

DISC $44.95
TAPE $29.95

You would have thought that this title was going to be a Cowboys and Indians game, but no. The brothers are two future school kids who form a pact, North American Indian style, after their village, including inhabitants and parents, had been destroyed by space pirates. Their revenge trip is to the mines where the evil pirates have hidden the stolen booty. Each of the brothers can be controlled by a joystick or keyboard, and control can be toggled between the two. At first I began to play Blood Brothers in the one-player mode. This is achieved by leaving the keyboard brother behind and continuing play with the joystick controlled brother. Clearly this was the wrong approach, as after a few hours I still had not got very far into the game. What it really needs is the combined skills of two players to outwit the particularly evil nasties.

There are various mine entrances which have to be found by flying a jet-bike around a 3-D sequence of walls and blocks. This part is not easy either, but can be accomplished after much practice. Graphics are colourful and smooth, and the sound effects suitably noisy.

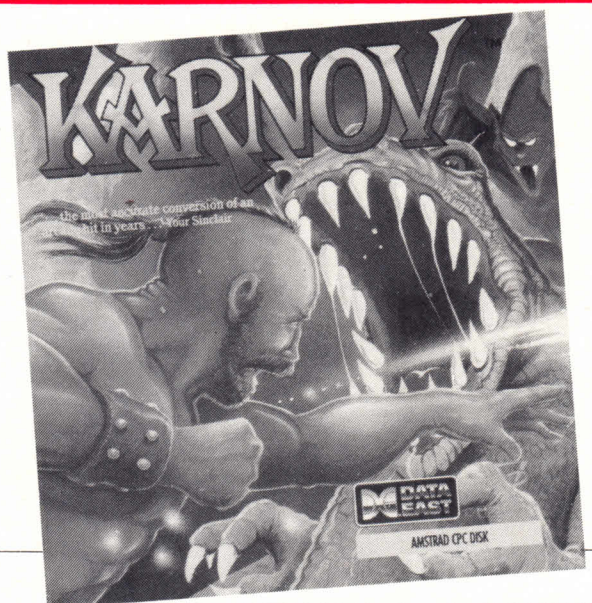
You may have gathered by now that Blood Brothers is not a game for the feint-hearted beginner(s). Those of 11 and upwards should be able to crack it after a while, but not before much sweat and tears. Younger players may well enjoy the "zapping".

KARNOV
A reasonable but infuriating game from Electric Dreams

DISC $39.95
TAPE $29.95

Karnov is the hero - a wizard bashing Russian in search of lost treasure. During his quest he encounters robed swordsmen, flying creatures and rock throwers. Play takes place on a four-way scrolling area. There are a few objects to collect like apples (which increase firepower), boots (for greater leaps) and ladders (to climb up the screen). Extra lives can be obtained by collecting the letters 'K'.

Perhaps not that original, but Karnov is reasonably simple to pick up and may keep some people happy for a while. Personally, I found it less than attractive. The graphics were lacking in both visual presentation and scrolling. The sound effects were average, and worst of all, if you make a mistake you get demoted a level. There is nothing more annoying than to be sent back to the beginning of a game where you have to prove yourself once again.



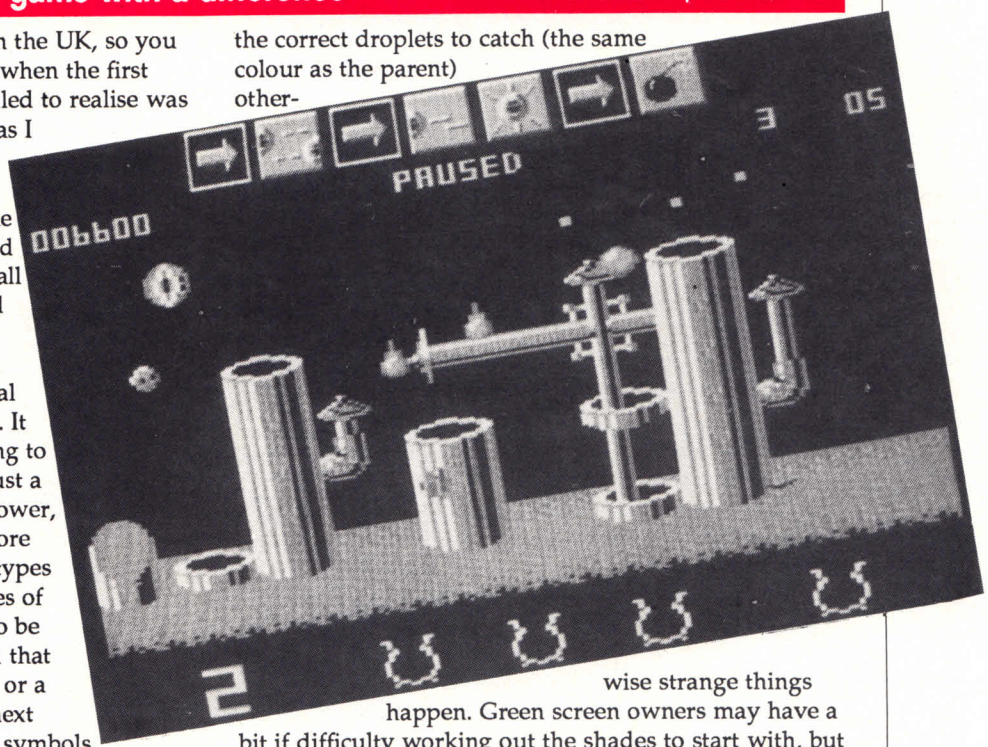
WIZBALL
From Ocean, a 'colourful' game with a difference

DISC $44.95
TAPE $29.95

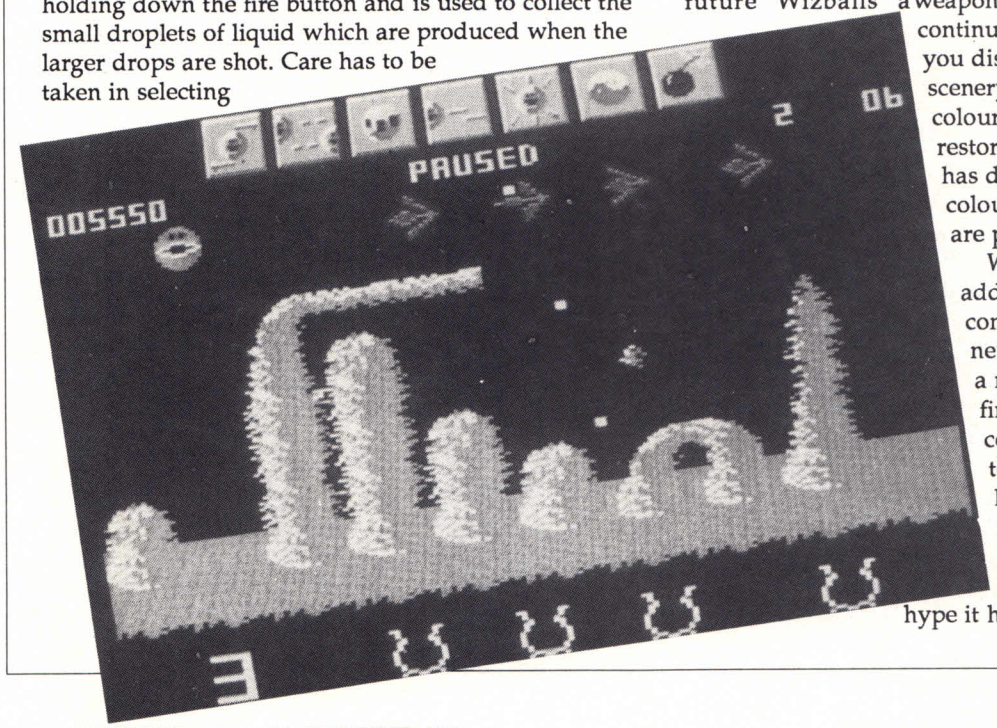
This game has been highly rated in the UK, so you can imagine my disappointment when the first drab screen was presented. What I failed to realise was that it was meant to be this way and as I played the game and increased my skills, the scenery began to fill with colour. That explains the scenario - the evil Zark and his friends have invaded Wizworld in an attempt to eliminate all colours and make the world drab and grey. It is up to Wiz, his Wizball and servant Catelite to save Wizworld.

Wizworld is split into six horizontal levels connected by tubes and craters. It uses the flick screen method of moving to the next 'room'. Initially, Wizball is just a bouncing creature with limited fire power, but this changes as the player gets more skilled. Each screen has one of three types of objects to deal with. First, two types of aliens which shoot at you and have to be destroyed. In doing this you will find that they have changed to drops of liquid or a group of purple symbols when you next return to the screen. Second, purple symbols that change into green pearls when shot and finally, drops of liquid that bounce up and down the screen.

Along the top of the screen are a number of icons, The first provides extra thrust control to stop bouncing, the second enables you to fire in two directions at the same time and the third, most important icon, creates your helper Catelite. He (or she or it) is controlled while holding down the fire button and is used to collect the small droplets of liquid which are produced when the larger drops are shot. Care has to be taken in selecting the correct droplets to catch (the same colour as the parent) otherwise strange things happen. Green screen owners may have a bit if difficulty working out the shades to start with, but persevere.



At the bottom of the screen are four cauldrons into which the correctly collected droplets will be deposited. The far right cauldron indicates the colour to be collected and when filled you must escape into one of the many holes in the ground to move onto a bonus screen. Following that, you enter Wizlab and can allocate all future Wizballs a weapon or control power and then continue the game. It is now that you discover that part of the scenery has been filled with colour and continue the task of restoring all colours. Each level has different scenery ready for colouring and the sound effects are pretty good.



Wizball is undoubtedly an addictive game, with a good combination of both old and new ideas. You can't relax for a moment. Playing it for the first time will probably confuse most people - it took me a time to get the hang of things - and you may find the instructions less than helpful. However, it deserves all the hype it has had abroad.

KRYPTON FACTOR
From the TV screen to the Amstrad screen via Domark

DISC $49.95
TAPE $24.95

Domark are reasonably well known these days for TV game conversions, at least in the UK. Most of the TV games never reach these shores, similarly the computer conversions. The Krypton Factor is an exception. For those who have not seen the show it consists of a number of events both physical and/or mental between four contestants with the winner scoring the most points, but back to the computer version.

Clearly the game is not for one player (although he/she could cheat and get a bit of practice in before challenging others). At the beginning a choice from four male and four female contestants can be made including a digitised picture representing each of them. Then the events begin.

The first relates to mental agility where a series of numbers are quickly displayed on the screen. The player has to rearrange them into numerical order and type them back in again. The second event involves a 'spot the difference' observation test between two pictures and associated text. The third is a response round. In order to propel an 'ergobuggy', the player has to alternately press keys, but each at a different rate (rather like the way I type!). The physical ability round will do no more than make your fingers ache, but does require a degree of coordination. It is similar to the 'ergobuggy' round but you have to control your stamina, strength and so on. Then follows the intelligence test where you have to assemble a logo within a time limit and finally a general knowledge test where each player has to try to answer the question first.

The game is carefully thought out with good use of colour and graphics. It has two drawbacks - one, on tape the loading time breeds boredom and two, if you play it enough times you get to know the answers.

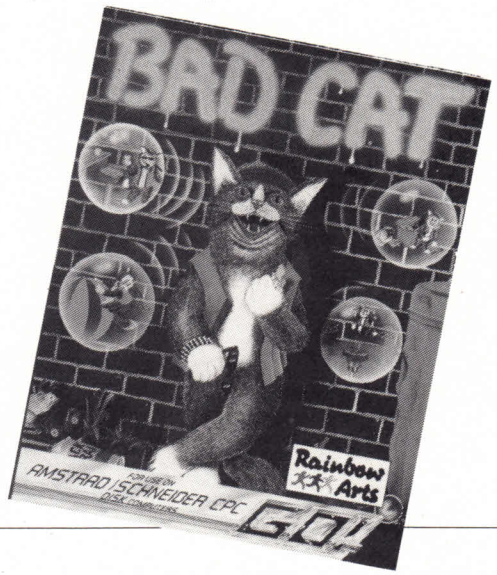
BAD CAT
More a playful kitten for young ones from US Gold

DISC $44.95
TAPE $29.95

Bad Cat is not a game for the serious game player. Put another way it is most certainly a game for younger children, say, in the 7 to 11 year group. Up to four players can compete against one another in a psuedo Olympics. It consists of four sections - the city park, the arena, the sewer and the pub - and in between each section is a quick race against the clock to get to the next venue.

In the city park you have to negotiate various monkey bars, either jumping, swinging or crawling across them. At the end you have to climb a rope and swing across some water, grabbing a key at the same time. The second venue, the arena, consists of two moving platforms from which you jump Bad Cat up to hit coloured symbols at the top of the screen. The sewer is the third location, in some respects similar in obstacles to the first but with added dangers of rats and alligators. The final stage is in the pub. You bowl balls at a bulldog's feet and he does the same to you. If either gets hit he has to go to the bar, have a beer and come back. Of course the more times he gets hit, the more tipsy he becomes and the less points scored.

At the end of each section the result is given, including a running total of points. Whether or not the player failed the event will not stop the game from continuing onto the next section - a good point when youngsters are involved. The high scores are also recorded on the game disc. It is a bright and colourful game which passed my children's acceptance test.



SOLOMON'S KEY
A commendable arcade conversion from US Gold

DISC $44.95
TAPE $29.95

Solomon's Key is a great platform game with some hidden surprises. It is simple in concept - negotiate 20 levels grabbing a key from each and taking it to the door. However, to move about you must cast spells making blocks either appear or disappear depending upon whether it was there in the first place and moving on to it. Under the rocks you may find items to give you more points, more fireballs (used to kill the nasties) or a scroll which shows the location of the fireballs. One of the most useful items is 'death and destruction' which kills all visible nasties on the screen. The nasties by the way take the form of stars, balls, animals and other strange creatures. An added bonus when all the nasties are destroyed with 'death and destruction' is that they leave another goodie for you. If that is in the shape of a question mark eat it and gain bonus points.

Solomon's Key is another game which is easy to get into but provides a decent challenge. It uses colours well and the graphics change sufficiently to make the overall presentation interesting. The sound effects and music are also good. The only criticism if I must find one is that the 20 levels are not enough.

GRYZOR
Waves of non-stop blasting from Ocean

DISC $44.95
TAPE $29.95

OK, the story is pretty standard - earth has been invaded by the Durrs who want to change the atmosphere and weather to create an Ice Age in which they can rule the world. As Lance Gryzor, you have volunteered to destroy the Atmosphere Processing Plant.

The first stage, using horizontal flick screen graphics, is where you must enter the enemy stronghold avoiding gun emplacements and enemy soldiers. Inside, you will find weapon containers housing four different types of weapon: rapid fire (increases the rate of fire), scatter gun (fires two bullets at the same time), laser gun (much more destructive) and barrier(for temporary invulnerability). The corridors of the stronghold are blocked by forcefields which can be de-activated by shooting a switch. This takes you on to a well defended control room which has to be destroyed. If successful, you earn a bonus life and proceed to the next level.

The second level uses vertical flick screens with ledges and platforms. The aim is to destroy the Atmosphere Processor and move to the mother ship (the third level) and another series of barriers and tunnels. Though out the game you can adopt various stances when firing the weapons. For example, you can crouch in tunnels, or even lie down. The stance determines the height of the 'bullets' fired. They can also be discharged diagonally up and down, to the left and right or straight up.

Apart from problems with the enemy sometimes merging with the backgound on a green screen, the graphics are well animated. It is not that easy to start with, but once grasped it becomes quite addictive. Gryzor is not a straight forward shoot 'em up, but requires an element of strategy for success. It's a pretty good conversion from the arcade game.

SCRABBLE DE LUXE
The board game conversion from Leisure Genius/Virgin

DISC $44.95
(6128 only but ...)

Let's get one thing straight. Scrabble de luxe is available on disc only for the 6128 (and PCW). However, there is an original version (without the 'de luxe' appendage) which is available in both tape and disc format for all CPCs. This latter version is perhaps not quite as flashy as the de luxe (the one being reviewed here) but it still plays the same game. All versions come from Leisure Genius, (marketed by Virgin Games and imported by YPA) who are well known now for specialising in computerised versions of board games (mainly from Waddingtons and Spears).

The game itself can be played by up to four people with the computer taking any number of parts. For the purpose of brevity,I will assume that you know how to play the game. The board screen display is a reasonable representation of the real board, with extra scoring squares identified with different shapes within them. These are easily identified on a green screen. Seven letter tiles are dealt to players at the outset and automatically replenished during the game. A counter shows how many tiles are left in the 'bag'. A clock can be used to restrict player's thinking time. Levels can be selected which generally means that the higher the level the deeper the computer will search it's dictionary for more obscure words. Whilst you cannot challenge a word the computer will play, it can challenge you by asking if the word is genuine. (You can cheat here by saying yes, as the computer will trust you.)

You can also watch the computer consider words and where it may place them. The scoring process is faithfully followed along with options to change some or all tiles. It also has a 'juggle' feature which will rearrange your letters, or even suggest a word. Overall it's a great way of wasting countless hours at the keyboard.

CPC464, 664 and 6128 Software

SOME OF THE TITLES WHICH HAVE BEEN ADDED THIS MONTH

	Disc	Tape		Disc	Tape
Bad Cat	*44.95*	*29.95*	*Plasmatron*	*44.95*	*29.95*
Bionic Commando	*44.95*	*29.95*	*Rimrunner*	*47.95*	*29.95*
Blood Brothers	*44.95*	*29.95*	*Scalextric*	*-*	*35.95*
Charlie Chaplin	*44.95*	*29.95*	*Scrabble (standard)*	*44.95*	*35.95*
Cluedo	*44.95*	*35.95*	*Scrabble de luxe (6128 only)*	*44.95*	*-*
Desolator	*44.95*	*29.95*	*Shackled*	*44.95*	*29.95*
Garfield	*44.95*	*29.95*	*Target Renegade*	*44.95*	*29.95*
Gunsmoke	*44.95*	*29.95*	*Wolfman*	*44.95*	*29.95*
Monopoly	*44.94*	*35.95*			

(Additions to the list below are shown in bold type)

GAMES DISCS

720° (Skateboarding)	**44.95**
Academy	**49.95**
Ace of Aces	**49.95**
Activator	30.00
Adventure 4-Pack	32.95
Andy Capp	34.99
Arkanoid	**44.95**
Bad Cat	**44.95**
Ball Breaker	**44.95**
Basil, the Great Mouse Detective	44.95
Basket Master	**44.95**
Bionic Commando	**44.95**
Blood Brothers	**44.95**
Blue War	**44.95**
Bobby Bearing	20.00
Book of the Dead	**44.95**
Boulderdash	20.00
Boulderdash 3	**49.95**
Brian Bloodaxe	20.00
Charlie Chaplin	**44.95**
Classic Quest Adventures:	
Goblin Towers (mod.)	49.95
Forestland (hard)	49.95
Witch Hunt (very hard)	49.95
Cluedo	**44.95**
Combat School	**44.95**
Contraption	25.00
Cybernoid	44.95
Deflektor	**44.95**
Desolator	**44.95**
Flying Shark	39.00
Frankenstein	**44.95**
Game, Set and Match	**44.95**
Garfield	**44.95**
Gary Lineker's Superstar Soccer	44.95
Gauntlet II	44.95
Gee Bee Air Rally	39.95
Glass	25.00
Gothik	39.95
Graham Gooch's Test Cricket	29.95
Gryzor	**44.95**
Gunsmoke	**44.95**
Head over Heels	44.95
Hunt for Red October	39.99
Indiana Jones and the Temple of Doom	44.95
Indoor Sports	**44.95**
Jinxter	69.95
Karnov	39.95
Konami Arcade Collection *10 games:Shao-Lin's Road, Jail Break, Mikie, Yie Ar Kung Fu I and II, Hyper-sports, Green Beret, Nemesis, Jackal and Ping Pong*	49.95
Krypton Factor	49.95
Leader Board Golf	49.95
Live Ammo Compilation *with Green Beret, Rambo, Top Gun, Army Moves and Great Escape*	49.95
Living Daylights	49.95
Madballs	**44.95**
Mask II	44.95
Masters of the Univ.	44.95
Metrocross	**44.95**
Monopoly	**44.95**
Nigel Mansell's G.Prix	**49.95**
Not a penny more, not a penny less	49.95
North Star	44.95
Outrun	**44.95**
Pack of Aces: *Compilation with Boulderdash, Who Dares wins II, Nexus, & International Karate*	34.99
Plasmatron	**44.95**
Platoon	44.95
Ramparts	**44.95**
Rimrunner	**47.95**
Rocky Horror Show	20.00
Rolling Thunder	44.95
Rygar	**44.95**
Scrabble de luxe (6128)	**44.95**
Scrabble (standard)	**44.95**
Shackled	**44.95**
Short Circuit	**44.95**
Slaine	35.95
Side Arms	44.95
Slapshot (Ice Hockey)	20.00
Six-Pack: *6 games compilation with Shockway rider, Into the Eagle's Nest, ACE, Batty, International Karate and and Lightforce*	34.95
Slapshot (Ice Hockey)	20.00
Solomon's Key	**44.95**
Spy vs Spy	20.00
Star Wars	49.95
Tank	44.95
Target Renegade	**44.95**
Tenth Frame	39.95
Terramex	34.99
Tetris	34.99
Time and Magik trilogy *Lords of Time, Red Moon and Price of Magik (128ks only)*	49.95
Tour de Force	**44.95**
Trantor	**44.95**
Trivial Pursuit	
Young Players edition	O/S
Baby Boomer edition	27.95
Genus edition	27.95
Venom Strikes back	44.95
We are the Champions: *Renegade, Barbarian, SuperSprint, Rampage, International Karate*	49.95
Wizball	**44.95**
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SPELLING CHEWTER

Although designed for children, this spelling tutor from David Rich could well find a use by more mature readers.

I was interested to read your reviewer's introductory comments on spelling programs. (TAU 28, MAY 1987) The idea of flashing a word on the screen "Obviously doesn't work because you've got the answer already" shouldn't be taken for granted. It really doesn't matter how often you have seen a word, or even how recently... you still may not be able to spell it correctly. In fact you may not even realise that you have got it wrong. We tend to read words and sentences for their MEANING rather than their spelling; the individual letters which make up the word often don't register at all.

The first program I ever wrote (as opposed to copied or adapted) was a spelling tutor for my son. Daniel was about 5 years old, and going well at school except for his spelling. Unfortunately (?) his Little Sister got hold of the program before he did and had the cheek to learn all of his words!

A little sister, a nose out of joint and a computer-tutor make learning your spelling quota much easier!

I can't provide the little sister or the bruised ego, but the following program contains a years spelling for year six students.

The words are held in data lists at the start of the program. Each data statement holds 20 words (because each school list contains 20 words...) and it is a simple matter to substitute and words for the ones supplied - just type them in place of the ones already there, making sure that each line holds just 20 words and no additional spaces.

The program expects lower case letters: that lets it check proper nouns for capital letters. Type in upper case and it will treat the answer as wrong, even if it isn't.

The order of the lists is the order in which they would be presented as the school year progressed. I am not sure if that means that later lists are harder than earlier ones... it depends on the individual. INPUTing your choice RESTOREs the data pointer to the line holding that particular list (lines 950-1110). Selecting Hard, Medium or Easy when prompted at line 850 only changes the value of the timer in line 560. This in turn decides how long the word stays on the screen.

Making a spelling mistake (or a typing error) loses you a point. It also assigns the word as an element in the array CROSS$(n) (line 620). Getting the same word wrong three times transfers control to the subroutine at line 1240 which prints the word out letter by letter.

When the twenty words have been attempted, lines 740-770 provide a score (the number correct - number of errors) and any mis-spelt words are listed by the loop commencing at 760. The loop counter is fixed at twenty... hopefully there won't be twenty mistakes, so line 770 only prints CROSS$(n) if it is a null string (ie. it only prints words, not blanks).

That's all there is to it. You can add sounds, change screen colours, add graphics, give all sorts of "re-inforcer" for right answers if you like... there is plenty of memory available since the program is only 120 lines REMs and all: barely 5Kb long. My original attempt 5 years ago held about a months of words and ran to 6Kb!

```
100 ' CPC Spelling Tutor
110 ' by David Rich
120 ' The Amstrad User, August 1988.
130 '
140 GOSUB 1150: 'TITLE PAGE
150 MODE 1
160 '
170 '* DATA - 20 WORDS PER STATEMENT *
180 '
190 DATA system,asteroid,planet,while,orbit,refer,obvio
usly,imagination,discovered,described,diagram,vary,Satu
rn,extremely,temperature,although,opposite,beautiful,co
nditions,wrecked
200 DATA piece,probably,fierce,below,clouds,fifth,compa
ny,you're,they're,regard,story,stony,meteors,relation,a
ctivity,reduce,rhyme,forty,minister,conductor
210 DATA traffic,witness,transfer,mayor,propose,busines
s,referee,freedom,laziness,classify,Neptune,computer,me
mory,here,hearing,government,purpose,cassette,picture,t
issue
220 DATA site,sense,journey,cargoes,cease,turkeys,leagu
e,pulley,career,immense,union,increase,mosquitoes,featu
re,immediate,opinion,familiar,universe,peculiar,thoroug
h
230 DATA omit,credit,instant,spirit,suggest,commit,offi
cial,permanent,liquid,squash,inquire,committee,frequent
,president,initials,biscuit,instrument,guilty,orchestra
,independent
240 DATA herd,berth,alter,worth,width,observe,perform,t
axation,mystery,operation,theatre,information,persevere
```

```
,persuade,stationery,machinery,sympathy,scenery,enthusi
asm,association
250 DATA beginning,relief,enrol,excel,collide,televisio
n,compel,siege,quarrelled,yield,collapse,handicapped,co
llege,collision,request,extension,religion,decision,res
ponsible,expansion
260 DATA adult,ceiling,capable,rumor,develop,special,de
ceive,seize,advisable,chimney,ornament,indicate,receipt
,department,verandah,amazement,arrangement,especially,o
rganisation,determination
270 DATA library,fuel,publish,chorus,terrible,horrible,
signature,scheme,temperature,fiction,sensible,confidenc
e,invisible,reference,librarian,influenza,recommend,inf
luence,catalogue
280 DATA title,vacant,popular,benefit,council,committee
,opponent,fulfil,stationery,suggestion,practise,populat
ion,majority,security,community,association,situation,i
mmediately,authority,commission
290 DATA eighth,average,surface,calendar,system,immence
,section,fraction,numerous,practice,calculator,decimal,
century,circular,practical,column,remainder,percentage,
rectangular.parallel
300 DATA serious,miserable,severe,disease,muscle,valuab
le,movable,medicine,operation,pyjamas,ambulance,physica
l,persevere,patient,collapsed,stomach,cautious,emergenc
y,conscious,surgeon
310 '
320 '      ***** INITIALIZE *****
330 '
340 DIM word$(20),check$(20),cross$(20)
350 score=0:b=0:c=0:d=0:erro=0:turn=0
360 INK 3,18
370 '
380 '** ASSIGN WORDS TO word$ ARRAY **
390 '
400 CLS
410 '** PLAYER INPUT FOR WORD LIST AND **          **LEV
EL OF DIFFICULTY**
420 '
430 GOSUB 850:'** PLAYER INPUT FOR WORD           LIST
AND LEVEL OF DIFFICULTY**
440 '
450 ' *** READ DATA INTO WORD LIST ***
460 '
470 FOR A=1 TO 20
480 READ word$(A)
490 NEXT
500 '
510 ' **** DISPLAY WORD FROM LIST ****
520 '
530 CLS
540 FOR A=1 TO 20
550 PEN 1:c=c+1:LOCATE 15,5:PRINT word$(A)
560 FOR PAUSE = 1 TO quick:NEXT
570 '
580 CLS
590 ' *******   TEST WORD   *******
600 '
610 LOCATE 5,20:PRINT "TYPE IN THE WORD YOU JUST READ":
PRINT:PEN 3:PRINT TAB (12);"(use lower case)":PEN 2:PRI
NT:PRINT TAB(14);:INPUT check$
620 turn=turn+1:IF check$<>word$(A) THEN cross$(A)=word
$(A)  ELSE 650
630 IF c<3 THEN LOCATE 5,20:PRINT SPACE$(30): PEN 2: LO
CATE 15,10: PRINT "TRY  AGAIN":PEN 1:FOR pause =1 TO 15
00:NEXT:CLS:GOTO 550
640 IF c=3 THEN PRINT" you need practice on that word..
.watch:":FOR pause=1 TO 2500:NEXT:CLS:GOSUB 1240:LOCATE
 13,10:PEN 3:PRINT"get ready":FOR pause=1 TO 1500:NEXT:
CLS:GOTO 660
650 score=score+1:PRINT score:LOCATE 5,20:PRINT STRING$
(30,233):PEN 1:LOCATE 16,20:PRINT"CORRECT!":FOR PAUSE=1
 TO 1500:NEXT:PEN 3:LOCATE 15,20:PRINT"get ready":FOR P
AUSE=1 TO 1500:NEXT
660 c=0:NEXT
670 erro=turn-score:CLS:LOCATE 7,5:PRINT"YOU GOT ";scor
e;" WORDS RIGHT":PRINT:PRINT TAB(14)"IN ";turn;" GOES":
PRINT:PEN 3:PRINT TAB(10);"THAT'S A SCORE OF ";score-er
ro
680 IF score-erro=20 THEN PRINT:PRINT" WELL DONE!! A PE
RFECT SCORE!":GOTO 800
690 IF score-erro>16 THEN PRINT:PRINT"   GOOD WORK: PLE
ASE PRACTICE THE WORDS      THAT TRICKED YOU.": GOTO 71
0
700 PRINT:PRINT"    PLENTY OF PRACTICE TO DO YET, I SEE
!"
710 PRINT:PRINT "THESE WERE YOUR PROBLEM WORDS: "
720 PRINT
730 '
740 ' *** PRINT WORDS HELD IN cross$ ***
750 '
760 FOR A=1 TO 20
770 IF cross$(A)="" THEN 780 ELSE PRINT TAB(15);cross$(
A):'don't print spaces for empty strings
780 NEXT
790 '
800 FOR PAUSE= 1 TO 2000:NEXT
810 PEN 2:PRINT:PRINT TAB(10);"ANOTHER TURN (Y/N)"
820 PEN 1:K$=UPPER$(INKEY$):IF K$="" THEN 820
830 IF K$="N" THEN CLS:NEW
840 IF K$<>"Y" THEN 820 ELSE 350
850 LOCATE 5,10:PEN 2:PRINT" WHAT LEVEL DO YOU WANT TO
TRY":PRINT:PRINT TAB(8);"(PRESS ";:PEN 3:PRINT"H";:PEN
2:PRINT"ard";:PEN 3:PRINT" M";:PEN 2:PRINT"edium";:PEN
3:PRINT" E";:PEN 2:PRINT"asy)"
860 PRINT:PRINT TAB (11);"press <ENTER> key"
```

```
870 '
880 ' * SETS TIMER: HIGHER DIFFICULTY *     * DISPLAYS
WORD FOR A SHORTER TIME *
890 '
900 PRINT:PRINT TAB(18);:INPUT quick$:quick$=UPPER$(qui
ck$):IF quick$="H" THEN quick=300 ELSE IF quick$="M" TH
EN quick=900 ELSE IF quick$="E" THEN QUICK=1500 ELSE 85
0:CLS
910 FOR PAUSE= 1 TO 1000: NEXT:CLS
920 '
930 '*SETS DATA POINTER TO LIST SELECTED*
940 '
950 LOCATE 1,10:PEN 2:PRINT " WHICH GROUP OF WORDS WOUL
D YOU LIKE":PRINT:PEN 3:PRINT TAB(3);"(choose 1 to 12 t
hen <ENTER> key)":PEN 1
960 PRINT:PRINT TAB(17);:INPUT choice
970 IF choice>12 THEN 960
980 ON choice GOSUB 1000,1010,1020,1030,1040,1050,1060,
1070,1080,1090,1100,1110
990 CLS:RETURN
1000 RESTORE:RETURN
1010 RESTORE 200:RETURN
1020 RESTORE 210:RETURN
1030 RESTORE 220:RETURN
1040 RESTORE 230:RETURN
1050 RESTORE 240:RETURN
1060 RESTORE 250:RETURN
1070 RESTORE 260:RETURN
1080 RESTORE 270:RETURN
1090 RESTORE 280:RETURN
1100 RESTORE 290:RETURN
1110 RESTORE 300:RETURN
1120 '
1130 ' *****      TITLE      *****
1140 '
1150 MODE 0
1160 LOCATE 2,6:PRINT"CPC SPELLING TUTOR":LOCATE 10,10:
PRINT"(";CHR$(64);")"
1170 LOCATE 6,15:PRINT"DAVID RICH"
1180 LOCATE 9,18:PRINT"1987"
1190 FOR PAUSE= 1 TO 5000:NEXT
1200 RETURN
1210 '
1220 '*** WORDS NOT CORRECT IN 3 TRIES ***      *** DISP
LAYED LETTER BY LETTER ***
1230 '
1240 MODE 0:LOCATE 4,10:PEN 2:PRINT"the correct":PRINT
TAB (4) "spelling is:"
1250 FOR B=1 TO LEN(word$(a))
1260 PEN 3:LOCATE 6,15:PRINT LEFT$(word$(A),B)
1270 FOR pause= 1 TO 1000:NEXT
1280 NEXT
1290 FOR pause= 1 TO 1500:NEXT
1300 MODE 1:RETURN
```


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SCREENS AND WIMPS

Gary Koh completes his series on graphics by explaining screen manipulation and windowing

This is the seventh and last part of our series on graphics. To round things off we will be having a quick look at screen manipulation and WIMP environments.

Screen manipulation encompasses quite a large area. As such, the barrier between graphics and screen manipulation is quite foggy. Some things could belong to both categories at the same time. Screen manipulation involves manipulating the screen as opposed to drawing on the screen.

One classic example is scrolling. This involves shifting the entire screen or a part of it in one direction. On the Amstrad this can be accomplished in one of two ways. The easiest and quickest way is to do a hardware scroll. This simply changes the offset and scrolls the entire screen.

If you want to scroll an area smaller than the screen then you are in a bit of bother. The only way to scroll a portion of the screen is to do a software scroll. If you try software scrolling on large areas of screen you end up with an annoying flicker.

The reason for this is that to accomplish a software scroll you need to shift each byte manually in the area to be scrolled to a new area. A Z80 processor running at 4Mh may sound fast but trying to shift say 10000 odd bytes in less than a frame flyback is a bit beyond it. This is why it is most effective on areas of the screen that are about a quarter of it in size or less. On small areas of the screen you can scroll it in less than a frame flyback which makes the scrolling appear smoother. On larger areas the scrolling cannot be accomplished in a single frame flyback and so you can see it shift halfway during the scrolling making it jerky.

The first listing this month is a machine code loader program. It must be merged with several of the programs this month.

LISTING 1

```
10 ' Data Loader
20 ' The Amstrad User, Sep(88)
40 '
50 MEMORY 38000:MODE 1
60 READ length,cheksum
70 FOR a=38001 TO 38000+length
80 READ byte$
90 byte=VAL("&"+byte$)
100 cheq=cheq+byte
110 POKE a,byte
120 NEXT:GOTO 200
130 IF cheksum<>cheq THEN PRINT"Error In Data..":END
```

Our second listing this month must be merged with the first (the loader program). There are several routines in the firmware to scroll the screen. Listing 2 is a simple scrolling routine that uses the firmware routine SCR hw roll. Hardware scrolling is easy as there are several firmware routines to accomplish this.

LISTING 2

```
200 ' Screen Scrolling Demo
210 ' by Gary Koh
220 ' The Amstrad User, Sep(88)
230 LOCATE 1,1:PRINT STRING$(40,154);
240 POKE 38002,0
250 FOR a=1 TO 24:CALL 38001:NEXT
260 POKE 38002,1
270 FOR a=1 TO 24:CALL 38001:NEXT
280 GOTO 240
290 DATA 7,528
300 DATA 06,00    : LD B,0
310 DATA 3E,00    : LD A,0
320 DATA C3,4D,BC : JP #BC4D
```

There is not much support for software scrolling though. The single routine that is provided to do this can only scroll an area of the screen up or down by eight pixels.

There are other things beside scrolling that are connected with screen manipulation. Double height characters and different fonts are also examples of screen manipulation. Listing 3 does some screen swapping. It utilises the firmware routine SCR set base to change the address of the start of the screen.

LISTING 3

```
200 ' Screen swapping demo
210 MEMORY &3FFF
220 MODE 1
230 d=100
235 CALL 38006
240 FOR a=1 TO 1000:PRINT"0";:NEXT
250 CALL 38001:CLS
```

```
260 FOR a=1 TO 999:PRINT"1";:NEXT
270 CALL 38006:FOR delay=0 TO d:NEXT
280 CALL 38001:FOR delay=0 TO d:NEXT
290 GOTO 270
300 DATA 10,1162
310 DATA 3E,40    : LD A,#40
320 DATA C3,08,BC : JP #BC08
330 DATA 3E,C0    : LD A,#C0
340 DATA C3,08,BC : JP #BC08
```

Screen manipulation also involves changing the way a picture looks by shifting around pixels. Various actions that do this are mirroring, rotating and scaling. Listing 4 is a demo in Basic that demonstrates mirroring and turning a picture upside down. It works by testing each pixel and then putting it in a different position in relation to its original position.

LISTING 4

```
100 ' Mirror/flipping
110 ' Gary Koh
120 ' The Amstrad User Sep(1988)
130 '
140 MODE 1:INK 0,11:INK 1,0:INK 2,26:BORDER 11
150 WINDOW #1,15,24,3,10:PAPER#1,2:CLS#1
160 PRINT#1,"This is a horizontalmirroring demo"
170 ' mirror the window
180 FOR x=224 TO 384 STEP 2
190 a=126:FOR y=366 TO 306 STEP -2
200 PLOT x,y-a,TEST(x,y)
210 a=a-4
220 NEXT
230 NEXT
240 '
250 WINDOW #2,15,24,14,17:PAPER#2,2:CLS#2
260 PRINT#2,"This is a vertical  flipping  demo"
270 ' flip the second window
280 FOR y=190 TO 126 STEP -2
290 a=158:FOR x=224 TO 304 STEP 2
300 c=TEST(x,y)
310 PLOT x,y,TEST(x+a,y)
320 PLOT x+a,y,c
330 a=a-4
340 NEXT
350 NEXT
```

Listing 5 is a group of screen swapping commands. It adds 3 commands to the normal Basic commands. The first three commands that listing 5 add are |SCRADD, |TOSCREEN and |FROMSCREEN. |SCRADD is the only one which accepts a parameter.

These three commands allow you to set up and use another second screen storage area in memory. |SCRADD,a will set the bottom of this second screen to a. This second screen occupies 16 Kb of memory. It can be put anywhere in memory as long as it does not overlap any important part of memory. |FROMSCREEN will transfer all the data on the real screen to the second screen. |TOSCREEN does the opposite, transferring the data in the second screen to the real screen. These commands could be used for, say, storing a second screen in memory for an art program.

LISTING 5

```
100 ' Screen transfer routine
110 ' by Gary Koh
120 ' The Amstrad User Sep(88)
130 '
140 SYMBOL AFTER 256:MEMORY 40199:MODE 1:add=0
150 FOR a=1 TO 13:lnck=0:FOR b=1 TO 8
160 READ byte$:byte=VAL("&"+byte$)
170 POKE 40200+add,byte:lnck=lnck+byte:chek=chek+byte:a
dd=add+1
180 NEXT:PRINT".";:READ lncq
190 IF lncq<>lnck THEN PRINT:PRINT"Data error in line..
.";a*10+210:END
200 NEXT:IF chek=10979 THEN CLS:CALL 40200:PRINT"Screen
 transfer routine installed" ELSE PRINT:PRINT"There's a
n error somewhere in the data..":END
210 DATA 01,16,9D,21,12,9D,CD,D1, 802
220 DATA BC,C9,FC,A6,16,9D,21,9D, 1176
230 DATA C3,3C,9D,C3,47,9D,C3,5A, 1120
240 DATA 9D,53,43,52,41,44,C4,54, 802
250 DATA 4F,53,43,52,45,45,CE,46, 725
260 DATA 52,4F,4D,53,43,52,45,45, 608
270 DATA CE,00,F0,55,06,01,B8,C0, 914
280 DATA DD,5E,00,DD,56,01,C9,DD, 1045
290 DATA 21,3A,9D,DD,6E,00,DD,66, 902
300 DATA 01,11,00,C0,01,00,40,ED, 512
310 DATA B0,C9,DD,21,3A,9D,DD,5E, 1161
320 DATA 00,DD,56,01,21,00,C0,01, 534
330 DATA 00,40,ED,B0,C9,00,00,00, 678
```

The last listing, listing 6, is a simple WIMP environment shell. It is meant to be driven by other programs. Of course it does not give you the power of a Macintosh but it should prove interesting to you.

Actually it is a combination of two programs. Lines 100-360 make a small demo. The actual WIMP routines are housed from line 60000 onwards. To use Wimper just simply erase the demo part and merge the remainder into whatever program wish.

To start it off firstly call the initialisation routine at 62010. It will read off some data from a data statement you have to set up. This data tells it what headings to put for the pull down menus. The first number in the data will tell it how many headings there are.

For instance, if you want to have Utility as the first

heading, Test as the second and Benchmark as the third just put them in that order in the data statement. The program will sort out the rest of it. Make sure though there are not so many headings that they overload the top window.

After this, the program will setup a few things needed by the other routines. Make sure you do not use the same variables as are used in the program. The initialisation routine will then return control to you.

The next thing you might want to do is move the pointer around. This is what the Move pointer routine at 60080 does. It will take input from the joystick only. When you press fire it will check that you are in the top window. If you are in there it will sort out at which heading you are clicking. It will then return control with you with ms containing the relative number of the heading from the left of which one you selected.

Print shadow windows at 60240 will print a nice shadowed outlined. You have to set up the variables wa,wb,wc,wd and wd. These in order represent the window number, left, right, up and down. These are the same parameters the normal window command accepts. To fill up the window with text just define wm$ to whatever string you want.

If you want this to be a pull down menu selection then call Pull down menu selector straight after this at 60310. This will put in a bar in the window. Use up and down joystick to move the bar. Press fire button to select what you want or left and right joystick to cancel the selection. It will return with ss containing the selection you want. If you aborted then ss will contain 10.

The last routine at 60390 adds a bit of font capability to spruce things up. To select the font you want just pass on the variable font. At the moment only 0 (normal character set) and 1 (Broadway) are available. So far Broadway is not yet a full font with only the uppercase and number characters defined.

Wimper is by no means complete and I suggest you do not take it too seriously. I am working on a better version. With any luck it should be completed in a few months. I hope that you have a lot of fun with the series and have learned a little more about the world of Amstrad Graphics.

LISTING 6

```
100 ' Wimper example program
110 ' By Gary Koh
120 ' The Amstrad User Sep(1988)
130 '
140 RESTORE 150:GOSUB 62010
150 DATA 2,Utility,Test
160 GOSUB 60080
170 IF ms=1 THEN GOSUB 210
180 IF ms=2 THEN GOSUB 340
190 RUN
200 ' Menu 1 - Functions
210 wa=1:wb=2:wc=8:wd=2:we=6:wm$="MemdumpNothingNothing
Nothing":GOSUB 60240:GOSUB 60310
220 IF ss=1 THEN GOSUB 230 ELSE RETURN
230 wa=2:wb=5:wc=35:wd=4:we=24:wm$="":GOSUB 60240:ZONE
31
240 PRINT TAB(7)"Memory Hex Dump",,:INPUT "Location of
dump";st
250 PRINT ,,:INPUT "Length of dump";lg:PRINT ,,:INPUT "
(1)-Hex  (2)-Decimal";t
260 WINDOW #3,5,34,6,24:CLS:PRINT "Options P-Pause ",
270 IF t=1 THEN PRINT #3," ";HEX$(st,4); ELSE PRINT #3,
USING"#####";st;
280 st=st+6:lg=lg-6:FOR i=st-6 TO st-1:PRINT #3," ";HEX
$(PEEK(i),2);:NEXT
290 PRINT #3," ";:FOR i=st-6 TO st-1:PRINT #3,CHR$(ABS(
(PEEK(i)<32)*32)+PEEK(i));:NEXT
300 a$=INKEY$:IF a$="P" OR a$="p" THEN CALL &BB18
310 IF lg>0 THEN 270
320 RETURN
330 ' Menu 2 - Test
340 wa=1:wb=10:wc=15:wd=2:we=7:wm$="Test ATest BTest CT
est DTest E":GOSUB 60240:GOSUB 60310
350 wa=1:wb=16:wc=25:wd=7:we=15:wm$="":GOSUB 60240:FOR
a=1 TO 500:PRINT CHR$(64+ss);:NEXT
360 RETURN
60000 ' *****   WIMPER   *****
60010 '
60020 ' A program to emulate a simple WIMP enviroment
60030 ' Version 0.3
60040 ' By Gary Koh
60050 ' The Amstrad User Sep(1988)
60060 '
60070 ' Move pointer around
60080 PRINT xon$:iif=0
60090 TAG:MOVE 320,200:PRINT CHR$(250);
60100 a$=INKEY$:IF a$="" THEN 60100
60110 IF INKEY(72)=0 AND y<398 THEN y=y+8
60120 IF INKEY(75)=0 AND x<624 THEN x=x+10
60130 IF INKEY(73)=0 AND y>0 THEN y=y-8
60140 IF INKEY(74)=0 AND x>16 THEN x=x-10
60150 IF INKEY(76)=0 THEN GOSUB 60180:IF iif=1 THEN RET
URN
60160 MOVE x1,y1:PRINT CHR$(250);:MOVE x,y:PRINT CHR$(2
50);:y1=y:x1=x
60170 GOTO 60100
60180 SOUND 1,200,6,7
60190 IF y<384 THEN RETURN
60200 FOR iib=0 TO iia
60210 IF x<wloc(iib) AND iif=0 THEN MOVE x,y:PRINT CHR$
(250);:ms=iib+1:iif=1:LOCATE #7,wtlc(iib),1:PEN #7,3:PR
INT #7,wtat$(iib);
60220 NEXT:RETURN
60230 ' Print shadowed windows
```

```
60240 TAGOFF:PRINT xof$;:WINDOW #wa,wb,wc,wd,we:CLS #wa
:WINDOW SWAP 0,wa:PRINT wm$;
60250 wf=25-we:wg=25-wd:FOR i=6 TO 0 STEP -2:MOVE (wc*1
6)+i,(wf*16)-i:DRAW (wc*16)+i,(wg*16)-i+16:NEXT
60260 FOR i=6 TO 0 STEP -2:MOVE (wb*16)+i-16,(wf*16)-i-
2:DRAW (wc*16)+i,(wf*16)-i-2:NEXT
60270 MOVE (wb*16)-1-16,(wg*16)-1+16:DRAW (wb*16)-1-16,
(wf*16)
60280 IF wd>1 THEN MOVE (wb*16)-1-16,(wg*16)+16:DRAW (w
c*16)-1,(wg*16)+16
60290 PRINT xon$:RETURN
60300 ' Pull down menu selector
60310 TAG:ss=0:lm$=STRING$(wc-wb+1,143):dm=we-wd-2:MOVE
 wb*16-16,398-wd*16-ss*16:PRINT lm$;
60320 a$=INKEY$:IF a$="" THEN 60320
60330 IF INKEY(72)=0 AND ss>-1 THEN MOVE wb*16-16,398-w
d*16-ss*16:PRINT lm$;:ss=ss-1:MOVE wb*16-16,398-wd*16-s
s*16:PRINT lm$;
60340 IF INKEY(73)=0 AND ss<dm THEN MOVE wb*16-16,398-w
d*16-ss*16:PRINT lm$;:ss=ss+1:MOVE wb*16-16,398-wd*16-s
s*16::PRINT lm$;
60350 IF INKEY(74)=0 OR INKEY(75)=0 THEN ss=10:TAGOFF:R
ETURN
60360 IF INKEY(76)=0 THEN TAGOFF:ss=ss+2:RETURN
60370 GOTO 60320
60380 ' Font routine
60390 SYMBOL AFTER 32
60400 IF font=2 THEN GOSUB 60430
60410 IF font=3 THEN RETURN
60420 RETURN
60430 SYMBOL 48,124,226,230,234,242,226,124,0
60440 SYMBOL 49,56,120,248,56,56,56,254,0
60450 SYMBOL 50,124,134,14,28,56,112,254,0
60460 SYMBOL 51,124,142,14,60,14,142,124,0
60470 SYMBOL 52,28,60,92,156,156,254,28,28
60480 SYMBOL 53,254,224,252,14,14,14,252,0
60490 SYMBOL 54,124,226,224,252,226,226,124,0
60500 SYMBOL 55,254,14,28,56,56,112,112,0
60510 SYMBOL 56,124,226,226,124,226,226,124,0
60620 SYMBOL 74,14,14,14,14,14,140,120,0
60630 SYMBOL 75,226,228,232,240,232,228,226,0
60640 SYMBOL 76,224,224,224,224,224,224,254,0
60650 SYMBOL 77,226,246,254,254,234,234,226,0
60660 SYMBOL 78,226,242,242,250,238,230,226,0
60670 SYMBOL 79,56,100,226,226,226,100,56,0
60680 SYMBOL 80,252,226,226,226,252,224,224,0
60690 SYMBOL 81,124,226,226,226,234,228,122,0
60700 SYMBOL 82,252,226,226,226,252,232,228,0
60710 SYMBOL 83,124,226,240,124,30,142,124,0
60720 SYMBOL 84,254,56,56,56,56,56,56,0
60730 SYMBOL 85,226,226,226,226,226,226,124,0
60740 SYMBOL 86,226,226,226,226,100,40,16,0
60750 SYMBOL 87,226,234,234,254,254,246,98,0
60760 SYMBOL 88,194,228,120,56,60,78,134,0
60770 SYMBOL 89,130,68,40,56,56,56,56,0
60780 SYMBOL 90,254,14,28,56,112,224,254,0
60790 RETURN
62000 ' Initialization routine
62010 MODE 1:INK 0,13:INK 1,0:INK 2,26:INK 3,25:BORDER
13:PEN 1:PAPER 0
62020 KEY 138,"INK 1,26:INK 0,2:BORDER 2:PAPER 0:mode 2
:pen 1"+CHR$(13)
62030 WINDOW #7,1,40,1,1:PEN #7,2:PAPER #7,1:CLS #7
62040 FOR i=0 TO 6:PEN #i,1:PAPER #i,0:NEXT
62050 x=320:y=200:y1=y:x1=x:ch$=CHR$(234):xon$=CHR$(23)
+CHR$(1):xof$=CHR$(23)+CHR$(0)
62060 READ iia:DIM wtat$(iia),wloc(iia),wtlc(iia):iid=1
:iia=iia-1:FOR iib=0 TO iia
62070 READ wtat$(iib):iic=iic+LEN(wtat$(iib))*16+16:wlo
c(iib)=iic
62080 wtlc(iib)=iid:iid=iid+LEN(wtat$(iib))+1
62090 NEXT
62100 FOR iib=0 TO iia
62110 PRINT#7,wtat$(iib);" ";
62120 NEXT
62130 SYMBOL 250,252,248,240,248,220,142,7,2
62140 RETURN
```

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MACHINE CODE MATHS

The fourth and final module of high precision arithmetic covering division in Z80 Machine Code from Petr Lukes

This module on division completes the suite of BCD arithmetic. Again it requires the support of the first module for testing, but does not need the other two.

The algorithm is again of primary school standard. The divisor is progressively subtracted from the dividend, until the difference becomes negative; the divisor is then added back and shifted one digit to the right. This process is repeated until the number of shifts exceeds the number of significant digits, when the characteristic and the sign are evaluated and stored as the first byte of the result. Any leading zeros are removed and the result is finally rounded. Division by zero is reported as overflow, while underflow defaults to zero.

The modular design and relocatibility requirement produce considerable duplication of code. Significant memory savings could be achieved by assembling the code in a fixed location, possibly implementing the whole suite as RSXs. I started with the idea of incorporating the routines in Public Domain languages such as FORTH or Small C, which do not normally provide floating point arithmetic. In this case the modularity and use of existing high-level routines would make it easier.

The demonstration again uses factorials, this time their inverses. This is not as useless as it may appear, because factorials are used in evaluating logarithms; in general, powers of numbers are computed by the use of logarithms, so the factorials will not be wasted.

The complete program takes up 15k of memory. With all four modules installed and tested, the demonstration section can be deleted and the remainder compressed, mainly by removing all the remarks. The possible applications then can be a four-function calculator, evaluating PI and the natural number E to 62 digits, square roots etc. The setting of the Significant Digits can be altered to a lesser value, to provide a reasonable compromise between accuracy, speed, and storage requirements.

For any interested parties, the source code listings for all the 4 BCD modules are available from The Amstrad User. Just send us a self addressed envelope. We will be happy to post it to you with the modules you require. The machine code is Z80 specific, but translating it for the PC's 8086 processor would present very few problems.

```
10 MODE 2:PRINT"BCD : High precision arithmetic"
20 PRINT"P. Lukes, 26 Noll St., Toowoomba, 4350"
60 PRINT"BCD4:Divide installed 880314"
1010 ON ERROR GOTO 1190
1020 PRINT:PRINT"Division demonstration"
1030 PRINT"Enter number or press ENTER for next demonstrat
ion:"
1040 LINE INPUT x$:a=VAL(x$)
1050 IF x$=""THEN 1220 ELSE GOSUB 3020
1060 IF x$=""THEN 1030 ELSE v1$=x$'first number
1070 GOSUB 3100:PRINT ex$
1080 PRINT"Enter second number:"
1090 LINE INPUT x$:b=VAL(x$)
1100 GOSUB 3020:IF x$=""THEN 1080
1110 v2$=x$'second number
1120 GOSUB 3100:PRINT ex$
1130 wr$(0)=v1$:wr$(1)=v2$'set up for division
1140 PRINT"Quotient":PRINT"by inbuilt routines :"a/b
1150 GOSUB 3710'divide
1160 GOSUB 3100:PRINT"by BCD : "ds$:PRINT"exp : "ex$'displ
ay result in x$
1170 GOTO 1020
1180 '
1190 IF ERR=6 OR ERR=11 THEN PRINT"Binary overflow":a=0:b=
1:RESUME NEXT
1200 PRINT"Error"ERR"in line"ERL:STOP
1210 '
1220 ON ERROR GOTO 0
1230 PRINT:PRINT"Inverse of factorials by division"
1240 x$="0":GOSUB 3020:nil$=x$'used as a stopper
1250 g=1:x$="1":GOSUB 3020:v1$=x$:fl=LOG10(1)'start with 1
!
1260 'loop
1270 x$=STR$(g):GOSUB 3020:v2$=x$
1280 PRINT:PRINT"Inverse of factorial of"g
1290 wr$(0)=v1$:wr$(1)=v2$:GOSUB 3710'divide
1300 v1$=x$'current value
1310 PRINT"BCD :":GOSUB 3100:PRINT ds$:PRINT ex$'display
1320 PRINT"Log : ";:fl=fl-LOG10(g)
1330 c0=INT(fl):d0=fl-c0:d0=d0*LOG(10):d0=EXP(d0)
1340 PRINT d0"E"STR$(c0)
1350 IF x$=nil$ THEN 1370'stop when zero
1360 g=g+1:GOTO 1260
1370 '
1380 PRINT:PRINT"BCD underflows to zero"
1390 '
3000 STOP' 3000
3700 '
```

```
3710 'Divide : entry:numbers in wr$(), exit:quotient in x$
3720 IF wr$(0)=""OR wr$(1)=""THEN x$="":GOTO 3790
3730 MID$(buf1$,1)=zero$:MID$(buf2$,1)=zero$
3740 MID$(buf2$,1)=wr$(0)'dividend
3750 MID$(buf1$,bof1%)=wr$(1)'divisor
3760 CALL@quo%(0)'divide
3770 x$=MID$(buf1$,1,sb%)
3780 IF ASC(x$)=0 THEN PRINT"BCD overflow in divide":x$=""
3790 RETURN
3800 '
7430 'needed only if module 2 not installed
7980 '
7990 PRINT"quo : BCD division"
8000 DATA fd,21,AA,AA,af,4f,f5,21,BB,BB,c5,11,DD,DD,fd,4e
8010 DATA 00,0c,06,00,09,eb,09,c1,e5,d5,d1,e1,e5,d5,fd,46
8020 DATA 00,04,c5,af,1a,9e,27,12,2b,1b,10,f8,c1,30,0d,d1
8030 DATA e1,af,1a,8e,27,12,2b,1b,10,f8,18,09,79,fe,99,30
8040 DATA 36,3c,4f,18,d5,f1,47,5f,cb,3b,38,09,79,07,07,07
8050 DATA 07,4f,18,0b,00,21,CC,CC,16,00,19,23,71,0e,00,7b
8060 DATA fd,be,00,30,1c,78,3c,f5,af,21,DD,DD,fd,46,00,04
8070 DATA 23,ed,67,10,fb,18,90,f1,f1,f1,af,32,CC,CC,18,79
8080 DATA 00,11,DD,DD,1a,21,BB,BB,e6,7f,4f,7e,e6,7f,91,c6
8090 DATA 41,fe,02,38,27,fe,c0,30,23,fe,80,30,dd,32,CC,CC
8100 DATA 1a,ae,2f,e6,80,21,CC,CC,b6,77,00,21,CC,CC,23,7e
8110 DATA e6,f0,20,27,2b,7e,e6,7f,fe,03,30,0f,af,21,CC,CC
8120 DATA 36,c0,fd,46,00,23,77,10,fc,18,2e,35,fd,46,00,06
8130 DATA 00,09,41,af,ed,6f,2b,10,fb,18,d0,21,CC,CC,7e,e6
8140 DATA 7f,fe,7f,30,95,fd,4e,00,06,00,09,41,05,7e,c6,55
8150 DATA 27,2b,7e,ce,00,27,77,10,f8,c9
8160 b=124:DIM quo%(b):RESTORE 7990:c=0
8170 FOR a=0 TO b:READ x$,y$':PRINT a,x$" "y$
8180 quo%(a)=VAL("&"+y$+x$):c=c+quo%(a)
8190 NEXT a:IF c<>474893 THEN PRINT"Data error":STOP
8200 bof1%=100:bf3%=bf1%+bof1%-1
8210 'bf1=result (C), bf2=dividend (B), bf3=divisor (D)
8220 quo%(1)=@sb%:quo%(4)=bf2%:quo%(67)=bf2%
8230 quo%(6)=bf3%:quo%(53)=bf3%:quo%(65)=bf3%
8240 quo%(43)=bf1%:quo%(62)=bf1%:quo%(79)=bf1%:quo%(83)=bf
1%
8250 quo%(86)=bf1%:quo%(95)=bf1%:quo%(110)=bf1%
8260 '
8270 RETURN
```

Next Month Petr will present some applications using the four modules already published.

P-s-s-st!

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Turn to Page 51

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NEVER MAKE MITSAKES

If you've ever tried to run a Basic program typed in from a magazine, you ought to be reading these pages.

As you will no doubt know there are never any mitsakes in the program listings in The Amstrad User. Well nearly never. And as also you know we always make things so clear it is almost impossible to get things wrong.

And yet strangely enough virtually everyone finds themselves staring at a blank screen or an unhelpful error message the first time they try to run a Basic program. Here are one or two tips that might just save you several hours of heartache and hair-tearing as you try to find your Basic mistake, whether it is a program written yourself or one you've copied from a magazine.

The best way to ensure that a listing will work is to type it in correct. This is not quite as simple as it seems especially with one that seems to go for several thousand lines, but it is worthwhile trying to be as accurate as possible while you are typing it in.

The first tip is to type everything in lower case (small letters). Basic automatically converts all command keywords (PRINT,IF,NEXT etc) into capitals, so that means the 'print' will be changed to 'PRINT' when you LIST the program to the screen, but if you have made a mistake (like 'pirnt' for instance) it won't change. One warning though: any text in quote marks ("" or `) should be typed in as it is printed, ie. upper case if necessary, or the program may go wrong.

When the listing is completed always save it by typing SAVE and an imaginative file name in inverted commas. If you don't save, the listing will be lost when you reset the machine or in the PCW's case going back to CP/M.

Remember that if you make any changes to the listing (correcting a mistake for instance) this also has to be saved using the same filename or the old mistake will stay on the disc. Getting into the habit of saving corrections can save you hours of frustration.

FIND THE ERROR

The first time you run the program the chances are it will break down. Sometimes it won't even start and it's a "back-to-the-drawing board" plod through the listing looking for mistakes. If it does go wrong the chances are you will get a helpful error message, which sometimes even gives you a clue as to what is wrong.

The most common to begin with is 'Syntax error in line ...'. This is quite a useful error message since this means that Basic has noticed a typing mistake in that line which it just

FOLLOW THAT VARIABLE

One of the most difficult mistakes to find is a problem with variables. These are words or letters often ending with a $ or a % that can take on different values while the program is running - if you type them into Basic in lower case letters they will stay in lower case when LISTed out, as opposed to the main keywords which will be capitalised.

If you are writing the program yourself, especially a short program where space is not important use names for the variables that are self-evident - amount, name$, total% etc.

If you are typing a listing try to work out what is supposed to be in each variable. Variables that are set up might be set in a statement like line%=1 or through an INPUT statement - INPUT "What is your name";name$.

You can check what the current value of the variable is at any moment by stopping the program and just typing at the 'Ok' prompt ?number% or ?name$ or whatever the appropriate variable is ('?' is just an abbreviation for the PRINT command).

Alternatively you can temporarily add extra lines into your program to print out a few variables at strategic points.

Up will pop the value that it holds at that time. If it gives a value of 0 or just a blank line at a time when you think it should have some value you must have mistyped the name somewhere. Read through the program checking every time that variable is mentioned. Often the mistake is many lines away.

If you have a text editor program like NewWord or Protext you can use it to create and edit Basic programs. This means that you can use the 'Find' command to look for occurrences of a variable name, do bulk renamings etc. Make sure whenever you save your program from Basic that you add a ,A after the name (eg SAVE "FRED",A). This saves the program in ASCII form so that your text editor will be able to read it.

ERRORS YOU HAVE LOVED

Here are examples of some of the most common error messages that Basic can give you, and hints on what to do to rectify matters.

```
Syntax error in 10
Ok
10 PRINT CHR$(27)+"E"+CHR$27)+"H"
```

Syntax Error - there is a typing error in this line that Basic will just not accept. You go straight into edit mode because Basic presumes you will be changing it. In this case there should be an opening bracket in the second CHR$(27).

```
Type mismatch in 30
Ok
edit 30
30 IF word$)3 GOTO 4000
```

Type mismatch - you are trying to use a numeric value where a string value is required or vice versa. Check for $ and % being mixed up in the variable name, and for quotation marks being missed out around strings. Here word$, which is a string, has been used where Basic expects a number. It probably ought to be word% - a numeric variable.

```
Ok
run
Subscript out of range in 40
Ok
list - 40
10 DIM lin$(1000)
20 OPEN "I",1,"unsort":OPEN "O",2,"sort"
30 WHILE NOT EOF(1)
40 maxline=maxline+1:LINE INPUT #1,line$(maxline)
Ok
```

Subscript out of range - this is often caused by a mistake in a DIM statement which sets the size of an array, so check for a mistake there first. Can also be caused by a mistake in a FOR loop which goes round more times than you DIMmed an array it uses. In this example the variable was wrongly defined in line 10 (lin$ instead of line$) but it didn't show up till line 60.

```
Ok
run
NEXT missing in 10
Ok
list
10 FOR i=1 TO 20:PRINT"Hang on a minute"
20 FOR j=1 TO 5000
30 NEXT
Ok
```

Unexpected NEXT,WEND OR RETURN - Basic can't understand why you have the command mentioned in that line. These tie up with the commands FOR, WHILE and GOSUB respectively so it means that these are missing or something has gone wrong with them. Check the lines with the FOR, WHILE and GOSUB statements in them too.

NEXT or WEND missing - Basic has found a FOR or a WHILE and can't tie it up with the suitable NEXT or WEND to end the loop. Make sure you've got as many FORs as NEXTs, as many WHILEs as WENDs.

cannot get over. Check this line carefully. What appear like little details, for instance the difference between a colon (:) and a semi-colon (;) are pretty important to Basic and even a comma missing can really upset it.

If you get a syntax error Basic automatically puts you into 'edit mode', allowing you to move about the line using the cursor left and right keys, deleting and making your changes. When you finish press [RETURN] and re-run the program.

If you get a different error message you will have to do a bit more work to track the mistake down. If your typing error is not serious enough to make the program stop as soon as it comes across it, then Basic will struggle on until finally some gross inconsistency arises that makes it fall over. It won't report any error until it finally stops, so the line number quoted as 'wrong' may not be where the real error is.

Most of the common messages and their causes are given on the example listing shown in the box. If it's a short program just type LIST and the listing will appear on the screen. If it's a long program just pick about 25 lines (about a screenful) round about the spot where the trouble is (for example, you can list out line numbers 200 to 450 by LIST 200-450) and look there first. If you find the problem in line 260 type EDIT 260 and you can edit it.

When copying out listings, make sure you don't mistake lower case 'l's for '1's, or capital 'O's for zeros. A mistake of this kind won't usually cause a Syntax Error, but will make your program go wrong in quite unpredictable ways.

DEBUGGING YOU OWN PROGRAMS

There are about another 100 error messages that you can be hit with which sometimes make sense, so they are always worth reading carefully. If you have made a mistake you can't find immediately it is invaluable to print out your listing on paper using the command

LIST#8 or if using a PCW LLIST. In a long program with a lot of GOTOs and GOSUBs it is easier to follow on the path of the program on paper rather than finding the right bit to display on screen.

Quite often your program is running but it just won't do what it's supposed to do. Remember that at any time you can press the [BREAK] key, or for PCW owners the [STOP] key - it will say "Break in..." and the line number if you feel that things are going wrong.

Have a look at the listing round about that point using the LIST command. You can continue the program from where you broke into it (type CONT) as long as you haven't actually edited any lines.

Your program may refuse to go to a GOSUB or GOTO or it may follow a path that you hadn't expected - all shown up by the line numbers on screen. A simple mistyping in the line number of a GOSUB command could make it "crash through" (technical term there) and miss the GOSUB completely or a simple wrong line number in a GOTO could cause untold confusion.

If it doesn't work as you want, it is worthwhile whistling up the services of TRON - your friendly Trace On utility. All you do is type TRON before you run the program and this wonderful little facility lists on the screen the numbers of all the lines as you use them. You can stop TRON by typing TROFF.

You can also use TRON within a program - if you've narrowed your problems down to a particular area, put a line with the TRON command before and another line with TROFF afterwards, and you won't get deluged with rubbish from parts of the program you aren't interested in.

STOP THAT AT ONCE

If you are worried that the instructions in a particular line seem to be being ignored another trick is to edit the line (EDIT 2000 or whatever) to insert :STOP at the end. The next time you run the program there should be an error message "Break in 2000". If there isn't, start being suspicious. And if it does stop it is a good chance to check the variables (see 'Follow that variable').

Don't forget that you can add in extra lines to print out diagnostic messages like "now at line 140" wherever you like. This is the whole point of the Basic line numbers - to put a line in between line 100 and 110 just call it 105 and it will be put in at the right place. To delete it after you've found the problem, just type 105 and press [RETURN].

We can't promise that following these simple rules will ensure that you will get every listing to work (obviously we can't cover logic errors more than we have) but even trying to get it to work will greatly increase your knowledge of Basic and it can be very satisfying when you get it finally to work.

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SATYR SATIRE

Feminist supporter Tony Flanagan enthuses over Ingrid Bottomlow and a Planetfall Sequel.

GNOME RANGER — Level 9

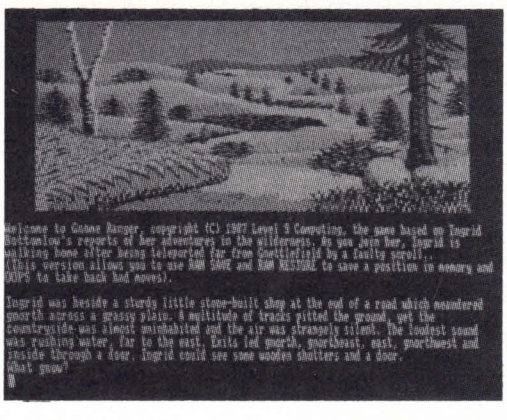
I'm one of those rare superbeings of the male gender that actually appreciates women for their minds and not their bodies...honest. How refreshing then to come across an adventure in which the heroine is - without putting too fine a point on it - marvelously grotesque, even for a gnome. Not only is Ingrid Bottomlow abgnomally short but her muscles make Frank Bruno's look like pickled onions. Now there's a real woman for you, eh?

As for her character, it's hardly the submissive, servile, obsequious 'yes sir, no sir' type that attracts the average male chauvinist. The fact that her parents hate the sight of her tells us much. Indeed, they hate her to such an extent that they have banished her from house and home.

They haven't just kicked her out, no, they've packed her off to witch country, certain that she won't be able to make it back. Such certainty stems from the fact that the wicked witch's cottage lies between beloved Ingrid and home sweet home. The object of the game is to drive Ingrid's parents to suicide by guiding her back.

The witch is clearly not someone to be trifled with. One of her main virtues is her ability to turn people to stone by the wave of a wand, something most politicians manage just by opening their mouths. There are, of course, other dangers, notably an eagle with a brood that is rather partial to muscle-bound gnomes.

The world Ingrid is banished to reveals typical fairy tale landscapes - stream, fountain, marsh and mountain, to mention just a few. These are rather badly described even when you switch from brief to verbose mode. The pictures - which purists might well prefer to turn off - do aid the text in sustaining atmosphere. An initially cute feature, but one which quickly becomes irritating, is the repeated insertion of 'g' before every word beginning in 'n'. If this isn't gnerdish then I don't know what is!



GUIDED CENTAURS

Ingrid also confronts a range of wierd and not so wonderful beings, including a woodland nymph, a centaur named Cap and a llama. With varying success, such characters can be put to work by carrying out a variety of tasks, saving Ingrid both time and effort. A pack of dogs, for example, might help you track down the unicorn. After all, gnomes are renowned for their weak sense of smell.

As Ingrid explores the countryside, there are a number of objects which she can exchange at the Centaur's shop for goods that she might find more useful. Indeed, Cap's shop is stocked with a whole range of goodies, including a bunch of keys, a black rod and a lamp. 'Cap', by the way, is obviously short for 'capitalist' for the Centaur demands two items for every one you give him.

The game contains several time-saving commands, such as GOTO (taking you to your destination automatically but describing the route) and RUN TO (taking you to your destination but omitting the description). Unlike most adventures, map-making is not essential. Indeed most scenes have the full range of geographical exits which it would be very tedious to map out.

There is something quaint about Gnome Ranger, which, despite its imperfections, makes the game attractive. More importantly its puzzles dangle plenty of carrots, most of which, frustratingly, turn out to be inedible. This is a very addictive adventure which might just send you gnutty!

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STATIONFALL — Infocom / Activision

"And God said 'Let there be forms!' and out of the formless void a zillion trillion forms began to manifest themselves, spiralling into the homes of every citizen so that no man was left without, not even unto the day of his death."

This hitherto unknown extract from the Old Testament reveals that forms were part of God's original plan for the universe. The Almighty's reasoning is a little obscure but it's my suspicion that forms were sent here to make us better human beings - to teach us honesty, humility and patience...or if not that then to give us soaring blood pressure.

But what has all this got to do with Stationfall, Infocom's sequel to Planetfall, where with Floyd, your robotic simpleton, you rescued the planet Resida from ultimate destruction?

Well, forms are the light motif of this unusual adventure.

At the start of the game you are all set to embark on a seemingly routine exercise, to collect a supply of 24 pallets of 'Request for Stellar Patrol Issue Regulation Black Form Binders Request Form Forms', forms that the Social Security would certainly be prouc' of.

Before you can get anywhere you must find the robot room and choose your robot by inserting one of the three forms in your possession into the appropriate slot. With a choice of three robots, including your old friend and simpleton, Floyd, your decision could be crucial. Helen, for example, has an unusual but admirably sane habit of eating any form she can get hold of. Unfortunately, you need a form to activate your spacetruck so she is a rather impractical choice.

THE FORMLESS VOID

Your destination is Space Station Gamma Delta Gamma 777-G 59/59 Sector Alpha-Mu-79 which, I'm told in confidence, is just east of the Dandenongs. To get there you must key in the correct navigational data, a chart for which is on the Assignment Completion Form that comes with the package. What number you key in should correspond to the time shown top right hand of screen. Key in the wrong number and you'll be left floating in space without help.

Once you get to the station you find that the Station Commander, his six officers and his thirty-six crew members have all mysteriously disappeared. Even with your rather limited intelligence you can sense that something is wrong. You eventually realise that this routine mission is going to be far more exciting, and of course more dangerous, than you ever thought possible.

The captain's log only confirms your suspicions. It details an increasing number of mechanical failures and other such mysteries, coinciding with the arrival of an alien craft containing a strange pyramid (presumably not full size).

There are eight levels of the space station to explore and three submodules: a 'seedy village' , the science department and the military department. These areas cannot be entered without the appropriate validation form, a crumpled copy of which is hidden in the space station.

The space station is like a mini metropolis with its own chapel, laundry, gym, theatre, library and dormitories. To help you find your way around, those nice Infocom people have mapped out all eight levels for you and these are included in the package. Consequently, not only is your exploration made that much easier but you don't have to keep stopping to draw your own map.

To add a little tension to the game there are a number of mechanical welders patrolling the space station corridors. It seems that since the alien ship arrived they have been unable to tell the difference between flesh and metal. There are carnivorous grues too, who lurk in the dark areas of ships because of their aversion to light, and there's also a rather ravenous steam presser to watch out for.

Still, for company there's your old friend, Floyd and another rather philosophical robot called Plato, whose metallic nose is almost always in a book. Floyd is rather pathetic as usual. While you're trying to solve the greatest mystery in the history of the universe, he's more intent on playing hide and seek.

The usual Infocom goodies append, detailed maps of the various levels, three rather formidable looking forms and A Lieutenant First Class Badge which you can wear on your cap or, if you haven't a cap, then on your forehead.

Stationfall is an excellent sci-fi adventure which seems to merge the best of 2001 with the best of Star Trek. From now on, forms will never fill you with the same terror...or perhaps they will.

TWO TRUE

Our dynamic type-in duo this month will create an index for your LocoScript document and demonstrate the ways of Artificial Intelligence.

BOOK INDEXER

When you eventually do manage to complete your 500,000 word in-depth study on "Locomotives and Rolling Stock on the Great Mull of Kintyre Railway 1901-1923" and are sending it round publishers, what will impress them more than a full and thorough index with every reference and entry noted with the correct page number?

While creating an index is usually a long and painstaking exercise it is also the very thing that the PCW is just made for. Here is a program which takes most, if not all the pain out of creating an index.

The idea is that when you're polishing up your final draft of your thesis in LocoScript you go through the text surrounding any word or phrase that you want to appear in the index with curly brackets {and}. For example if you write the phrase "The most imposing edifice of the many fine examples of Victorian railway architecture was {Bellochantuy Station}" the program will extract the words *Bellochantuy Station* for the index along with the correct page number.

RUNNING THE INDEXER

The first step from LocoSccript file to index is to convert your masterpiece into an 'ASCII file' which Basic can read. Do this with [f1] in LocoScript 2 or [f7] in LocoScript 1 and use the 'Page Image' option. Make sure that the resulting ASCII file is in Group 0 of your LocoScript disc - the left most group.

Restart the PCW ([SHIFT]+[EXTRA]+[EXIT]) to load CP/M and then load Basic. Type in and save the program (as described in the 'How to type in a listing' box). Run the program, and when it asks for the 'Text File Name' put your LocoScript disc in the drive and type in the name that you gave the ASCII file (don't include any spaces in the name even though Loco's disc manager directory may imply there should be).

You are now asked for the page you are starting at. If your document is all in a single file then you should reply 1. If you really have a 500,000 word thesis you will presumably be storing it in several different files which you will have to index separately. If you know that your second chapter file constitutes pages 13 to 20 of your book, then when indexing that file type 13 as the first page number.

The program then opens the file and runs through each line looking for {s and }s. Anything between the brackets is written to a special temporary file. Once this is complete (and it can take a while with a big file) the indexer then starts to sort out the index in order.

You will be asked to think of the name of a file to hold the final index in.

GETTING AT YOUR INDEX

When the indexing process is finished, you will have a new file in Group 0 of your LocoScript disc with the name you chose for the index. To view this all you need to do, while still within BASIC, is to enter TYPE *filename* (where *filename* is the name you have chosen) and it will be listed out on screen.

To use this in LocoScript just 'Create' a new file and then use the 'Insert text' command to load it into LocoScript. There may be a bit of sorting out to do to get it neat and tidy but this should not take long.

The last thing to do of course is remove the curly brackets from your original LocoScript file. This is relatively simple using [EXCH] to replacing curly brackets with nothing. However hold off doing this until you are certain you have completed your final draft. If, for instance, you want to add another 20 pages in the middle of your book then if the index markers are in the file still all you need to do is run the program again to get a fully corrected version.

If your book is in chapters indexed separately, so you end with half a dozen mini-indexes which you wish to merge, there is no problem. Merge all the index files together (either using CP/M's PIP, or in LocoScript by repeatedly using 'Insert text' and making a simple text ASCII file of the result). In CP/M copy your combined index file onto the M drive and call it TEMP - then load the index program and type RUN 340. This runs only the sorting part of the program - from line 340 - and sorts your rough combined index into a new sorted one.

```
What is an Index?
An index is the bit you put at the end of your book
if you really had important things to say and that
making it up as you went along. It is the place whe
interesting words like {Aardvark} and {Zeebidee} (j
which isn't very interesting but with an extra 'e'
interesting).
        It also allows gerbil lovers to ignore the
books about Llamas and Hamsters and only read the e
{gerbils}. For as everyone knows 'gerbils' is a won
by definition instrinisically funny.
        Llamas are all right and hamsters are only
boring but every time I hear the word Gerbil, jerbi
desert rodent of the subfamily Gerbilinae. A creatu
intrinisically funny. A useful word to use in compu
have to laugh.
        In fact many's the long winter evening I've
repeating intrinsically funny words like "gerbil",
"database" until the tears rolled down my cheeks.
```

DR. LOGO

THE GUIDE AT YOUR SIDE

GRAPHICS SCREEN/TURTLE

fd 50	move turtle forward by specified amount
bk 50	move turtle backward by specified amount
ht	hide turtle
st	show turtle
lt 90	rotate turtle left by angle specified (degrees)
rt 90	rotate turtle right by angle specified (degrees)
seth 135	set turtle's heading to the specified bearing
towards[50 50]	returns bearing of given dot. Use seth towards [xy] to point turtle at dot [xy]
pu	lift pen up (turtle movement doesn't draw anything)
pd	pen down
pe	pen erase (turtle erases previously drawn lines it crosses)
px	makes turtle erase where there is a line, draw where there isn't
setpc 1	set pen colour - 1 means green, 0 black
home	move turtle to centre screen ([0 0]) & bearing 0
setpos [50 50]	move turtle to specified co-ordinate
setx 50	changes turtle's x-axis position to that specified
sety 50	changes turtle's y-axis position
tf	turtle facts - prints out turtle's position etc.
fs	full screen - screen devoted to graphics, no text window
clean	clears the graphics, leave turtle where it is
cs	clear screen, return turtle to [0 0] bearing 0
dot [50 50]	draw a dot at the given co-ordinate (doesn't move turtle)
fence	confines turtle to screen limits
window	allows turtle outside screen limits
wrap	turtle going off screen reappears on

OUTPUT AND INPUT

pr :fred...	prints out the item(s) then a carriage return
type :fred...	prints out the item(s) without a carriage return
show :fred...	prints out the item then a carriage return. Lists are printed with their brackets
po "fred	prints out the value of the named variable as "fred is..."
pons	prints out all global variables in po style
pops	prints out all procedure definitions
pots	prints out titles of all procedures
poall	prints out all variables and procedure definitions
copyon	echo all screen text to the printer
copyoff	stop text echoing to printer
rc	returns next character typed
rq	returns next word(s) typed until [RETURN] pressed
rl	as rq, but returns words read as a list
noformat :fred	uncertain use (!) - seems the same as pr

WORDS AND LISTS

ascii "a	returns the ASCII value of first letter of word/list
bf[1 2 3]	returns all but first item of list/letter of word

HOW TO USE THIS CHART

Here is a list of all the various commands (or 'primitives') that Dr. Logo on the Amstrad PCW recognises. There is not room to explain in full what each does, but there is enough information to jog your memory as you are programming.

Each entry has the keyword in bold. If the command expects extra information, some example inputs (not in bold) are listed with it.

Where a primitive is described as 'returning' a result, that result must be used in some way - eg. the result of rc could be assigned to a variable such as in make "fred rc - or an error will occur.

In general, wherever a number is given literally you could use a variable instead. For example, if you had a variable fred set to a value of 50 then fd 50 and fd :fred are identical in effect. The exception to this is inside list brackets, [], where everything is treated literally.

end	ends procedure definition
local "fred...	restricts named variables to current procedure & sub-procedures - use in recursive procedures
make "fred 1	set the named variable to the value given
thing "fred	returns the value of the named variable
pause	wait until the user types co
co	resume program after a pause command
label "fred	sets up a label for go statements to jump to
go "fred	go to the instruction following the named label
if *test[c1][c2]*	if the condition *test* is TRUE then do command list *c1*, otherwise do command list *c2*.

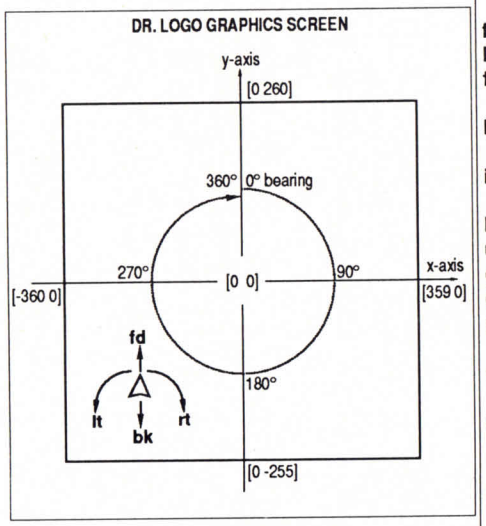
	a property 'age' defined
remprop "fred "age	removes the property 'age' from fred's property list
pps	prints out all property list pairs

HOUSEKEEPING

ed "procedure	calls up the Logo editor on the named procedure
edall	edits all known procedures/variables
edf "filename	edits the named file and then loads it into Logo
er "procedure	erase the named procedure definition
erall	erase everything from working memory
ern "fred	erase the name procedure
nodes	gives a measure of free space left
recycle	cleans up the internal workspace

wrap turtle going off screen reappears on opposite side

setscrunch 0.5 sets screen aspect ratio to from 0.1 to 10 (set it to 0.5 to get true circles on screen dumps)



TEXT SCREEN

setsplit 10 make the lower 10 (or whatever) lines of the screen text, the rest graphics

ct clear text screen

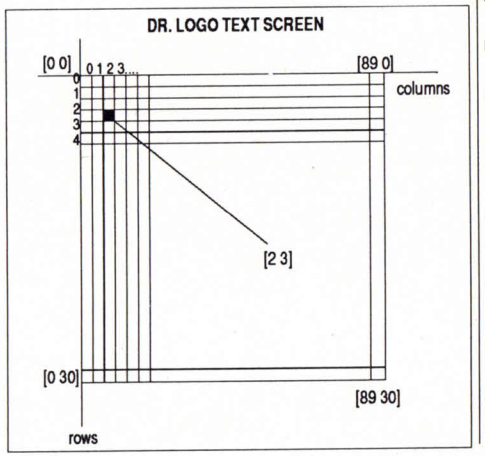
cursor display current cursor position

setcursor [5 8] move cursor to specified column and row

ss select standard screen split

ts devote whole screen to text only

sf screen facts - print out cursor position etc.



bl[1 2 3] returns all but last item of list/letter of word

char 27 returns character whose ASCII value is given

count[1 2 3] returns the number of items in list/letter in word

first[1 2 3] returns first item of list/letter of word

last[1 2 3] returns last item of list/letter of word

fput 1[2 3] joins first item to beginning of word/list and returns result

lput 3 [1 2] joins first item to end of word/list and returns result

item 2[1 2 3] returns requested numbered item of list/letter of word (eg. 2nd item of list)

lc "FRED returns lower case version of word

uc "fred returns upper case version of word

(list 1 2 3) returns a list of the following inputs

(se 1 2 3) as list (Logo calls lists 'sentences' too)

piece 2 4 [a b c d e] returns (in this case) items 2 to 4 of the list or word

shuffle [1 2 3] returns a randomly shuffled version of list

word ("a "n "d) joins together all the inputs and returns them as a word **where** returns location of item in list (use after memberp, eg. memberp "x [a x b] then where gives 2)

ARITHMETIC

arctan 0.707 returns inverse tangent (in degrees) of value

cos 60 returns cosine of angle in degrees

sin 30 returns sine of angle in degrees

int 1.7 returns integer part of number

round 1.7 returns number rounded to nearest integer

quotient 9 2 returns results of integer division (eg. 4 in this case)

remainder 9 2 returns remainder from integer division (eg. 1 in this case)

random 100 returns random integer from 0 to number

rerandom resets random number generator sequence

1 + 2 returns result of addition

2 - 1 returns result of subtraction

2 * 2 returns result of multiplication

9 / 2 returns result of floating point division

PROCEDURES AND VARIABLES

to fred :var... starts definition of named procedure. List of its input variable follows.

op 10 exit the current procedure making the specified value the procedure's output

repeat *n* [*cmnds*] repeat the command list in the brackets *n* times

run[*cmnds*] run the commands in the brackets

stop return to the previous procedure (or stop program if at top level)

throw "fred passes control to correspondingly labelled catch. Use throw TOP LEVEL to jump back to command mode.

catch "fred receives control from corresponding throw

CONDITIONAL TESTS

(use with the if command to determine a course of action)

dotc [50 50] returns TRUE if there is a dot at the specified graphics screen co-ordinate

emptyp[ ] returns TRUE if the input is an empty list

equalp :fred 1 returns TRUE if the two inputs are equivalent

memberp 1[1 2 3] returns TRUE if the first item is a member of the list

listp "fred returns TRUE if the input is a valid list

numberp 1 returns TRUE if the input is a valid number

wordp "fred returns TRUE if the input is a valid word

namep "fred returns TRUE if the input is the name of a valid variable

keyp returns TRUE if a key is currently being pressed

:x=50 returns TRUE if the two inputs are equal

:x>50 returns TRUE if the first input is greater than the second

:x<50 returns TRUE if the first input is less than the second

and((:x=50)(:y=50)) returns TRUE if both input conditions are TRUE

or((:x=50)(:y=50)) returns TRUE if either of the input conditions are TRUE

not (:x=50) returns TRUE if the input condition is FALSE

PROPERTY LISTS

pprop "fred"age 45 'put property' - sets up 'fred' to have a property 'age' with value '45'

plist "fred returns the current property list of 'fred'

gprop "fred "age 'get property' - returns the value of the named property (eg. 'fred's age' here)

glist "age returns a list of all people/objects with

changef "new "old change file name on disc from 'old' to 'new'

defaultd display current logged disc drive

dir "a: list all Logo program files on specified drive

dirpic "b: list all Logo picture files on specified drive

erasefile "filename erase the named Logo program file

erasepic "filename erase the named Logo picture file

load "filename add the procedures in the named file to the workspace

save "filename save the currently defined procedure to the named file

loadpic "filename load the names picture file

savepic "filename save the current screen as a picture file

setd "m: sets the default disc drive as specified

error prints out list of recent errors

bye exit back to CP/M

DEBUGGING

trace display procedure calls as they are executed

notrace turn trace off

watch as trace, pauses at each procedure call

nowatch turn watch off

ADVANCED MISCELLANY

.contents display all names Logo knows about

define "procedure [[argument_list][instruction_list]] equivalent to to...end. Allows procedures to define other procedures.

text "procedure prints out procedure definitions as expected by define

.deposit 65300 255 equivalent of BASIC's POKE

.examine 65300 equivalent of BASIC's PEEK

.out 245 1 equivalent of BASIC's OUT

.in 245 equivalent of BASIC's INP

UN-IMPLEMENTED

The following names appear in the list of known Logo commands listed out by .contents, but do not do anything!: **paddle, pal, wait, tones, buttonp, setpal.**

IDEA AND MATERIAL BY JOHN CONNELL

Aardvark	Page 45
Bellochantuy Station	Page 47
Bluffers Guide to Gerbil Breeding	Page 47
Gematria	Page 46
gerbils	Page 45
Industrial strength compost	Page 46
Llama kidneys	Page 46
Sine Ardua and Astra	Page 47
South Pacific	Page 47
The Meaning of Life	Page 46
Zeebidee	Page 45

DON'T LIKE THE WAY IT WORKS?

It may be that you use curly brackets a lot in your text and they are inconvenient as an indexing marker - you can choose your own markers by altering lines 260 and 280. Replace the close-curly in 260 by the character you want to end an index entry, and the open-curly in 280 by the character chosen to start an entry.

The program knows what page number it is on by keeping a note in the variable page%. LocoScript puts a special symbol in at the end of each page (ASCII character 12) and every time it meets this character it just bumps up the page count by one.

This makes it more difficult if you are using another word processor but you can get round it by yourself putting a special character at the end of each page - obviously something you would never use in your normal text (say for instance @) and then change line 290 to read, in this case,

IF let$="@" THEN page%=page%+1

POSSIBLE PROBLEMS

If you try to write the index file back to your LocoScript disc directly you may get a 'disc full' error message. This is because LocoScript has filled the disc with Limbo files, which presumably you don't want any more. Go back into LocoScript and erase all your Limbo files (use the Options menu to do 'Show Limbo files' then erase them normally). Now there will be enough room for BASIC to put the index file on the disc, so run the indexer again.

```
100 ' Book Indexer
110 ' The Amstrad User, September 1988.
120 '
130 cl$=CHR$(27)+"E"+CHR$(27)+"H"
140 index=0:word=0
150 PRINT cl$
160 INPUT "Text File Name"; text$
170 IF FIND$(text$)="" THEN PRINT "File
 not found": GOTO 160
180 INPUT "What page are you starting a
t";page%
190 PRINT cl$:PRINT "Checking file"
200 OPEN "I",1, text$
210 OPEN "O",2, "m:temp"
220 WHILE NOT EOF (1):LINE INPUT #1, li
ne$
230 len%=LEN(line$)
240 FOR x=1 TO len%
250 let$=MID$(line$,x,1)
260 IF let$="}" THEN index=0:PRINT #2 T
AB(80) "Page" page%:word%=word%+1
270 IF index=1 THEN PRINT #2 let$;
280 IF let$="{" THEN index=1
290 IF let$=CHR$(12) THEN page%=page%+1
300 NEXT
310 WEND
320 CLOSE 1:CLOSE 2:PRINT cl$
330 PRINT "Number of words in index is
" word%
340 INPUT "Name of sorted index";index$
350 PRINT "sorting......."
360 DIM line$(1000)
370 OPEN "I",1,"m:temp":OPEN "O",2,inde
x$
380 WHILE NOT EOF(1)
390 maxline=maxline+1:LINE INPUT #1,lin
e$(maxline)
400 WEND
410 FOR i=2 TO maxline
420 PRINT CHR$(13);"line";1;"/";maxline
;
430 FOR j=i TO 1 STEP -1
440 IF UPPER$(line$(j))>UPPER$(line$(j-
1)) THEN 470
450 SWAP line$(j), line$(j-1)
460 NEXT j
470 NEXT i
480 FOR i=1 TO maxline
490 PRINT #2,line$(i)
500 NEXT
510 CLOSE: ERA m:temp
520 END
```

DECISION MAKER

by Kevin Stott

Here is a fine example of the subject of Artificial Intelligence - a totally infallible Decision Maker. The difference is you don't need any fancy programming languages for this one - all you need is 13 lines of Basic and a trusting nature.

It works on the basis that if you have a difficult problem with a lot of factors influencing it, you can work out the answer mathematically. What you have to do

PCW Year Disc #1 now available!

All the PCW Type-ins we've published from Issues 25 to 40 on one disc *PLUS* FREE Public Domain Software

If you are a regular reader of The Amstrad User you will know what the Type-ins are all about, but you may not be familiar with the CP/M Public Domain Software. Here's a run-down:

BANNER	**Prints huge signs and messages.**
CHESS	**A multi-level version of this challenging and classic game played against your PCW.**
CPM2	**Switches CP/M Plus to CP/M 2.2.**
CPM2DEL	**Switches back to CP/M Plus.**
CRUNCH	**Squeezes files**
D	**A disc directory program.**
NULU151	**A library unpacking utility.**
PCWUKM7	**Communications software.**
UNCR	**The opposite of CRUNCH.**

Our thanks to the PCW Australia Group for supplying most of the above PD software and please remember, when it comes to PD software, you're on your own!

THE AMSTRAD USER

PCW Year Disc Number 1

Side 1

AUTOMENU	(27)	1K	FINANCE	(37)	15K	MOVING	(30)	1K
BANKSTAT	(40)	1K	FINDEXCH	(40)	1K	PAGEDISP	(36)	1K
BASICPIP	(35)	1K	GRAPHS	(30)	3K	PHONE	(34)	12K
BASKIT	(27)	2K	GSXPREP	(25)	1K	RAFFLE	(33)	1K
BIGTIME	(36)	3K	HANDTYPE	(40)	2K	SORTER1	(39)	1K
BIOS	(29)	2K	INDEX	(32)	1K	SORTER2	(39)	1K
CONNECT4	(31)	8K	INIT	(39)	3K	SQUASH	(37)	1K
DISLABEL	(35)	1K	INVADERS	(37)	2K	STYLER	(35)	2K
DIYDBASE	(35)	3K	KEYFIND	(36)	1K	SUPER1	(25)	5K
DUCKSHOT	(36)	1K	LABELS	(28)	10K	SUPER2	(26)	14K
EASTER	(30)	1K	LCOUNT1	(33)	2K	TELETYPE	(37)	1K
ENIGMA	(32)	1K	LCOUNT2	(38)	2K	TWOCOLS	(30)	2K
ESCCODES	(38)	1K	MENUS	(29)	3K	VOCAB	(38)	1K
FILECODE	(35)	1K	MORSE	(39)	2K	*Issue Number in brackets*		

Reference to the original magazines will provide more information on using the above Basic programs

Side 2 - FREE PUBLIC DOMAIN SOFTWARE

BANNER.COM	2K	CPM2DEL.COM	1K	NULU151.COM	15K
CHESS.COM	26K	CRUNCH.COM	5K	NULU151.DOC	34K
CHESS.DOC	2K	CRUNCH23.DOC	4K	PCWUKM7.COM	10K
CPM2.COM	4K	D.COM	2K	UKM7.DOC	10K
CPM2.DOC	2K	HOW2UKM7.COM	3K	UNCR.COM	6K

Strategy Publications
Suite 1, 245 Springvale Road,
Glen Waverley, Vic 3150

$27.50
(incl. post)

The PCW Year Disc #1 is suitable for both PCW8256 and 8512.
Send your order to:
The Amstrad User, 1/245 Springvale Road, Glen Waverley, Vic 3150
or ring (03) 233 9661. ***Bankcard, Mastercard or Visa accepted.***

when you run the program is type in the number of options you have to choose from, and it then asks you to describe each option. Don't forget to press [RETURN] after each line you input.

The program asks how many factors influencing each option and you have to list them. These 'factors' are essentially statements which are assumed to be true, eg. "I like tea". Then you have to give 'weighting' to each factor between -10 and 10. If the factor is a positive advantage you give it a plus figure, if it is a disadvantage you give it a minus figure.

So suppose you are trying to work out whether to have some tea or not: the factor "I like tea" would have quite a strong positive influence on your choice, maybe +8. However, the factor "I like Perrier Water" has a negative influence, maybe -8. A rating of zero would mean, "This factor is totally unimportant".

The program works out the mathematics and then prints out its suggestion.

The biggest practical advantage of this kind of program is that it forces you to think analytically about the problem and to break it down into its component parts. For this reason it must be worth your while typing it in. Of course whether you accept the Decision Maker's advice is another matter...The Amstrad User is not responsible for anyone going bankrupt because Decision Maker made a wrong decision etc. etc..

```
100 ' Decision Maker
110 ' by Kevin Stott
120 ' The Amstrad User, September 1988.
130 '
140 DIM f$(50):c=1:cl$=CHR$(27)+"E"+CHR
$(27)+"H":PRINT cl$;"DECISION MAKER":PR
INT
150 INPUT "How many options are there t
o decide from";a:DIM o$(a),o(a)
160 PRINT:PRINT"Name them:":FOR x=1 TO
a:PRINT ,x;:INPUT o$(x):o(x)=0:NEXT x
170 FOR x=1 TO a:PRINT cl$;"How many fa
ctors influence the decision to ";o$(x)
;:INPUT b
180 PRINT:PRINT "Name them:":FOR y=1 TO
 b:PRINT ,y;:INPUT f$(y):NEXT y
190 PRINT cl$;
200 PRINT "Rate influence factors have
on the decision to ";o$(x);" from -10 t
o 10"
210 PRINT:FOR y=1 TO b
220 PRINT ,y;f$(y);
230 INPUT r:IF r<-10 OR r>10 THEN PRINT
 CHR$(27)+"A"+CHR$(27)+"A":GOTO 220
240 o(x)=o(x)+r:NEXT y:NEXT x
250 FOR x=1 TO (a-1):IF o(c)<o(x+1) THE
N c=x+1
260 NEXT x:PRINT cl$;"I suggest that yo
u ";o$(c):END
```

UPDATE INFORMATION FOR LOCOSCRIPT II USERS

We are pleased to advise that following negotiations with Locomotive Software in England, we have been given permission to provide upgrades of LocoMail or LocoSpell for LocoScript 2 users who have LocoScript 1 compatible copies.
In addition we can also provide updates to LocoScript 2. The current version being offered is 2.16. Please note that this particular update service is for existing LocoScript 2 owners only. If you have LocoScript 1 and want to upgrade to Loco 2, you will need to purchase the new software package (current price $87.00).

To obtain your upgrade or update to each piece of software you must do the following:

1. Locate your **original** disc - not a back-up.

2. Place in a padded post bag, enclosing a cheque or money order for $18.50 for each disc being returned (or quote your Bankcard, Mastercard or Visa credit card number and expiry date).

3. Include a note of your name and address to which the upgrade or update is to be sent and the item or items you are returning for upgrade or update.

4. Seal the packet, write your name and address on the reverse side and send by CERTIFIED MAIL to:

Locomotive Upgrades
The Amstrad User
1/245 Springvale Road
Glen Waverley
Vic 3150

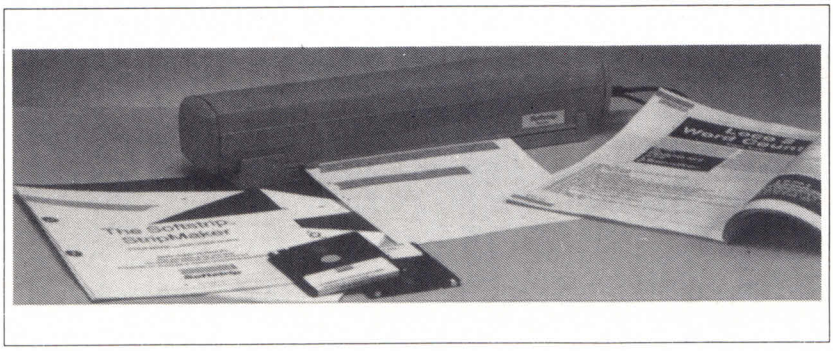
PLEASE NOTE: Returning your **original** disc provides proof of purchase. Under no circumstances will we provide upgrades or updates on copies or your own blank discs. Your original disc(s) will be returned to Locomotive Software in Surrey, England along with your name and address for registration purposes.
The cost of upgrading either LocoSpell or LocoMail is $18.50 each. The cost for updating LocoScript 2 is also $18.50.

SOFTWARE STRIPPER

You saw Softstrip on 'Beyond 2000' - now read about it here.

The idea behind Softstrip is very similar to that behind those supermarket bar codes. Despite having brains the size of planets, computers are useless at reading simple price tags, and up till recently (and still in some old-fashioned shops) the assistant had to punch in the prices manually into the till. However, now all your brown rice and pasta has the price bar-coded, in a form that the till's computer can be taught to read, making life more pleasant for everyone.

Softstrip can turn any file - a LocoScript document, a Basic listing, data from your spreadsheet - into a series of strips of bar code-like dashes. These strips can be photo-copied, folded, dropped into a mug of coffee, dried out, sent by over-land mail to Ulan Bator, and still be perfectly readable at the other end by someone who has a Softstrip reader, which briskly scans the strips and writes the information back on to a file or disc. If you have to send the same software to a lot of people and/or don't like risking discs in the post, it could be a godsend.



READING AND WRITING

There are two components to the package, a disc with the reading and printing programs, and the scanner unit itself. Making your software - say a listing from The Amstrad User - into strips is easy. With CP/M running you just insert the disc, enter SUBMIT SSM, give the drive and name of the file you want to encode, insert your disc, and the strip prints out neatly on your ordinary PCW printer. There's one strip for each 823 characters of file, and each strip takes about two minutes or so to print out. There's a blob and a bar with a number by each strip; these are lining-up marks and reference numbers for the strip above that.

If you want to read a strip you have to connect the softstrip reader up to your PCW via an RS232 interface; once done, reading a strip is reasonably easy. After typing SUBMIT SSR the screen prompts you to insert the paper in the reader and after reading the first strip asks for the filename and drive to save it to. It then prompts you as it reads second and subsequent strips until the file is read. Each strip takes around thirty seconds to read.

The reader sits flat on top of the strip sheet, which you have to manually position aligning those blobs and bars in the right place - but you don't have to worry about it being out of line and getting a load of gobbledegook read in; the reader can tell if something's out of place and will ask you to re-align the strip. There's a complex system of checking numbers built in to the dots too, so it's extremely unlikely that any reading errors would make it through to the final version saved on disc without being spotted and amended.

SOFT, STRONG AND VERY LONG

The strips themselves are pretty robust. Coffee was spilled under laboratory conditions onto a strip which was then dried out over a convector heater. The reader happily scanned the strip and wrote the file to disc error-free. Folding the paper with sharp creases didn't have any adverse effect either.

Photocopied sheets are also quite acceptable, which of course is the main advantage to any club sending listings out. The copy must be quite clean and not reduced in size. Copies done on a light setting may not be read so it's a good idea to experiment with some of the darker settings and check they read OK before running twelve thousand copies.

STRIP CLUBS?

The potential for this PCW adaption of the Softstrip system is enormous. Clubs, computer user groups, or companies with the ubiquitous PCWs could send batches of software to each other through the post and even include software in mailshots; compare the cost of a thousand photocopies to a thousand discs. In theory, forward looking magazines will print their program listings pages in strip form.

NEW EDITION LOCOSCRIPT2

Straight from the horse's mouth, so to speak, comes information about an improved version of Locomotive Software's Locoscript2

Existing users of LocoScript2 will have already discovered that the major new features in LocoScript2 help you to get better looking documents printed out more quickly. For the benefit of Loco1 users who are still not convinced, we present a run-down on the latest version of LocoScript2 which now includes a choice of standard font or new sans-serif characters. It is not meant to be a review, rather an extract from the latest publicity literature issued by Locomotive Software.

FASTER

LocoScript2 can move directly to a given page, to let you start editing quicker. Simply select the Find Page menu option and type the desired page number. LocoScript2 then clears the screen and displays the selected page.

LocoScript2 moves through text much faster than the original LocoScript. How much faster depends on the amount of reformatting LocoScript2 has to do to keep the document correctly laid out.

Finishing editing a document is faster. LocoScript2 no longer scrolls to the end of the document on the screen. As LocoScript2 ensures that documents are always correctly laid out, there may still be a delay on long documents which need reformatting, but this, too, is very much reduced.

Save and Continue now leaves your position in a document unchanged so you can get back to editing much more quickly.

EASIER

Menus now fit more naturally the tasks they carry out. Many lead on to other menus, and then back again, to simplify the process of changing a number of linked features.

Laying out your documents is now much easier. Firstly, it's much simpler to choose a layout and change it to your requirements. Secondly, you can create a number of named layouts and instead of remembering that you need Layout 1 or Layout 2, you can just call up a menu of simple names which actually mean something to you and to other people using your PCW. In a business quotation, you could for example have a 'Main' layout for the text and a 'Prices' layout for a table of prices.

Page layout is simpler too. The tasks of setting headers and footers, page sizes, desired printer and paper and so on have been collected together in a straightforward Document Setup menu. Rather than have to worry about page lengths, top and bottom gaps and so on, with LocoScript2 you just choose the appropriate paper type such as 'A4' or '3" Labels'.

Discs can be formatted and copied directly from LocoScript2. This gives you an alternative to DiscKit for essential disc housekeeping, so you need never use CP/M again!

Consequently the task of making backup copies and preparing new discs for use is far simpler and less error-prone under LocoScript2.

MORE POWERFUL

Find and Exchange now have more options. You can search for text regardless of case and set the case of the inserted text to match that of the replaced text. You can also include "wild cards" in the text being searched for and restrict the match to whole words. For example, you might ask LocoScript2 to find whole words that match 'dis?' when you want to replace both 'disk' and 'disc' by 'diskette' but leave 'discount' unchanged.

Multiple copies of documents can be printed automatically - just type the number required in the Print menu. And while you are printing these copies you can enquire at any time how many copies you have printed so far (and indeed how far you've got through the current copy).

There are new menus to display your blocks and phrases. Show Blocks displays a list of the blocks showing the first few characters currently stored in each. You can use this menu to clear any stored text. The Show Phrases menu scrolls to show all 26 phrases.

You can have several sets of phrases and switch between them. Point to the file in which you saved your phrases and select Load Phrases.

Text can easily be moved between documents. Blocks are remembered until you next turn off or reset your PCW. So to move some text between documents simply copy it to a block, switch to editing another document and paste the text in. Layouts are now copied with the text, so that's much easier too.

EXPANDABLE

You are no longer restricted to the PCW's matrix printer. With LocoScript2 you can choose from many different printers - fast matrix

MASTERFILE 8000

FOR ALL AMSTRAD PCW COMPUTERS

MASTERFILE 8000, the subject of so many enquiries, is now available through The Amstrad User from Campbell Systems in the UK.

MASTERFILE 8000 is a totally new database product. While drawing on the best features of the CPC versions, it has been designed specifically for the PCW range. The resulting combination of control and power is a delight to use.

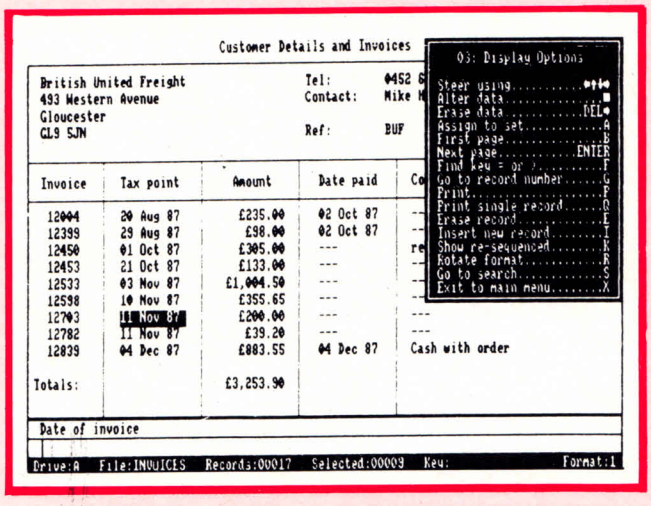
Other products offer a choice between fast but limited capacity RAM files, and large capacity but cumbersome fixed-length, direct access disc files. **MASTERFILE 8000** and the PCW RAM disc combine to offer high capacity with fast access to variable-length data. File capacity is limited only by the size of your RAM disc.

A MASTERFILE hallmark is the provision of multiple, user-designed display formats. This flexibility remains, but now it's even easier. With **MASTERFILE 8000** you design your formats "live"; no more questionnaires, just move your format effects around the screen using the cursor keys!

Record updating is even easier than before - just steer your cursor to any field on the screen and then insert/erase/alter as required.

Special options are provided for handling dates and surnames, and column totals can be generated.

All screen work is done graphically - and hence we offer unique panel, box, and ruled line options. Choose the line spacing at pixel resolution - you will be amazed how much clearer 9-pixel lines are than the usual 8-pixels. (Study the picture.) And all this faster than CP/M normally lets you paint the screen! PCW printer functions, under menu control, are provided.

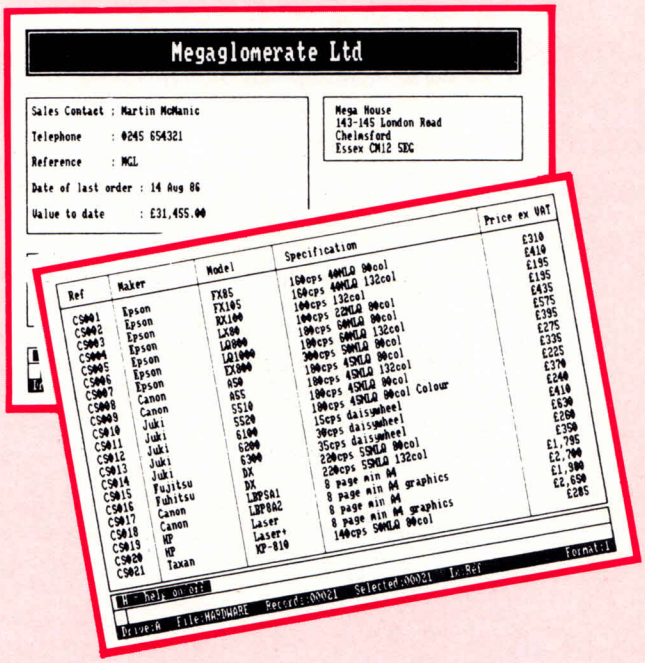


Keyed files are maintained automatically in key sequence, with never any need to sort. You can have unkeyed files too, where records can be inserted at any point in the file.

Any file can make RELATIONAL references to up to EIGHT read-only keyed files, the linkage being effected purely by the use of matching file and data names.

You can import/merge ASCII files (e.g. from MASTERFILE III), or export any data (e.g. to a word processor), and merge files. For keyed files this is a true merge, not just an append operation. By virtue of export and re-import you can make a copy of a file in another key sequence. New data fields can be added at any time.

File searches combine flexibility with speed. (**MASTERFILE 8000** usually waits for you, not the other way around.) You can even assign subsets of a file into one or more of seven pigeon-holes for subsequent reference or further manipulation.



MASTERFILE 8000 is totally menu-driven, fully machine-coded, and comes with example files and a detailed manual. We claim (modestly) that you will not find another filing system with such power, flexibility, and friendliness.

MASTERFILE 8000 costs $119.00 including postage and packing, and if you request air-mail within Australia, we'll do that at no extra charge too! (If you live outside Australia please add $4.00 for air-mail cost.)

Bankcard, Mastercard or Visa orders are welcome, written or telephoned, quoting the card expiry date.

Send your order now to:

THE AMSTRAD USER
Suite 1/245 Springvale Road,
Glen Waverley,
Victoria 3150 **Tel: (03) 233 9661**

printers, high quality daisy wheel printers or even the latest laser printers.

As a standard feature, LocoScript2 supports the basic features of most common printers, but if you add the Printer Driver Disc you can use over 250 different printers to the best of their capabilities. (We'll be covering this point next month).

You can adapt LocoScript2 to your own special requirements: add new typestyles with LocoFont; adapt your keyboard with LocoKey or the Keyboards Disc; use the full range of characters on your printer with the Printer Character Sets Disc; and of course check and correct your typing and spelling with LocoSpell. If you want to produce mailshots or make more sophisticated use of your PCW, then add LocoMail.

CHARACTERS

You can type text in a much wider range of languages. There are over 400 different characters, each of which can be used in combination with one of the fifteen accents or "/ ". The characters have been chosen to allow the use of normal Latin characters (as in this article), the monotoniko systima of modern Greek, and most European languages which use Cyrillic characters. LocoScript2 will support English, Welsh, French, Spanish, German, Polish, Czech, Icelandic... in short all European languages except Tartar, Macedonian and Cyrillic Serbo-Croat.

The shapes of the characters printed by the built-in printer have been improved. Some wide characters (such as W) have been made wider, and accents have been moved to a higher position relative to capital letters. The position of the underline in high quality printing has been lowered to give clearer underlined text.

For technical work LocoScript2 provides over one hundred special mathematical and scientific symbols.

You can also define sixteen special characters yourself and print these using the built-in printer. LocoChar, the CP/M program you use to create these characters, displays an enlarged version of the various forms of the character on the screen and lets you use the cursor keys to move around as you draw the "character".

A new feature in the latest edition of LocoScript2 is a choice of typestyle on the built-in printer - the standard serified font or a new sans-serif font. If you add LocoFont, you'll have a total of ten distinctive typefaces to use.

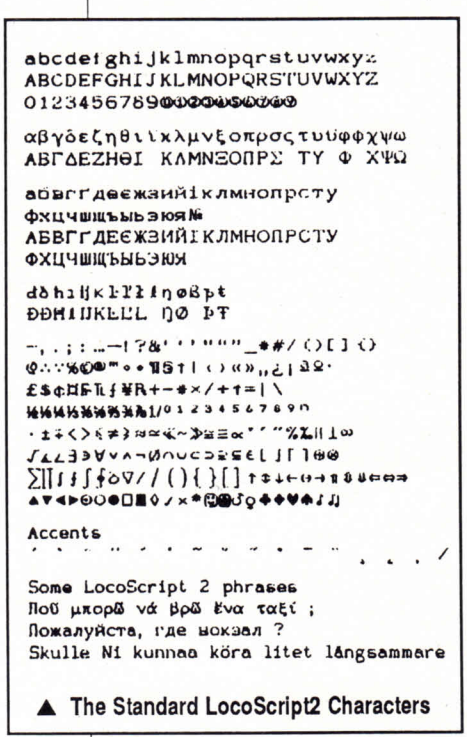
MULTI-LINGUAL

LocoScript2 can come with messages and commands in a range of languages other than English, although the User Guide is still in English. LocoScript2 is also available in US English, Welsh, French, German, Spanish, Italian, Danish and Swedish. (These versions are not readily available in Australia and are more expensive than the standard version. They can be ordered direct from Locomotive or through The Amstrad User).

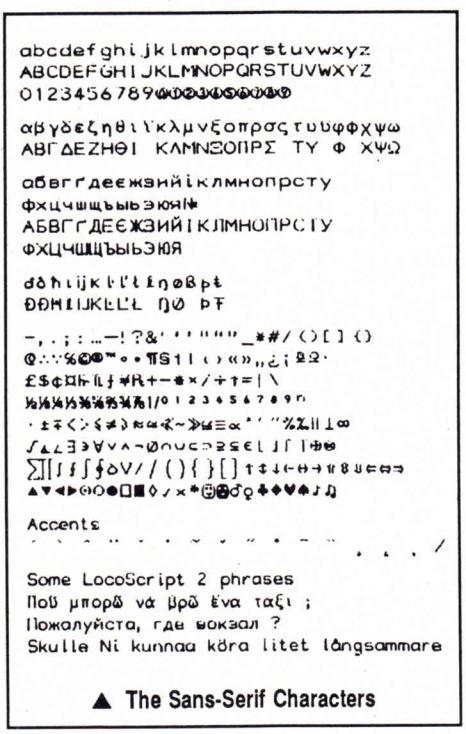
The way the various foreign languages (and symbols) are typed on the keyboard is new. LocoScript has a number of "Super Shifts" - that is, key combinations which change the effect of keys pressed from then on. So, to type in Russian, you would first select the Cyrillic Super Shift, and then use the keys as if each had a Cyrillic engraving. To return to "normal" you just type another Super Shift. Accented characters (and apparently accented characters like Å) are typed by typing the accent, then the character - the result is the true accented character.

Whatever the version of LocoScript2, the same huge range of characters is available, but the characters that can be typed simply on the keyboard varies from country to country. For example, in the English version £ is a single keystroke, but Å requires the typing of first the accent, then A; however in the Danish version Å is a single keystroke.

You can use a different keyboard layout to the one LocoScript expects. For example, the English version of LocoScript normally uses an English QWERTY keyboard, but if you prefer you could use the US QWERTY layout, the French AZERTY layout - or in fact any of the keyboard layouts that are available for the PCW. LocoScript2 comes with just the keyboard layout



▲ The Standard LocoScript2 Characters



▲ The Sans-Serif Characters

corresponding to the language used for LocoScript's messages, but you can get access to all the other layouts by buying the Keyboards Disc (described later).

If you have special needs, you can even modify the keyboard layout to meet these too. Another add-on product, LocoKey, lets you arrange the characters on the keyboard in almost any way you like.

COMPLETELY REVISED USER GUIDE

LocoScript2 comes with a completely new 330 page User Guide. Comments Locomotive have received about the original LocoScript Guide have been taken into account in the production of the LocoScript2 manual. Feedback from early users of LocoScript2 has been used to improve the Guide further in its latest edition.

The main part of the User Guide is a comprehensive Tutorial taking you from the most basic concepts of using a word processor through to advanced topics such as the advantages you can get from using template documents as the pattern for new documents.

There are detailed chapters on the steps needed to set up and use an alternative printer and on using the special program provided to define your own characters for the built-in printer.

The Guide also contains a section on LocoScript2 for users already familiar with using LocoScript, and a step by step summary of common procedures for quick reference.

CONVERTING FROM LOCOSCRIPT1

LocoScript2 includes many new features, but works in much the same way as LocoScript1. A special section in the User Guide lets experienced users get up and running in the shortest time. LocoScript2 will convert your existing LocoScript documents automatically - as you need them. There is no need to convert all your documents in one go.

Over the next few months we will present more extracts which will eventually provide an overview of all Locomotive PCW products.

MINI OFFICE PROFESSIONAL

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TIP-OFFS

The PCW pages with more tips than a cabful of American tourists - and more valuable.

PROFESSIONAL BOXING

One of the minor irritations of printed boxes in LocoScript is that they don't come out very neatly. Although it is possible to join up the vertical lines by using half spacing, the horizontal ones produced by underlining still do not connect properly at the corners and leave either a gap or an overlap which looks scrappy and amateurish.

A solution for owners of LocoScript 2.12 is to create a new character using the LOCOCHAR program. The character required is a vertical line at the extreme edge of the available space between the top and bottom lines of dashes. For frequently used tables a 'mask' can be created and stored as a file. If centre tabs are positioned half way between the vertical lines, data can be entered without disturbing the lines on the screen.

S. T. Payne

Singular

	Masc.	Fem.	Neut.
Nom.	hic	haec	hoc
Acc.	hunc	hanc	hoc
Gen.	huius	huius	huius
Dat.	huīc	huīc	huīc
Abl.	hōc	hāc	hōc

PHOTOCOPYING PHOTOS

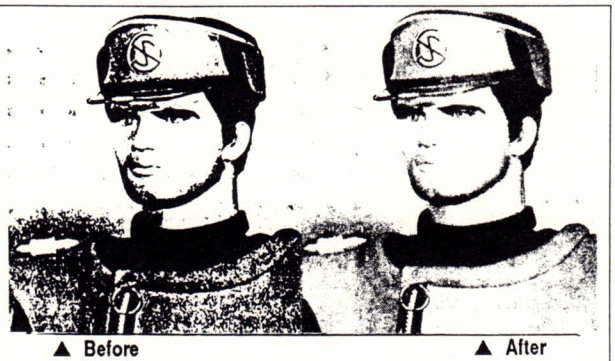
You can produce perfectly adequate desktop publications by photocopying, and this is usually the cheapest method of reproduction for small-scale publications. However, the disadvantage is that if you photocopy photographs, they come out very badly, all the grey tones being converted to harsh black or white.

What you're supposed to do is to 'screen' or 'halftone' photographs intended for printing. This converts them into a pattern of dots that can be photocopied. However, photocopying shops can't do this (not on the spot, anyway) and printers charge a lot for doing it.

An economical alternative though is to use 'LetraTone '- this is a sheet of white dots which you place between your photo and the copier glass, so that the photocopier's scanning device effectively sees a screened photo. The copies will then look authentically grey.

Each sheet of LetraTone (roughly A4 in size) is available by contacting LetraSet Australia. It isn't traditional rub-down Letraset, so you can re-use one sheet over and over again.

Beryl Asino



▲ Before ▲ After

Heaps of Tip-Offs are required. Don't be shy - put pen to paper and send them to:
Tip-Offs, The Amstrad User,
1/245 Springvale Road, Glen Waverley. Vic. 3150

CALLED TO THE BAR from Robert Goddard

Owners of 8000 machines and LocoScript 2 can create effective bar charts to present their data with simply and easily.

While editing a document, press [f2]=Layouts and select 'new layout', then enter the following settings:

Left margin[f1] at 05
Right margin[f1] at 85
Line spacing[f4] set to 1/2

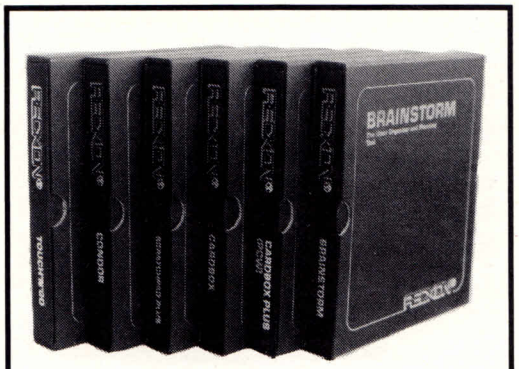
Set a simple tab [f3] every 5 spaces. With [f7], name the layout 'Bar chart'.

Get back to the maineditting screen (by [EXIT]ing twice) and create a phrase under the letter X consisting of five solid boxes - you get these by pressing [ALT]+[f7] to go into 'symbol' mode and then [SHIFT]+X five times. (To define the phrase, place the cursor just before the five boxes, then do [COPY], move the cursor to just after the boxes, press [CUT] and then X.

LocoScript 2.12 owners can use the LOCOCHAR character designer to define a solid grey box character which makes even better looking bars. To get grey, just space your character dots out a bit rather than having every single dot position black.

To create the vertical (y-) axis, put one vertical line ([EXTRA]+<) say eight spaces in from the left-hand margin on each line. The lines don't join up on screen but will on the printout. The numbers for the y-axis look best in pitch 17 subscript and their position on the axis can be

Software the professionals use!



THE RECKON COLLECTION ADVERTISED HERE CAN BE YOURS *FREE*

Simply purchase any one of these products, return the enclosed registration card to Reckon Software and you will go into the three monthly draw. If your card is drawn, you will win this entire collection of award winning and beautifully packaged software.

Amstrad PCW 8256/8512/9512 $99

There is no other spreadsheet available for the Amstrad PCW range that has quite as many useful features as ScratchPad Plus.

Other than those features you would expect from any quality spreadsheet you can look forward to the following that puts the Plus into the product's name.

Virtual Memory
All spreadsheets begin by building a model in memory, but unlike most spreadsheets, ScratchPad Plus does not stop when you have used all the available memory. It pretends that your disk drive is extra memory and uses the space to continue working for you. This means you can create larger spreadsheets.

Variable Spreadsheet Dimensions
With all other spreadsheets, the theoretical size of rows and columns is fixed. This means that you are forced to fit your application to the spreadsheet. Not so with ScratchPad Plus, you can decide how many rows and columns you want and not only save a lot of space but make the spreadsheet fit your application.

Multiple Windows
This feature is particularly useful if you are working with larger spreadsheets. It allows you to divide your spreadsheet into different sections called "windows", view them all together on the screen and jump between them as you wish.

Instant Help
ScratchPad Plus has a comprehensive "On-Line" help system available to you at all the time you are working with your spreadsheet.

ScratchPad Plus also has a wider variety of mathematical, statistical and financial functions than most spreadsheets.

Amstrad PCW 8256/8512/9512 CPC 6128/464 WITH CP/M $99

Imagine you have to prepare a report, plan a holiday, launch a new product, arrange a wedding or simply sort out your ideas on a new activity.

BrainStorm is a three dimensional scratch-pad designed to be the quickest and most efficient way of organising your thoughts on any subject. It allows you to think, write, edit and structure all at the same time.

First dump your random thoughts into BrainStorm. Identify major points; jot in other thoughts as they come to you; maybe develop an idea that particularly appeals.

Unobtrusively BrainStorm starts to develop a model of what's on you mind. You don't have to screw up balls of paper, use an eraser or write things out again. You can cut, paste and amend your ideas at will. Add in afterthoughts, change emphasis and resequence...all at the touch of a few keys.

BrainStorm is the equal to a word processor on words, or a spreadsheet on numbers. With it you will develop the ideas in your mind...all in a fraction of the time it takes with a scratchpad and pencil. If you think you must BrainStorm.

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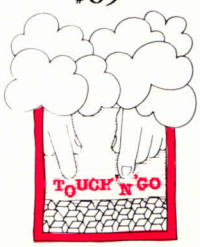
Amstrad PCW 8256/8512/9512 CPC 6128/464 WITH CP/M $69



Are you frustrated by the keyboard barrier? Would "error prone and slow" fairly describe your keyboard skills?

Touch 'N' Go will change all this. It is a carefully designed keyboard skills course developed over the last 20 years. Having been implemented on today's business microcomputers it has achieved success as the UK's most popular typing tutor. And now it's available for the Amstrad range of disk-based computers.

The course develops your skill on the QWERTY keyboard and numeric keypad. With a little concentrated effort you can achieve mastery in just 24 hours.

It is actually so much fun to use that it becomes addictive. So don't start using Touch 'N' Go when you have something more important you should be getting on with!

Touch 'N' Go gives you the opportunity to banish keyboard frustration forever and increase productivity with the software products you use.

Amstrad PCW 8256/8512/9512 CPC 6128/464 WITH CP/M $129

Cardbox is the most popular, the most flexible, the fastest and in fact THE BEST simple electronic card-indexing system on the market.

With Cardbox you can maintain instantly accessible records of customers, supplier, staff, books, journal extracts, club memberships, widgets and just about anything you can think of. You design the card layouts yourself and index the information as you put it in. You can have any number of keywords in a file, display or print cards in any format and exchange information with other programs.

You can have up to 65,000 cards in any one file (depending on disk capacity). Each card can have up to 1404 characters on it. There can be up to 26 fields on each card. The largest field you can have is 1404 characters (the size of the card). And there is absolutely NO LIMIT to the number of indexed words you can have on a card or in a file, if you require more power and size ask us about Cardbox-Plus .

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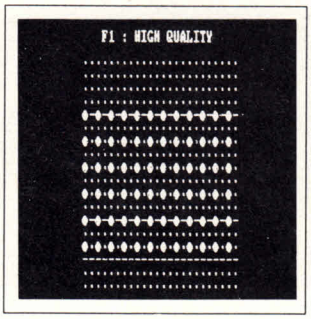


▲ Defining your box in Locochar

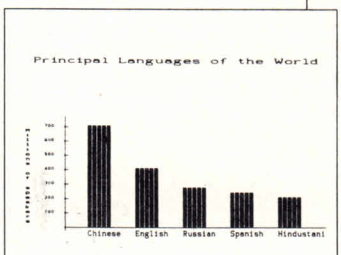
described in the "Professional Boxing" tip to make things neater.

The horizontal (x-) axis can be done quickest by putting the cursor at the left-hand edge of the axis and typing the codes (+UL)(+RA)(-UL). This turns underlining on, goes to the right margin and turns underlining off, so underlining the whole line.

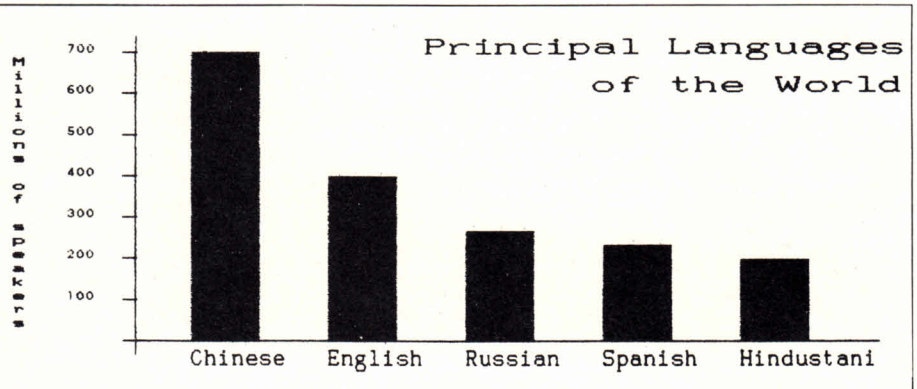
The bars themselves are created by tabbing to the required places and then pasting in the five solid boxes held in the X phrase ([PASTE]+X). Paste the phrase in as many times as you need to represent the data values in question.

The great advantage of these bar charts is that they can go into the middle of normal LocoScript text documents, and look really effective in the middle of reports. You don't need to mess around feeding pages through the printer twice printing first the text and then the graphics.

shown by an underline character ([SHIFT]+ hyphen). You can use a redefined vertical line as



▲ Using the ■ symbol to make bars



▲ Using a grey box defined in Locochar to make the bars, and a Locochar-redefined vertical line

MAKING A DAISY CHAIN

There is no straight forward way of changing the daisywheel in mid-document on the 9512 to print, for example, a word in italics or a section in a different typeface - but, by using the fact that pressing the [PTR] key pauses printing at the end of a line, you can do it. Here's how to get a word in the middle of a line printed in italics or some typeface requiring a print wheel change.

The trick is to set the line spacing to zero (with the [f4] menu or the (+LS0) command) so that the printer will not advance the paper at the end of a line. Print one line of normal text in it and stop where the italics are to go, pause the printing, and change wheels. Then print the italics, pause, change wheels again, and continue.

First prepare two phrases: phrase X containing the codes (CR+0),(+LS0) and (+ReV) followed by a carriage return; and phrase Z containing a carriage return followed by the three codes(-CR),(-LS) and (-ReV), immediately before the phrase you want to italicise, paste X in. The cursor moves to the beginning of the next line. Now type in tabs and spaces to the point where the italicised section is to start and enter the text to be italicised. At the end, paste Z in and, on the next line, type a combination of tabs and spaces to take you to where the normal text is to resume.

All this shows on screen as three lines, but prints out on one. You can't use proportional spacing since you are relying on the fact that a space takes up the same width as any other character to get the columns on the three overprinted lines to correspond, but any other pitch will be OK.

The (+ReV) and (-ReV) codes don't affect the printing, but serve to highlight the italicised area so that if you forget to do a [PASTE] +Z which turns ordinary line spacing back on you will have a visual warning!

When the printer is typing out your document, watch for the line with the italics in it and when it starts to type out, hit the [PTR]. It stops at the end of the line at the carriage return (which doesn't advance the paper because the line spacing has been set to zero).

Change the printer to your 'Script' print wheel (the 9512 print wheel which passes for italics), then press [EXIT]; the printing restarts. Press [PTR] again immediately and the printer stops at the end of the next line, the one with just the italic phrase. Change the wheel back and hit [EXIT] again to continue normally.

If you want italic text on more than one line, you'll have to put a (-LS) code at the beginning of the italic line and a (+L0) at the end, or all the lines will go on top of each other.

Jonathan Clatworthy

NEXT MONTH

For the benefit of new readers we will be revisiting some of the more popular CP/M tips - don't miss them!

PC SOFTWARE

Following numerous requests from PC users, we are pleased to provide a run-down on some PC games, utilities and Educational software imported by Ozisoft and available through The Amstrad User.

ACADEMY
After an incident at 61 Cygnus in 2197, a rookie pilot selected the wrong gear when docking with the main central reactor and reduced half the planet to molten lava, Gal-Corp decided that a special training facility was needed to provide an elite corps of pilots for the advanced military Skimmers used in colonisation and reconnaissance work. In order to graduate from the Academy cadets must complete 20 missions, grouped in five levels of four successfully. With Skimmer Design, environmental assimilation and near perfect Combat Skills, Graduates are the finest of the few. Prepare yourself for entry into the Academy.

ACE OF ACES
Ace of Aces captures the spirit and puts you in the cockpit of the Mosquito, maverick RAF fighter bomber of World War II. Down the Nazi bombers, sink the U-boats, outrun the V-1 rockets and stop the enemy trains. Choose your weapons and fuel wisely - once you're out on a mission there's no going back. To become Ace of Aces you must complete all missions successfully. What does it take to be an Ace? From you, legendary British pride and guts. From Accolade, legendary playability. Accolade has done its part.

CHAMPIONSHIP BOXING
Create your own boxing champion or use any of the twenty plus supplied boxers to stage your own world heavyweight championships. Full control over fighting styles and punches is given, with realistic three minute rounds. Authentic results will occur if your fighter has been mismatched - you have been warned!

CHARLIE CHAPLIN
You are the Director of MGM Studios back in the 1920's and your leading actor is Charlie Chaplin. The object is that you get 3 scenes, a chance to edit them and then show them to the public. The whole idea of the game is to make more money than you started with. To me, it lacked that something that makes you jump out of your shoes and play it until your computer packs it in.

DARK CASTLE
Overthrow the Black Knight, but first you must safely pass through fourteen danger zones - each more treacherous than the last - that are guarded by everything from flying monkeys to dragons. You have a handful of rocks - for fending off anything that stands (or crawls or flies) in your way and four extra lives for those instances you're caught with your guard down. Bottles of elixer are scattered along your trek to ward off bat and rat bites. As your quest progresses you may also come upon a mace, fireballs and magic shield to aid your cause.

DRILLER
Driller is a solid three-dimensional adventure game. Your objective is to position a drilling rig in the gas centres of 18 different sectors of the planet Mitral. Doing so will release the gases beneath the planet and avert the planets destruction. To make things difficult, you have only got a certain time to complete your task as a meteor is heading for the planet. If this meteor collides with the planet and you have not completed your task the gases will explode.

FIRST EXPEDITION
First Expedition is a real time graphics adventure type game. You command a seagoing craft stocked with food, fuel, ammo. and scanning rockets. You journey into a vast unknown and dangerous world in search of the sun spheres. Throughout your travels you will encounter hostile pirates, sea beasts and other hazards. No text commands need to be entered with this game.

GRYZOR
Infiltrate the Alien Rebel's headquarters in Konami's smash coin-up game for your home computer. Negotiate the electric force field and then overcome wave upon wave of fanatical guerillas as you make your way inexorably towards their base. Split second timing and nerves of steel are a must for this exciting fun packed program with all the features of the arcade original.

HARDBALL
An amazing re-creation of baseball, the level of animated graphics is stunning. Hardball re-creates the thrills of big time baseball, with realistic graphics and voice simulation. Total control of ball and bat play is given, even down to the type of throws made and how and when to swing the bat. Hardball is expected to win the Sports SImulation of the Year in 1987 - a quite remarkable program.

MEAN 18
With all the golf simulations out there, we could have left well enough alone. But with nothing legendary in sight, we rose to the challenge and created Mean-18 - the most true-to-life golf simulation ever: you'll never settle for par again. You approach the first tee and take in the scene: a crisp blue sky and a fairway of manicured green stretching forever. The first hole is a 427 yard par four and there's plenty of rough and water between you and the pin. Your guts jump and the adrenaline flows - you know that feeling, and Mean 18 gives it to you again and again.

MEAN 18 FAMOUS COURSES IV
Three brand new courses to add to your mean 18. Castle Pines, Colorado - the International tournament played here has a payoff of one million dollars. The highest in golf history and is split among the 12 survivors from the 162 player field. Playing a modified 'Stableford' system, only the best and luckiest will be rewarded. Doral, Florida - this 6,939 yard course along the Red, White, Green, Gold and Silver courses comprises the oral Country Club. Kapalua, Hawaii - tucked away on the exquisite North Coast, the spectacular view of the blue Pacific Ocean is enough to entice any golfer.

MINI-PUTT
Mini-Putt is the ultimate miniature golf challenge; a magical, animated "Golf-O-Rama" filled with pee wee putting pandemonium that not only tests your skills...it tests your sanity. In Mini-Putt you can expect the unexpected. Each looney link was designed to have you ricocheting off the walls. Obstacles and hazards can spring to life. A serene green can gobble up your golf ball. Can your nerves take it or will your putter flutter?

PINBALL WIZARD
Pinball Wizard transforms your computer into a pinball arcade! An electric palace filled with the blazing sights and sounds of authentic pinball games...games so realistic you'll find yourself dropping quarters in your disc drive. Pinball Wizard takes you to a new dimension in pinball, because if you're good enough to master the killer tables in the arcade, you can go up against an even tougher opponent - your own imagination! With Pinball Wizard's built-in construction set, you can conjure up the pinball machines of your wildest dreams.

PLATOON
You are a raw young recruit in a Platoon of five deep in enemy territory. Unprepared for the challenges that lie ahead; realisation dawns that you must not only survive the physical ordeals but retain your sanity amidst the horrors and injustices of war.

PSI-5 TRADING COMPANY
You are about to captain your ship through one of the great adventures of the 35th century. Sitting on another load of rich mining deposits, a new quadrant, called the Parvin frontier, is a mecca for settlers, entrepreneurs on both sides of the law. So if you are ripe for some swashbuckling space adventure as captain of the space freighter, your ship has just come in. Superbly animated graphics make this a game not to be missed by all lovers of games that make you think.

TAU CETI
In 2050 the first wave of colonists left Earth for the nearby solar system of Tau Ceti, as the first wave of man's great adventure. On the inhospitable desert world of Tau Ceti III a new life began. In ninety years thirty great cities were built, until without warning a great plague decimated the new world. The remaining desperate colonists were evacuated and in time a cure was found. An

expedition force was despatched and then destroyed by the now malfunctioning defence systems. It was decided that a single highly skilled pilot might succeed where fifty would surely fail - like a fool you volunteered....

TEST DRIVE
If you've ever wondered what it would be like to experience the power and performance of the world's most exclusive cars, wonder no more. Test Drive puts you behind the wheel of five exceptional automobiles in a driving simulation that is guaranteed to ignite your adrenaline. Is your heart strapped in? Good. Hit warp speed in a Ferrari Testarossa, blow the doors off with a Lotus Turbo Esprit, corner until the tyres scream in a Porsche 911 Turbo, bring your oil to a boil in a Lamborghini Countache and dust the fuzz in a Corvette.

THEXDER
Direct from Japan, where game design is treated as an art form, comes Thexder, an arcade game by which all others will soon be judged. Thexder offers more music, animation and game play than you ever thought possible from a computer game. Players are given the chance to pilot a robot through multiple attack scenarios. The battlefields include caves, vast cargo holds and spaceships interiors. The robot also has the unique ability to transform into a fighter jet (and back again) at the touch of a button. Over 20 different types of aliens will do battle with you, and the challenge and music escalates as the game progresses.

TOMAHAWK
The Apache was designed to be the deadliest attack chopper in the sky. And it has just one mission: seek and destroy aircraft, tanks, artillery, buildings - anything unlucky enough to stand in its way. The Apache's impressive array of weapons and unmatched manoeuvrability make it the toughest air-war fighter going! Features include 3-D real-time graphics and display; offensive and defensive flight manoeuvres; ground attack and air-to-air interception; day and night vision systems; instrument-only flying; and complete weapons system. Tomahawk tests your instincts, reflexes and nerves while challenging you with extraordinary flight and battle stations.

TOP GUN
Top Gun puts you in the fighter pilot's seat of an F14 Tomcat. 3D vector graphics and split screen display allow one or two players to combat head to head or against the computer. Your armaments in this nerve tingling aerial duel are heat seeking missiles and 20 mm rapid fire cannon. Many skills have to be brought into play such as reflexes, manoeuvring ability and accuracy to become the best of the best. Top Gun mavericks enter the danger zone!

KING QUEST II
Features animated characters, hundreds of different screens and multiple solutions - all part of the reason whu the Kings Quest series are some of the best loved adventure games available for th eIBM. Three dimensional graphics mean that characters pass in front of or behind trees, rocks or each other.

LEISURE SUIT LARRY IN THE LAND OF THE LOUNGE LIZARDS
Meet Larry, he's just turned 40, and he's still single. Become the lovable Larry for one fabulous night. You'll dance. You'll drink. You'll gamble. And, if you play your cards right you might even meet the girl (or girls) of your dreams. The object of the game is to help Larry overcome his jerkisms and lose his "you-know-what". It's a silly risque romp through the singles scene and a challenging adventure game that will test your street smart and suave sophistication. ***(Not Recommended For Children)***

MECH BRIGADE
What will it be like when modern juggernauts - turbine-propelled, missile-armed, laser-guided - clash on the battlefield? The answer is right here in your hands. Using the latest military data derived from extensive research, we are proud to present the definitive, advanced simulation of modern land battles: Mech Brigade.

PHANTASIE
A multiple-character, role-playing odyssey - when sorcery ruled and trolls and minotaurs still walked this Earth, a party of six intrepid adventurers set out to find the Nine Rings and use them to destroy the Dark Lord. This is your quest. This is your Phantasie. Beautiful Hi-Res colour graphics and a spellbinding storyline suspend reality and launch you into a magical world. No computer-carrying adventurer will want to miss out on the glorious excitement and enchanting experience that is Phantasie.

POLICE QUEST
Police Quest takes place in Lytton, a small town with a growing problem. A major criminal, dubbed by the press as "Death Angel", is creating havoc in the community. Drug trafficking, robbery and murder have made the streets unsafe and the crime wave is escalating. In Police Quest, you take on the role of a street cop in uniform. You'll deal with the routine of police life, handing out tickets, attending briefings and even discovering your best efforts tangled in the red tape of the judicial system. If you make a good cop, you may be asked to "go undercover" in an assignment to infiltrate the "Death Angel's" and bring the racketeer to justice.

ROADWAR 2000
When highways become battlefields...in the Year 2000, bacteriological warfare has ripped apart the very fabric of American civilisation. Cities have turned into gangland prizes; the highways into battlefields. You are the patriotic leader of a road gang who has been asked to locate eight scientists and return them to a secret underground lab so they can develop a vaccine to neutralise deadly microbes. Roadwar 2000 is an exciting game of survival in a brutal land.

SARGON III
If chess is more your style, then settle in for some of the most exciting chess games of your life. Choose from nine different levels from novice through to master. Sargon III has over 68,000 different opening moves alone - in fact Sargon III has beaten a chess master rated over 2200 and was also the winner of two world computer chess championships. In addition Sargon III includes over 100 of the best chess games ever played, including Spasky, Fischer, Petrosian and many more.

SHILOH
Until April 6, 1862 General Grant's ascendancy in the Union Army had been relatively uneventful. The few battles he directed had been won without much test of his mettle. But on the dawn of that fateful Sunday, he found the 45,000 men under his command pressed against the Tennessee River at Pittsburg Landing, caught in a surprise attack by Confederate General Johnston and his Army of the Mississippi. Thus began the Battle of Shiloh, two murderous days that would be Grant's first real trial by fire.

SPACE STATION
You are in charge of NASA's most challenging effort to date: The Space Station. It's not only fun, but this realistic simulation is also a great way to learn about every aspect of NASA'sd space program. You design the space station and build it by using the shuttle. You play the administrator by juggling schedules, public relations and of course, budgets. The space station may run on fuel, but NASA runs on money.

STAR FLEET
If space warfare is more your style, then Star Fleet is or you. Explore the realms of space, seeking out enemy space craft, whilst checking sector maps for other encroaching dangers. A comprehensive manual will explain the complexities of controlling a major battlecruiser, its armaments and defences. A keen analytical mind is needed to ensure that each mission is successful, a mind used to dealing with many different facts at the same time is needed to ensure your promotion or else your ship's destruction will be the outcome of each mission.

STAR TREK - THE KOBAYASHI ALTERNATIVE
Based on the Star Trek movie of the same name, this excellent graphic adventure brings the thrills and excitement of the USS Enterprise to the IBM. You have just graduated from the Star Fleet Academy and have received a memorandum from your commander ..... two years in the making and well worth the wait.

THE GREAT INTERNATIONAL PAPER AIRPLANE CONTRUCTION KIT
This aptly named title has over fifteen of the best paper airplanes created in the last world championships. You can print out the plans, and full folding instructions are given for each model. Using your own art program you can decorate the paper airplanes with a whole range of decals - also provided - requires either Basic or graphics program.

3-D HELICOPTER SIMULATION
Introducing the 3-D Helicopter Simulator, a red hot combination of computerised flight training with realistic action! Find yourself strapped into the pilot's seat of an authentic helicopter. Feel the rush as you zoom in front of or behind 3-Dimensional skyscrapers, towers and mountains. Get a bird's eye view from the cockpit as you soar above sailing ships in the harbour.

COMPUTER DIAGNOSTICS
Protect your expensive computer hardware. Avoid losing valuable software data. Keep your equipment in top condition with the Computer Diagnostics disk - six complete tests. These six programs test if your computer and peripherals are working properly. The programs run complete checks of Disk drive, Video, Disks, Printer, Audio and The memory. The program automatically performs each test and gives you a report on the results.

COPY IT
Make back up copies of your computer software disks. Software represents a valuable investment in time and money. COPY IT makes it easy to protect that investment. It is an important utility

that you'll use every day. Copy an entire disk quickly, copy individual files, copy portions of a disk, format disks for storing data, display or print the names of files. It's menu driven so it's easy to use. No technical knowledge is needed. A manual gives step-by-step instructions.

DISK UTILITIES
This menu driven Disk Operating System makes it easier to use your computer - 12 utilities! Disk utilities take the trouble out of copying or deleting files, making back ups, formatting disks or printing directories and many other tasks. Load the Computer Utilities and choose from the menu: Print out copies of the disk directory, copy individual files to other disks, make back up copies of disks, delete unwanted files from disks, rename files, format data disks, view the disk directory, rename the disk directory, examine individual blocks of a disk, print sequential files, lock or unlock individual files.

FILE RESCUE PLUS
You're sitting at your computer, sweating letters and numbers and Poof! it happens, right before your eyes your work disappears - without a trace. But as quickly as a file vanishes, file Rescue Plus automatically begins locating and retrieving it. And while other programs talk to you in techno-babble, File Rescue Plus speaks your language - English. With easy-to-follow, step-by-step guidance, File Rescue Plus not only creates a short and sweet path to information feared forever lost, it offers features that help you make the most of that information - for a very long time.

GIFT LIST
Gift List is a useful tool to bring organization to card and gift lists. It keeps track of: birthdays, anniversaries and other occasions, clothing sizes, previous gifts, preferences, collectibles, special dates on a monthly calendar. An effective tool to keep records of gifts and card giving, including a calendar reminder.

HARD DISK LOG
Quickly locates a file and then opens it with a single keystroke. Hard Disk Log is a powerful program for the organising and cataloging of a hard disk. In addition to cataloging the hard disk automatically, Hard Disk Log allows: commenting of both directories and files, search and sort by file name and comment deleting and renaming of files, running of .COM and .EXE files.

HOME INVENTORY
Home Inventory is an invaluable tool for keeping records of personal property and verifying insurance claims - both in the home and small business. Keeps records of: purchase price and dates, model and serial numbers, market/appraised value, expiration dates of warranties, location of important papers. The inventory may be organized by ? or other classification. Home Inventory also contains a handy video-tape reference guide for those who have a taped record of possessions.

HOME OFFICE FILER
Home Office Filer is an information manager geared for personal use with professional business features. It can be used for storing customer lists, inventory, financial files, collections and other records that need to be organised. Create your own filing structure by defining the information you want and how you want to store it.

HOME OFFICE WRITER
Home Office Writer is a word processor with the right balance of professional business features and easy-to-use design. All types of documents - letters, reports, proposals, presentations, and memos - can be created easily and edited, printed and saved for later use. The Home Office Writer contains many options including the ability to: search for and replace text automatically, edit and revise text quickly, move, copy and erase blocks of text, centre or justify text, print the text using special printer effects.

LOGISTIX
Logistix adds the all-important feature of time management to classic spreadsheet features with extensive data base and presentation quality graphics. Logistix is an ideal tool for planning and costing staff assignments, product launches, construction projects, scheduling, room and resource allocation.

PHONE & ADDRESS FILER
Phone & Address Filer is a useful program which is a phone and address reference and will dial telephone numbers and print addresses on envelopes. The file can be printed: alphabetically, partially, by last names that begin with a specific letter, as a selected list that can be sorted by a designated group (work, church, club, etc).

READY
Ready is an outline processor that is completely memory resident, which means that it can be available whilst you are working on a spreadsheet program. With Ready you can insert headlines and sub-headings, in fact with Ready you can store things like appointments, ideas and information as well as projects, facts, lists and schedules. The beauty of an outline processor is that you can insert ideas into the relevant section - WHEN the idea first hits you, even if you are working on another program at the time. Ready enables you to create outline templates to maintain any kind of list information.

SKILL BUILDERS
Would you like to read faster? Learn to type? Make decisions easier? Improve your memory? Typing Tutor - this program provided keyboard practice in a structured drill. Advance at your own speed. Novices will learn the keyboard while experienced typists can improve their speed. Speed Reader - starting with a single letter or number, this tests your ability to remember an increasing amount of text that is flashed on screen. Develop the ability to take a "snapshot" of the text and remember it. Decision Maker - you can analyse the reasons for making decisions. Enter the goal and the program will help you make the best choice. Memory builder - behind each square of a grid there's a hidden number. You need to find the matching numbers. Choose from four skill levels and build your ability to concentrate on finding a match.

SUPERBASE
You'll soon be ready to set up your own filing system - business information, professional data, records of all kinds. You design your record layout right on the screen, exactly as you wish it to look, with helpful on-screen explanations never more than a step away. With the layout in place, you can then use Superbase's built-in commands to enter, change or delete individual records. Once you have built up a file of records, you can select, sort and output data exactly as you need it.

THINKTANK
Thinktank is an outline processor with integrated wordprocessing for all MSDOS computers. If you plan, organise or write, then you need ThinkTank. Managers use ThinkTank to plan projects, engineers organise specifications and documentation, students do outlines and term papers, entrepreneurs develop business plans. ThinkTank is perfect for lawyers, writers and consultants. ThinkTank is an essential tool for the professional who wants to get ahead.

TIME & EXPENSE LOG
Time & Expense Log is a handy tool for maintaining: time records, client billing information, telephone logs, expense logs, computer usage logs. The Time & Expense Log runs as a stand-alone or memory resident program, which means it can be accessed without leaving the current application. All logs may be kept on one of more files which can be edited, searched and viewed, or printed.

TURBOCAD
If you are a new generation user, TurboCad is for you. It is a remarkable, 2-dimensional, high performance CAD package. Drawings are created in Random Access Memory (RAM). This is far faster than creating and editing the drawings on disk. TurboCad allows you to create a drawing in sizes A4 to A0. You can easily change the paper sizes and scaling factors. TurboCad uses Pull Down Window Menus for fast, easy Set Up, Printer and Plotter parameter selection.

WEBSTER'S NEW WORLD WRITER
From the same company who brought you the Webster's Dictionary, Webster's New World Writer is a combination Wordprocessor, Thesaurus and Spelling Checker all in one. What you see on the screen is what will be printed, this package has been reviewed as the best in its class again and again. Graphics keys allow you to place graphic boxes around text area, an extremely sophisticated search and replace facility allows the user to make changes of complete documents within seconds. And expandable 114,000 word spelling checker and 50,000 word Thesaurus are just part of the reason why Webster's New World Writer is a writers best friend.

WEBSTERS'S SPELLING CHECKER
Webster's Spelling Checker is for all those who currently use a wordprocessor without a comprehensive spelling checker. Not only does Webster's include an expandable 110,000 word dictionary, but also the well known misspellers dictionary of over 50,000 commonly misspelt words is included. This phenomenal package will correct misspelt words like zilofone to xylophone, fenominal to phenomenal, it will also correct transpositions, contractions, hyphenations, repeated words, abbreviations and many more.

WEBSTER'S ONLINE THESAURUS
Webster's RAM resident Thesaurus is for all those who currently use a wordprocessor without the facilities of finding another word meaning the same thing. Not only will your letter and document writing style improve dramatically, but your own vocabulary will increase as you familiarise yourself with some of the 10,000 different words in this superb software package. To see a list of synonyms is as simple as pressing one key, replacing the one you want to get rid of is just one more keystroke. A superb program from the makers of Webster's Dictionaries.

WORD PROCESSOR
Word processor is an editing and filing word processor with a 300 line by 80 column format features include: automatic word wrap, insert and delete (characters and lines), margin and tab set,

file merge, copy and move selected text. Word Processor contains an automatic spell checker with a 70,000 word list (2nd drive preferable), and provides for the creation of typing macros and the easy printing of an address from a letter onto an envelope.

EDUCATIONAL SOFTWARE

ALPHABET ZOO
Alphabet Zoo helps children strengthen their letter recognition skills as they associate letters of the alphabet with sounds they represent. The program also helps sharpen a child's spelling skills. Age 3-7.

CHEM LAB
Turn your computer into an awesome chemistry lab. With over 50 different experiments, you will become addicted. Thousands of chemical reactions that explode, boil over and go crazy when least expected. Prove to your parents how smart they were to let you use the computer in the first place. Ages 10-Adult.

CREATURE CREATOR
Create colourful creatures and learn important facts at the same time. Press certain keys and watch the creatures dance. Helps develop important basic skills for reading and maths such as pattern recognition, matching and sequencing, as well as symbol manipulation. Ages 4-8.

CRYPTOCUBE
An important program to develop mathematical ability as well as developing relational skills. Find the hidden words in this three dimensional puzzle. Contains 50 puzzles in four sides of the cube, vocabulary levels for all ages, lively sound effects, graphics and animation. Create your own puzzles - perfect for practising spelling homework. Ages 8-Adult.

DECIMAL DUNGEON
Delve into the decimal dungeon and come out as a mathematical wizard. Decimal Dungeon provides hours of fun whilst improving a child's ability with all aspects of addition, subtraction, multiplication and division of decimals. Ages 9-15.

DELTA DRAWING
Delta Drawing provides an easy and friendly introduction to computer learning, helps build an understanding of programming concepts and procedural thinking and encourages children to exercise their creativity. Ages 4-Adult.

EUROPEAN NATIONS AND LOCATIONS
Teach your child all about European geography in this superbly written educational program. Shows a map outline of Europe - your child has to locate and correctly identify countries and major cities as well as learn about the history and current events taking place in these locations. You can create your own family trivia games using the wealth of information supplied. Ages 9-Adult.

FACE MAKER
Face Maker helps children become comfortable with computer fundamentals such as menus, cursors, simple programs and graphics. It also helps improve a child's memory and concentration. Ages 3-8.

FRACTION ACTION
For one or two players, Fraction Action teaches addition, subtraction, multiplication and division of fractions. Correct answers give the student bonus moves in a multi screen arcade game, wrong answers are fully explained. Never before have fractions been such fun. Ages 9-Adult.

GRAMMAR EXAMINER
Edit your way to the top of The Grammar Examiner newspaper with this humorous and challenging family game of English grammar. Learn punctuation, capitalisation, subject-verb agreement, verb tenses, adverb and adjective usage and homonyms, or add your own grammar homework.

IN SEARCH OF THE MOST AMAZING THINGS
The most amazing thing is out there somewhere. It won't be easy to find it. This educational game will sharpen your ability to estimate distances and quantities, solve problems through trial and error and develop a knack for economic and monetary principles. Ages 10-Adult.

KIDS ON KEYS
Familiarises children with the computer keyboard as they learn to identify numbers, letters and words, and associate them with images they see on the screen. Ages 4-9.

KIDWRITER
Kidwriter provides an original format for story writing and illustration. It encourages creativity while introducing children to the fundamentals of word processing. Ages 6-10.

MATH MAZE
Grab the right answer to the math problem while racing through a maze: makes practising maths facts fun. Multiple skill levels for increasing challenge; colourful, lively animation and sound effects. This program combines wholesome entertainment with solid educational content. Children improve math skills in a motivating environment and practice eye-hand co-ordination.

MISSION ALGEBRA
Master linear equations as you navigate through space with this revolutionary new tool for algebra practice. Enjoy creating graphics on the screen as they solve equations - especially motivating is the editing feature which allows you to create your own games as you review and apply algebraic concepts. Algebra is an excellent tool for motivation, reward and enrichment.

MIXED UP MOTHER GOOSE
Roberta Williams takes your child on an "adventure in dreamland", where he or she will help Mother Goose by finding missing pieces to some of her most popular rhymes. Find the missing sheep and take them back to Little Bo Peep. Help Little Miss Muffet find her Tuffet. Find the pail and return it to Jack and Jill. Once the rhyme has been corrected, it comes to life in brilliant colour by the onscreen characters. Each is accompanied with a charming musical score so your child can sing along.

NOTABLE PHANTOM
The Notable Phantom with its piano keyboard overlay turns the computer into a music machine, and the elements of spiders, bats, ghosts and phantoms make learning the names and sounds of the notes on the musical staff and piano keyboard fun. Discover the fun and excitement of learning to read music and creating your own songs on the Notable Phantom Keyboard.

RACE CAR ARITHMETIC
An interactive math game that 1 to 4 racers can play together. Each racer can select his own basic math function, difficulty level and timer option in a race to the finish line. You had better answer correctly, or you'll be forced to make pit stops. The superb graphics and music in Race Car Arithmetic make for hour upon hour of educational fun.

REMEMBER
Remember is one of the most useful educational programs available, being a powerful aid to self study. You can enter any subjects into this program, and then get the computer to ask you various types of questions about each subject. For example, by recording information about the year 1888, you can get the computer to ask the student what happened in 1888, or what year was Australian independence achieved, or even, what is the significance of the Bi-Centennial. A superb program to help anyone REMEMBER information. Ages 10-Adult.

SHIPS AHOY
Ships Ahoy consists of four different learning games...sail your ship across the screen before the treacherous mine hidden beneath the sea explodes...locate the mine beneath the sea that contains the missing number in the mathematical equation...gather sunken treasures and escape the maze before time is up - all just part of Ships Ahoy: an effective motivational game for improving and developing math skills.

SPELLAGRAPH
A revealing spelling game - hundreds of word/picture puzzles challenge you as you practice spelling. Over 400 words - divided into grade levels 2 through 8 with multiple skill levels. Ages 7-14.

SPELLAKAZAM
Race the magician to the top hat to release the hidden animals with Spellakazam - the magical spelling game. Ages 7-14.

SPELLICOPTER
Battle against UFO's and improve spelling and vocabulary skills, pilot your helicopter through dangerous situations to rescue standard letters that spell words. Add your own word list to make spelling or foreign language homework more fun. Lively sound effects and animation add fun and excitement - a highly recommended program. Ages 6-10.

TEN LITTLE ROBOTS
The most delightful way to introduce young learners to the computer. Five different games (Little Robot Story, Count the Robots, Robot Letter Match, Robot Addition, Robot Sketch) with multiple graphic rewards and tunes - it will give your child hour after hour of educational fun.

TRAP-A-ZOID
Trap-A-Zoid is for beginner geometry students and it achieves the most important goal at this level. It takes a variety of geometric shapes, with their difficult names and skull-numbing distinctions, and makes them friendly once again. Age 7-14.

This overgenerous plug to Ozisoft titles has consumed quite a few pages so we won't be doing it that often. We suggest you put this magazine into a safe place for future reference.

For prices on these and other software, see next page →→→→

Mail Order Software for Amstrad PCs

New titles added this month

Aces High Compilation	
with World Series Baseball, Wizball,	
Top Gun and Arkanoid	**69.95**
Beyond Zork	**49.95**
Black Jack Academy	**49.95 †**
Bobo	**69.95**
Charlie Chaplin	**69.95**
Dream Warrior	**69.95**
Driller	**69.95**
First Expedition	**49.95 †**
Gryzor	**59.95**
Jet	**69.95**
The Last Ninja	**59.95 †**
Platoon	**69.95**
Print Magic	**49.95**
Solomon's Key	**69.95**
Trantor	**69.95**
Wargame Construction Kit	**69.95**

PC GAMES

221b Baker Street	49.95
3-D Helicopter Simulator	49.95 †
ACE II	34.99
Aces High Compilation	
with World Series Baseball, Wizball,	
Top Gun and Arkanoid	**69.95**
Alternate Reality (The City)	49.95
Arkanoid	59.95
B-24	69.95
Battle for Normandy	69.95
Beyond Zork	**49.95**
Black Cauldron	49.95 †
Black Jack Academy	**49.95 †**
Bobo	**69.95**
California Games	49.95 †
Championship Boxing	49.95
Classiques #2	59.00
Charlie Chaplin	**69.95**
Classic Arcades 1	59.95
Classic Arcades 2	59.95
Colossus Mahjong	69.95
Crazy Cars	59.00
Crosscheck	49.95
Crusade in Europe	59.95
Dark Castle	49.95
Decision in Desert	59.95
Destroyer	49.95 †
Dream Warrior	**69.95**
Driller	**69.95**
Destroyer	49.95
Elite	69.00
F-15	59.95
F-16 Falcon	49.95 †
First Expedition	**49.95 †**
Games Pack 1 (13 games)	29.99
Gettysburg	69.95
Great Escape, The	59.95
Great International Airplane Construction Kit	49.95
Gryzor	**59.95**
Gunship	79.95 †
Hardball	49.95
Hunt for Red October	49.95
Impossible Mission II	49.95 †
Jet	**69.95**
Jewels of Darkness	59.95
Kampfgruppe	69.95
Kings Quest 1	49.95 †
Kings Quest 2	49.95 †
Kings Quest 3	49.95 †
Knight Orc	59.95
Last Ninja, The	**59.95 †**
Leader Board Golf	49.95
Leisure Suit Larry (Adults only)	59.95 †
Mean 18	69.95
Mean 18 Famous Courses 1	24.95
Mean 18 Famous Courses 2	24.95
Mean 18 Famous Courses 3/4	24.95
Mech Brigade	69.95
Mini Putt	49.95
Moebius	59.00
Pawn	69.95
Phantasie	69.95
Phantasie 3	69.95
Pinball Wizard	69.95
Pirates	69.00
Platoon	**69.95**
Police Quest	59.95 †
President Elect	69.95
Project Space Station	49.95
PSI-15 Trading Company	49.95
Reach for the Stars	49.95 †
Rebel Charge at Chickamauga	69.95
Rings of Ziflin	69.95
Roadwar 2000	69.95
Roadwar Europa	69.95
Romantic Encounters (Adults only)	49.95
Sargon III (Chess)	89.95
Shard of Spring	69.95
Shiloh	69.95
Silent Service	59.95
Silicon Dreams	59.95
Solomon's Key ...NEW	**69.95**
Space Quest	59.95 †
Space Quest 2	59.95 †
Spitfire Ace	59.95
Star Command	79.95
Star Fleet	59.95
Star Trek: Kobayashi Alternative	49.95
Star Trek: Promethian Prophecy	49.95
Stellar Crusade	69.95
Spitfire Ace	49.95
Star Glider	59.95
Sub Battle Simulator	49.95 †
Summer Games	45.00
Tau Ceti	59.95
Test Drive	59.95
Tenth Frame	59.00
Tetris	49.99
Thexder	49.95
Time and Magik	69.95
Tomahawk	49.95
Top Gun	59.95
Trantor ...NEW	**69.95**
Wargame Constr. Kit ...NEW	**69.95**
Winter Games	45.00
Wizard's Crown	69.95
Wizball	59.95
World Series Baseball	59.95

PC EDUCATION

Alphabet Zoo	59.95
Chem Lab	69.95
Creature Creator	59.95
Cryptocube	59.95
Decimal Dungeon	49.95
Delta Drawing	59.95
European Nations & locations	59.95
Face Maker	59.95
Fraction Action	49.95
Grammar Examiner	59.95
In search of the most amazing things	59.95
Kids on Keys	59.95
Kidwriter	59.95
Kindercomp	59.95
Math Maze	59.95
Mission Algebra	59.95
Mixed up Mother Goose	59.95 †
Notable Phantom	59.95
Race Car Arithmetic	49.95
Remember!	89.95
Ships Ahoy	59.95
Snooper Troops 1	59.95
Snooper Troops 2	59.95
Spellagraph	59.95
Spellakazam	59.95
Spellicopter	59.95
Ten Little Robots	49.95
Trap-a-Zoid	59.95
Typing Step-by-Step	24.95
Typing Tutor 4	79.95

PC BUSINESS

ABC Business Pack	499.99
Ability Plus	350.00
Ability	199.00
Biz Pak 1	29.99
Brainstorm	149.00
Cardbox PC	179.00
Condor 1 Jnr	225.00
Desktop Accountant	450.00
Financial Accounting for non-Accountants	199.00
In-house accountant	199.00
MASTERFILE PC	199.00
Mini Office Professional PC	189.00
Personal Excellence Package	**109.00**
Personal Cardbox Plus	399.00
Scratchpad Plus	49.99

PC UTILITIES

Computer Diagnostics	24.95
Copy It	24.95
Disk Utilities	24.95
File Rescue Plus	69.95
Gift List	24.95
Hard Disk Log	24.95
Home Inventory	24.95
Home Office Filer	24.95
Home Office Writer	24.95
Homeword Filer	69.95
Logistix	295.00
Phone & Address filer	24.95
Print Magic	49.95
Ready!	99.00
Skill Builders	249.00
Superbase	249.00
Tasword PC	135.00†
Tas-spell PC	110.00†
Tas-print PC	110.00†

NEW TO TASMAN RANGE

TAS-SIGN - allows production and printing of signs, posters, banners and large notices on a dot matrix printer either across the paper or sideways. Four styles and eight shades 110.00†

TAS-COPY - containing four utility programs: graphics editor, graphics merge, font designer and snapshot for capturing screens. 110.00†

Thinktank	395.00
Time and Expense log	24.95
Touch 'n' Go	69.00
Trio	99.95
TurboCad	395.00
TurboCash	495.00
Webster's New World Writer	199.00
Webster's Spelling checker	89.95
Webster's Thesaurus	89.95

Items marked with a "†" symbol are also available in 3.5" disc format.

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Glen Waverley, Vic 3150
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BOOK LOOK

John Crossland takes a look at two books written by Ron Krupa, Introducing Lotus 1-2-3 and Introducing dBase.

Introducing Lotus 1-2-3 is a no-nonsense, straightforward introduction to this software package. At the price, it is a must for every user. The author has shown that it is possible to present a spreadsheet in a non-technical manner. The book is a short, simple, inexpensive introduction to Lotus aimed at those people who require a "working knowledge" of Spreadsheets and Lotus 1-2-3.

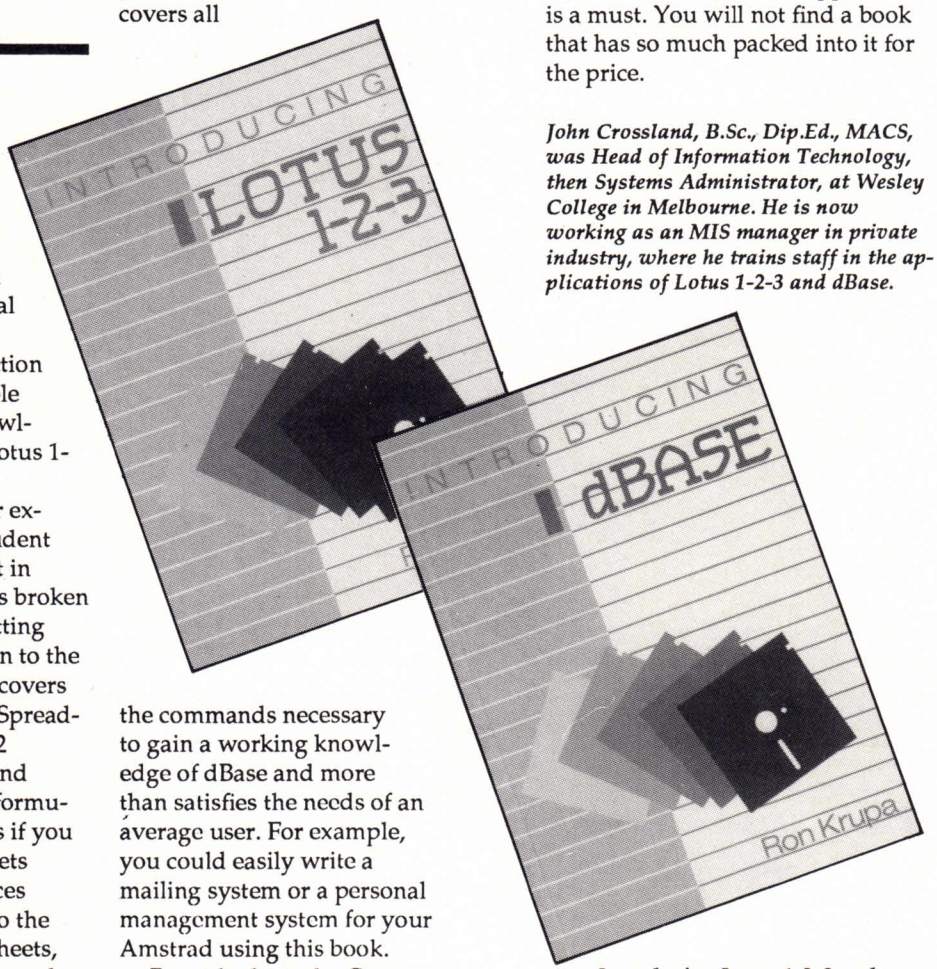
The text is backed by clear examples which the reader/student may work through to cement in place the ideas proposed. It is broken up into 4 sections: Part 1, Getting familiar is a brief introduction to the Computer and Lotus. It also covers definitions of such things as Spreadsheets and worksheets. Part 2 develops the reader's skills and discusses labels, values and formulas, all those necessary things if you are going to make spreadsheets work for you. Part 3 introduces ranges and takes the user into the production of larger spreadsheets, and also sets out how to present the spreadsheet in a more readable form. Part 4 introduces the notion of copying, allowing the student to build more complex spreadsheets. Putting the Spreadsheet to Work is the title of Part 5, and this section really puts the power of the spreadsheet in the user's hands. "What if" modelling is discussed and the idea of windowing is introduced. Printing is introduced as is graphing and finally the future of Lotus is discussed.

INTRODUCING dBASE

It is refreshing to see an affordable and useful book on a giant such as dBase coming from an Australian author. Introducing dBase is written in an easy style yet is comprehensive. It is a non-technical book that concentrates on bringing the reader/user up to an acceptable level of expertise with a mini- mum of fuss. It covers all the commands necessary to gain a working knowledge of dBase and more than satisfies the needs of an average user. For example, you could easily write a mailing system or a personal management system for your Amstrad using this book.

Part 1 looks at the Computer and dBase. For the user with some knowledge this may seem a little "old hat". For the beginner, it is "just what the doctor ordered". Part 2 outlines the basics of dBase, briefly describing the Assistant but quickly taking the user to command level where "the real work is done". Part 3 is the guts of the book. It outlines syntax, various commands (including editing, database organisation etc.). A well thought out part of the book - not too little, not too much. Finally Part 4 describes the elements of Programming. It speaks in terms of modular programming and includes debugging techniques available with dBase. It also discusses documentation and the direction of dBase from 1988 onwards. As an introductory text for a person who wants an easy to read, easy to use book and who wants to learn dBase fast, Ron Kruppa's book is a must. You will not find a book that has so much packed into it for the price.

John Crossland, B.Sc., Dip.Ed., MACS, was Head of Information Technology, then Systems Administrator, at Wesley College in Melbourne. He is now working as an MIS manager in private industry, where he trains staff in the applications of Lotus 1-2-3 and dBase.



Introducing Lotus 1-2-3 and Introducing dBase both by Ron Krupa are published by Thomas Nelson Australia at a recommended retail price of $14.95. They are available from all good book shops, or direct from The Amstrad User.

"Give me up to 300 lines and I may give you one of the best ...

... a printer, either a DMP 2160 or a DMP 3160, or a 5.25" disc drive"

Yup, The Amstrad User is offering any one of the above prizes in a Programming Competition starting this month. The choice of prizes is given to accommodate the winner of either a CPC, PCW or PC entry.

All you have to do is write a program in Basic for any of the Amstrad range of computers, but you mustn't let it go over 300 instruction lines (REMs are not included in the count). It can be as small as 10 lines if you like.

All entries will be assessed and awarded points on:

a) Originality
b) Clarity
c) Speed
d) Ease of use
e) Documentation

You may enter as many times as you like as long as each entry is submitted separately. All entries will be returned if accompanied with a suitable self addressed and stamped padded bag.

Apart from the program itself, which must be submitted on tape or disc, all entries must include:

a) An overview of the program, ie. what it is supposed to do.
b) Full operating instructions

Entries can be on any subject - eg. game, utility, application, educational - the choice is yours. It can also be a team effort, in which case one person should be nominated on the entry to choose and accept the prize.

The Competition closes at 5.00 pm. on Monday 31st October 1988. Any entry received after that date will be excluded. The one winner will be announced in Issue 47 December 1988.

And here's the last bit. The judges decision will be final and there will be no post-mortems. All programs will become the property of The Amstrad User and may be published in later issues. Apart from documentation relating to the entry, no other correspondence will be entered into. The Editor reserves the right to cancel the competition if the number and quality of entries does not warrant the choice of prizes offered. *(That means if he gets ten crummy tattslotto checkers it's all off!)*

Mail your entries to:

Program Competition
The Amstrad User
1/245 Springvale Road
Glen Waverley
Victoria 3150

DATAFILE

The final part of a menu driven database written in Basic2 for Amstrad PCs by Alan Murdoch

You will need last month's magazine for the first few pages of the Datafile listing and a short run-down on how to use it. The program is pretty well documented by using the help window (pressing '?' at the main menu).

DATAFILE Part 2

```
LABEL no_more
  WINDOW #2 OPEN
  PRINT #2, COLOUR(2),"          NO
  MORE ENTRIES POSSIBLE"
  PRINT #2
  PRINT #2,"       Press any key t
  o Continue"
  GOSUB inky
RETURN

LABEL start_up
  CLS #1
  WINDOW #2 OPEN
  PRINT #2, COLOUR(12)"
  Welcome to ";:PRINT #2 COLOUR(2
  )"DATAFILE";:PRINT #2 COLOUR(4)
  " by Alan R. Murdoch (c)"
  PRINT #2,"                  [?] In
  formation"
  PRINT #2,"                  [C] Cr
  eate a new File"
  PRINT #2,"                  [L] Lo
  ad an existing File"
  PRINT #2,"
  Your option?"
 REPEAT
  option$=UPPER$(INKEY$)
 UNTIL option$="C" OR option$="L"
OR option$="?"
  CLS #2
  CLS #1
  WINDOW #2 CLOSE
  IF option$="C" THEN GOTO create
  _file
  IF option$="L" THEN GOTO load_f
  ile
  IF option$="?" THEN GOSUB info
GOTO start_up

LABEL no_data
  WINDOW #2 OPEN
  PRINT #2
  PRINT #2,COLOUR(2)," NO DATA EN
  TERED YET"
  PRINT #2
  PRINT #2,"                    Press
  any key to Continue"
  GOSUB inky
  CLS #2
  WINDOW #2 CLOSE
RETURN

LABEL directory
  PRINT COLOUR(12),"   Your prese
  nt Directory is listed below"
  FILES
RETURN

LABEL wait
  PRINT
  PRINT ,COLOUR(2)"          Press
  any key to Continue"
  GOSUB inky
  CLS
 RETURN

LABEL change
  CLS
  PRINT COLOUR(15),"
  ### Change Directory ###"
  PRINT
  GOSUB directory
  PRINT
  PRINT
  PRINT COLOUR(4)"     Please ent
  er path for new directory ";:IN
  PUT"> ",path$
  ON ERROR GOTO fix_directory
  CHDIR path$
RETURN

LABEL fix_directory
  GOSUB prog_error
  WINDOW #2 OPEN
  PRINT #2,COLOUR(2)"
  DATAFILE has failed to find req
  uested directory "
  PRINT #2
  PRINT #2,"                  [M] M
  ake new directory"
  PRINT #2,"                  [C] C
  ancel"
  PRINT #2,"
  Your option?"
 REPEAT
  option$=UPPER$(INKEY$)
 UNTIL option$="M" OR option$="C"
  CLS #2
  CLS #1
  WINDOW #2 CLOSE
  IF option$="C" THEN RETURN
  IF option$="M" THEN GOSUB creat
  e_directory
RETURN

LABEL create_directory
  PRINT COLOUR(15),"     ### Crea
  te Directory ###"
  PRINT
  GOSUB directory
```

```
  PRINT
  PRINT COLOUR(4)," Please enter
  name of new directory ";:INPUT"
  > ",name$
  MKDIR name$
RETURN

LABEL prog_error
  IF ERR<>133 THEN GOSUB input_er
RETURN

LABEL save_test
  IF cfile$="saved" THEN RETURN
  WINDOW #2 OPEN
  PRINT #2 COLOUR(2)"     This fil
  e has not been recently saved b
  y DATAFILE"
  PRINT #2,"                      [A]
  Abort"
  PRINT #2,"                      [C]
  Continue anyway"
  PRINT #2,"                      [S]
  Save current file"
  PRINT #2,"
  Your option?"
 REPEAT
  option$=UPPER$(INKEY$)
 UNTIL option$="C" OR option$="S"
 OR option$="A"
  CLS #2
  WINDOW #2 CLOSE
  IF option$="C" THEN RETURN
  IF option$="S" THEN GOSUB save_
  file
  IF option$="A" THEN GOTO main_m
  enu
RETURN

LABEL input_err
  WINDOW #2 OPEN
  PRINT #2
  PRINT #2,COLOUR(2)"
  ERROR Number > ";ERR;" DETECTED
  "
  PRINT #2
  PRINT #2,COLOUR(4)"
  Press any key to Continue"
  CLS #1
  GOSUB inky
  CLS #2
  WINDOW #2 CLOSE
RETURN

LABEL info
  PRINT"  F1  ... Does just what
  is says and QUITs DATAFILE retu
  rning you to BASIC2."
  PRINT
  PRINT"    F2/[L] ... Depending o
  n where you are within DATAFILE
  LOADs any previously"
  PRINT"    saved files from the c
  urrent directory. You should aw
  ays use the full file"
  PRINT"  - name e.g. > FILENAME.
  EXT <"
  PRINT
PRINT"    F2/[C] ... Gives you t
he ablity to CREATE any sort of
file you wish, for "
PRINT"    example, you may want
to store a list of names, addres
ses and phone numbers."
PRINT"    or perhaps form a book
list. First you must work out t
he layout you need."
PRINT"    Say you need a book li
st, the layout may look somethi
ng like this :"
PRINT
PRINT,"          Items
Entries"
PRINT
PRINT,"  1/     TITLE
THE AMSTRAD USER"
PRINT,"  2/     AUTHOR
THE TAU TEAM"
PRINT,"  3/     PUBLISHERS STRAT
EGY PUBLICATIONS"
PRINT,"  4/     PRICE
$4.25"
PRINT,"  5/     NUMBER
34"
PRINT,"  6/     COMMENTS CPC/PCW
/PC"
GOSUB wait
PRINT"    As you saw there where
6 items from title to comments
this is what"
PRINT"    CREATE file will ask f
or first, after it has this num
ber it will then"
PRINT"    ask you to name each i
tem, in this case title through
to comments and
PRINT"    then after that is don
e it will return you to the mai
n menu."
PRINT
PRINT"    F4 ... ENTER Informati
on allows you to make entries i
nto the structure"
PRINT"    that you have just cre
ated with [C] or F3 in the exam
ple these would be"
PRINT"    The Amstrad User throu
gh to CPC/PCW/PC."
PRINT
PRINT"    F5 ... Allows you to S
AVE the files you have created
and with DATAFILE"
PRINT"    and also adds the exte
nsion [.SDF] so that you may ea
sily identify them"
PRINT"    at a latter date."
PRINT
PRINT"    F6 ... With this you m
ay display your files one after
another or you"
PRINT"    can search for a parti
cular file or word, also you ca
n if you wish change"
PRINT"    a file that is no long
```

```
  er correct or that was perhaps
  entered incorrectly."
  PRINT
  PRINT"    F7 ... Change director
  y does just what it says and al
  lows you to change"
  PRINT"    the directory your in,
  just enter the path as you woul
  d in DOS.
  GOSUB wait
  PRINT"    F8 ... Display directo
  ry shows the you the files in t
  he current directory."
  PRINT
  PRINT"    F9/[?] ... Displays th
  is information file."
  PRINT
  PRINT"    [@] ... This is an opt
  ion that becomes available from
  within the [F6]"
  PRINT"    Search/Display/Change
  option, this allows you to move
  any number of"
  PRINT"    places both backwards
  and forwards through your entri
  es, simply enter"
  PRINT"    for example @7 to move
  forward seven entries or @-4 to
  move backwards"
  PRINT"    four entries."
  GOSUB wait
RETURN

LABEL wrong
  WINDOW #2 OPEN
  PRINT #2
  PRINT #2,COLOUR(2)"       This k
  ey [F10] has no funtion in this
  program"
  PRINT #2
  PRINT #2,COLOUR(12)"
  Press any key to return to main
  menu"
  GOSUB inky
  CLS #2
  CLS #1
  WINDOW #2 CLOSE
RETURN

LABEL inky
 REPEAT
  option$=INKEY$
 UNTIL option$<>""
RETURN

LABEL unable
  CLS #1
  WINDOW #2 OPEN
  PRINT #2
  PRINT #2,COLOUR(2)"
  Unable to find named File!"
  PRINT #2
  PRINT #2,COLOUR(4)"
  Press any key to try again"
  GOSUB inky
  CLS #2
  WINDOW #2 CLOSE
  cfile$="saved"
RETURN

LABEL create_file
  CLS
  GOSUB save_test
  PRINT COLOUR(15),"
  ### Create  File ###"
  PRINT
  CLEAR:DIM array$(1000):REM This
  number can be increased if nece
  ssary
  PRINT:REM If number of array is
  changed then do the same to loa
  d_file
  PRINT
  PRINT COLOUR(4)"    Enter the nu
  mber of Items required in each
  entry ";:INPUT" > ",number
  IF number<=0 THEN GOSUB illegal
  DIM item$(number-1),pentry(numb
  er-1)
  PRINT
  FOR count=0 TO number-1
  PRINT COLOUR(10)"       Name for
  item number ";count+1;:INPUT" >
  ",item$(count)
  item$(count)=UPPER$(item$(count
  ))
  NEXT count
  cfile$="notsaved"
GOTO main_menu

LABEL load_file
  CLS
  GOSUB save_test
  PRINT COLOUR(15),"
  ###  Load  File  ###"
  PRINT
  GOSUB directory
  CLEAR
  DIM array$(1000)
  cfile$="saved"
  file$="nullfile"
  PRINT
 REPEAT
  PRINT COLOUR(4)"    Please enter
  full filename to load ";:INPUT">
 ",file$
  file$=FIND$(file$)
  IF file$="" THEN GOSUB unable:G
  OTO load_file
 UNTIL file$<>"
 REM  ON ERROR GOTO prog_error
  IF file$<>"nullfile" THEN GOSUB
  open_file
GOTO main_menu

LABEL open_file
  OPEN #file INPUT file$
  INPUT #file,nentry,number:DIM i
  tem$(number-1),pentry(number-1)
  FOR count=0 TO nentry-1
  INPUT #file,array$(count)
```

Listing continues on next page ➡

COMP, DISKCOMP & MORE SHAREWARE

Chris Collins explains the use of the COMP & DISKCOMP utilities plus he takes a look at four shareware spreadsheets.

Welcome once again to Compatible's Corner. The two commands that we will look at this month are COMP & DISKCOMP. These commands are used to compare the contents of a first set of specified files with the contents of a second set of specified files. COMP is used to compare sets of FILES while DISKCOMP is used to compare two entire discs.

The correct syntax for the COMP command is as follows:

COMP [*d:*][*path*][*filename*[*.ext*][*d:*][*path*][*filename*[*.ext*]

As always, if we break down the command line, it becomes very easy to understand. The first set of brackets refers to the first file (or set of files) to be compared with the second set of files in the brackets after the space.

Therefore to compare all of the files on a disc in drive A with their equivalents in drive B, the correct command line is as follows:

```
COMP A:\*.* B:\*.*
```

However, this command line can be shortened as follows:

```
COMP A:\*.* B:
```

Instead of using wildcards as we have shown, one can also use unique filenames if you wish to compare only one file, or enough of a unique wildcard to compare sets of files.

This command is not used very often, but is useful to compare sets of files to find out which is the more current, or the last modified.

Now, onto this month's discs concerning spreedsheets I am very reluctant to talk too much about as I just don't use them enough to understand all of the nuances that are likely to apply. So I will have to give a very short rundown.

EXPRESSCALC

Version 3.11 of this Lotus clone is now available. This program comes with excellent documentation. As appears usual with Lotus clones, the command set is accessed with the forward slash (/) key. Hitting this key will bring up a set of commands along the bottom of the screen. Select the first letter of one of these commands, and you will be presented with a further set of commands to use. In this way, you will eventually be presented with the set of commands that you require.

The program works in colour, allows for configuration to your hardware, and occupies two discs. No sample worksheets are available with the program, but I don't think that this is really a problem. Spreadsheets are a very specialised form of computer program, and the only people that appear to use them are people who need them.

AS-EASY-AS

Another shareware spreadsheet is AsEasyAs. This is different enough to need a look at. AsEasyAs claims to be a straight Lotus 1-2-3 clone, but it has enough differences that it can be set separately. Although it uses the familiar forward slash (/) key to call up commands, AsEasyAs doesn't use the lower edge of the screen to display them. It has an

⬅ Continuation from last page

```
  NEXT count
  FOR count=0 TO number-1
  INPUT #file, item$(count)
  NEXT count
  CLOSE #file
  cfile$="notsaved"
RETURN

LABEL save_file
  CLS
  PRINT COLOUR(15),"
  ###  Save  File  ###"
  PRINT
  GOSUB directory
  PRINT
  PRINT COLOUR(10), "Please enter
  filename ";:INPUT"> ",file$
  file$=file$+".SDF"
  OPEN #file OUTPUT file$
  PRINT #file,nentry
  PRINT #file,number
  FOR count=0 TO nentry-1
  PRINT #file,array$(count)
  NEXT count
  FOR count=0 TO number-1
  PRINT #file,item$(count)
  NEXT count
  CLOSE #file
  cfile$="saved"
RETURN
END
```

unusual pop up menu system, that takes a bit of getting used to. All of the normal commands are there, but they are just presented in a different fashion.

AsEasyAs is also the only shareware spreadsheet to come with sample worksheets. Eight are supplied on the single disc. Very little documentation is supplied with the disc, but fortunately on-line help is available inside the program at all times. This more than makes up for the lack of documentation.

PC CALC

Another spreadsheet that I have available is PC Calc. This is similar enough in operation not to warrant a separate look. PC Calc is a simple copy of ExpressCalc, except that it comes from Buttonware. I believe that it has recently been superceded by PC Calc+, but I have yet to see this new version.

PC Calc comes on only one disc, and does include enough documentation to get you going. As with ExpressCalc, no sample worksheets are provided.

QUBECALC

QubeCalc is the last of the spreadsheets that we will look at. QubeCalc is unique in that it is three dimensional. Whereas most other spreadsheets operate in only two dimensions, giving you an area of anywhere from 26 by 255 cells up to approximately 255 by 8192 cells. QubeCalc offers only 64 cells by 64 cells. However, it also offers another dimension because you can also have 64 sheets deep. So in effect your worksheet can contain over 26,000 cells.

The sheer power that appears to be available in QubeCalc is incredible. The command set is called up in the same fashion as most of the others, except that the command line comes up along the top of the screen. This makes little or no difference to the operation of the program.

The only problem that I find with QubeCalc is that it is only supplied with an abridged manual, and no on-line help file is supplied. Whilst this appears to give a reason to register, it bothers me that one is forced to register to get the best out of the program.

Also available when you register is a 1-2-3 worksheet import program. This allows you to simply bring in a 1-2-3 compatible worksheet into QubeCalc, and start playing with it. Registration is US$54.95.

There appear to be three winners in this spreadsheet roundup. QubeCalc is a winner all by itself, basically because it is available in 3D. This allows you to view your data in ways that you never thought were possible.

The other two winners are ExpressCalc and AsEasyAs. Both of these appear to be quite competant Lotus 1-2-3 clones, but each has a little bit more to offer.

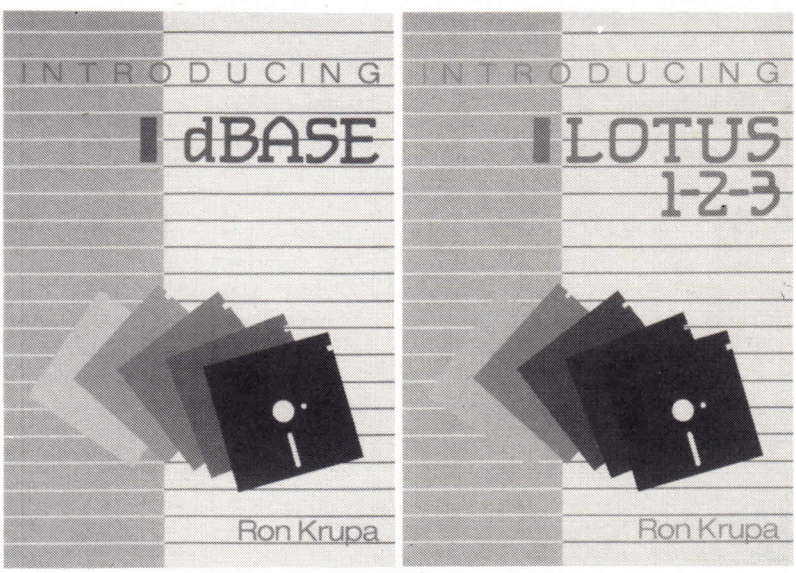
Because of the great variety in these programs, and because I have trouble properly testing them, I have decided to offer all of my readers a special deal. So that you can figure out exactly which spreadsheet is for you, I have decided to offer all four programs (five discs) for $30.00 including postage and handling. They are available from the following address:

C.J. Collins, 1 Woods Street,
Newport, 3015

Please allow 14 days for me to send them to you, as their has been great demand for the discs available.

As always I would like to close with a little message.

"Remember, computers are dumb instruments, you only get out what you put in!"



Introducing dBase and Introducing Lotus 1-2-3

Both are carefully trialled, non-technical books meeting the urgent need for a short, simple, inexpensive introduction to the popular dBase database software and Lotus 1-2-3 spreadsheet software. The easy-to-follow instructions are backed by clear examples for the reader to work through. The books are ideal for short, introductory college and school courses and for the individual who wants to know how to use a database or spreadsheet for either business or personal use.

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MORE VARIABLES AND ARRAYS

Paul Gerard continues his series on structured programming methods and digs deeper into variables and arrays

Last month we had a look at variable types - (reals, integers and strings). This time let's very briefly consider variable names. Old fashioned Basics used to be very particular about variable names - they could only be two characters long, and our programs were filled with cryptic statements like:

```
A1+B3=C4  or  A$=MID(B$,6,7)
```

There is no real excuse nowadays for this kind of thing - and yet some otherwise really well written programs are marred by cryptically named variables. The name of a variable should not be over long - among other reasons is the increased likelihood of it being typed in wrong - but it should ALWAYS give a good idea of what the variable is about. The only single character variables that really are fairly unexceptional are i,j and k (or n) for FOR..NEXT loop counters, and x and y for screen co-ordinates (the x and y axes).

Another one I often use is t (or t!) for delay loops. These names have developed a kind of hoary familiarity and do not mystify. Well chosen variable names on the other hand really help make a program easy to read. In the example programs in this series I have tried to set a good example. There are one or two NEVERS with variable names - NEVER use a "0" (zero) in a variable name, or an "o" unless it is part of a word, similarly NEVER use a "1" (one) or an "l" (lower case "L") unless the name itself makes it clear which is intended. Never, at least in Locomotive Basic, type variable names in upper case. If Basic puts a variable of yours into upper case all by itself, then what you have done is use a "reserved keyword" (a final big NEVER that Basic enforces all by itself). It is perfectly logical that you can't use SPEED (for example) as a variable name in Locomotive Basic - the interpreter (the program that runs all your Basic programs) has no way of telling the difference between the variable and the Basic command.

You CAN use "speeds" or "speeding" however most Basics do not allow this.

BOOLEAN VARIABLES

Before we look at arrays there is one kind of variable that is strictly lacking in Basic, but that we can in fact use. This is the Boolean variable. A Boolean variable has two values, TRUE and FALSE - these are not available directly in Locomotive Basic but can easily be simulated. Some programmers go as far as to set up TRUE and FALSE in the initialisation of the program thus:

```
13010 TRUE = -1 :FALSE = 0
```

We can then set and use a "Boolean variable" (it is really an integer of course) by saying:

```
20 finished = FALSE
30 WHILE NOT finished
40  GOSUB 1000... (etc.)
.....
90 WEND
```

Somewhere in the body of the program *finished* will eventually be set to TRUE and the loop will terminate at line 90. It is probably just as easy, however, to simply set *finished* directly to zero or-1 (incidentally any number at all other than zero will do equally well!). Note that:

IF (*variable name*) THEN (*expression*)
is equivalent to
IF (*variable name*)<>0 THEN (*expression*)

The advantage of using FALSE and TRUE (note that we type these in upper case as they are not functioning as variables, but as Boolean operators, like AND, OR, NOT etc.) is that the program is clearer to read, and makes better sense in terms of Boolean algebra. Mind you it works just as well the other way! An example of this is "caps" in our INPUT routine - although we may as well change this to a "TRUE/FALSE" type Boolean variable, like "yes", if only for consistency.

ARRAYS

Again we will assume that you know what an array is, and that you use them now and then. In this exercise we will use arrays and add yet another feature to our INPUT routine, allowing us to control the range of characters allowed for certain types of user input. At this stage we will not have to bother with multidimensional arrays (a joy to come!).

First, get out your latest version of sub-routine 200. If you haven't got a saved version, refer back to last months magazine where it can be found on page **00**, enclosed in a box. If you still have that awful little test rig then quickly delete ALL lines before 200 (i.e. type in DELETE -199) and lose them forever. Instead, append (or MERGE) this listing, which is a preliminary version of our "initialise variables" routine.

Readers who have not seen our "Skelator" plan (from no. 1 of this series) may be mystified by our use of line numbers - never fear, there is method in our madness.

```
10000 ' initialise variables, dim arrays etc.
```

```
13010 ' Boolean operators
13020 TRUE=-1:FALSE=0 'Boolean operators
13030 ' User.input
13040 DIM control$(12)
13050 RESTORE 40000
13060 FOR i=1 TO 12:READ control$(i):NEXT
      'User input control
13070 user.input$=STRING$(254,"#")
13080 byte$="#"
13900 RETURN
40000 ' DATA for control$(n)
40010 DATA "YN","123","1234","12345","1234
      56","1234567","12345678","123456789"
      ,"1234567890","ABCDEFGHIJKLMNOP
      QRSTUVWXYZ","abcdefghijklmonopqrs
      tuvwxyz ABCDEFGHIJKLMNOPQRSTU
      VWXYZ","1234567890.,:;$&'()abcdefghij
      klmnopqrstuvwxyz ABCDEFGHIJKLMN
      OPQRSTUVWXYZ"
```

While we are at it, a little comment on the above - ALWAYS DIMension arrays - I know it is not strictly necessary to do so when they have fewer than 10 elements - but it is at least a neat indication to anyone (including yourself!) reading your program of the size of each array. For this reason, incidentally, I tend not to use the first, or "zero" element of a Basic array (e.g. control$(0)) - although if you are really pressed for string memory it is always there. In some other dialects of Basic, that apportion memory for strings in a less "dynamic" way than does Locomotive, dimensioning arrays will even save you memory!

Next, ALWAYS "RESTORE" to the line concerned before reading DATA. Again it may seem redundant - especially in an initialisation routine - but it does save one from the chance of reading the wrong data, as well as making "Out of data at line n" messages more helpful. Even more importantly, it shows the reader exactly where the relevant DATA lines may be found, (which may be very important if a bug crops up two weeks after you have "finished" the program!). Finally - label your DATA - there is nothing more annoying than an error message that refers to a perfectly valid DATA line (e.g. "Error in line 40010") when you can't find the line with the faulty READ command that has actually caused the error!

What we have done, as you probably realise, is to set up an array consisting of 12 sets of characters. The first of these, control$(1), is simply "YN". This will be useful for yes/no situations, in fact we will have a yes/no routine (subroutine 500) that uses this. The "number" sets - (control$(2) to control$(9)) will be handy for our "menu" routine (sub-routine 2000), as well as eliminating non-numeric input to a "number" question. Application of the others should be fairly obvious.

The line that will need changing in sub-routine 200 is our long-suffering friend, line 270 - in fact we will be able to simplify this line slightly -

```
270 IF INSTR(control$(control),byte$) AND
long<length THEN
long=long+1:MID$(user.input$,long,1)=byte$:PRINT
byte$;
```

Now a character will only be added to user.input$ and echoed on the screen if it is a legitimate part of what we are expecting the user to input - otherwise it will simply be ignored. No more need for annoying error messages! There will need to be another parameter passed to the routine each time it is used - the integer "control". For example within our yes/no routine we will call sub-routine 200 with "control" set at 1.

For interest's sake here is a preliminary version of our Yes/No routine, although we will be adding a few frills later, especially when we have had a look at screen design and the use of windows (next month):

```
500 ' Yes/No
501 x=POS(#0):y=VPOS(#0)
510 LOCATE 1,25:PRINT SPACE$(28):"Press
    Y or N":SPACE$(28):
515 LOCATE x,y
520 control=1:caps=1:length=1:GOSUB 200 '
    User input
530 IF byte$="Y" THEN yes=TRUE ELSE
    yes=FALSE
590 RETURN
```

(Strictly "caps" should now be given the Boolean value "TRUE" rather than "1" in line 540.)
Here is a new test rig for trying out our (more or less) finalised INPUT routine, as well as the Yes/No routine. Append it to sub-routine 200, 500, 13000 and the DATA lines 40000-. Note that the test itself is now in a routine, and that the main program is starting to resemble our final version.

```
1     ' Still another test rig!
2     ' Although this one is a little better
      structured!
10    MODE 2 ' just to set up things right!
20    GOSUB 13000 ' initialise
30    GOSUB 50000 ' test itself
40    IF yes THEN 30 ELSE CLS:PRINT"TES
      T ENDED":END
50000 ' Test of subroutines 200 & 500
50010 CLS"PRINT"How long is your input
      string ? ";
50020 control=9 'numeric characters only ac
      cepted
50030 length=3 '3 digit number maximum
50040 GOSUB 200 'accept user input
50050 ' error trapping
50060 length=VAL(LEFT$(user.input$,long))
50070 IF length=0 THEN 50010 'note: GOTO
      forms simple loop!
50080 IF length>254 THEN length=254 '
      prevents over filling string!
50090 PRINT"Input your string at the prompt":P
      RINT:PRINT">";
50100 control=12 'allows most characters
50110 GOSUB 200 'input string
50120 PRINT:PRINT"Your string has
      "long"characters, and has been evaluate
      d as
50130 PRINT LEFT$(user.input$,long)
50140 PRINT"Do you want to have another try
      ? ";
50150 GOSUB 500 ' get yes/no
50160 RETURN
```

YOUR BASIC ROUTINE LIBRARY (A DIGRESSION)

Incidentally, I have been gaily prattling on about "appending" and "merging" listings. Just in case this has you mystified - what you need to do is save each routine separately. If you are using discs then you have to save these as ASCII files (e.g. SAVE "INPUT4.SUB",A). It is now possible to MERGE routines together, or into another program. This way you can build up quite a library of Basic sub-routines that can be MERGEd into the program you are currently writing. For instance you can merge both sub-routine 200 & 500 into most programs you might write that involve text processing, (provided of course you keep to our good old skeleton line numbering plan!). You may end up with several alternative INPUT routines, all with special features - provided they are all line numbered between 200-290 then you can actually slot one into a program, test it, cut it out and substitute an

test it, cut it out and substitute an alternative, and then test the modified program! Even if you don't have a disc drive this sort of thing is far more flexible and much faster than doing everything by hand. Quite apart from the time saved in typing you don't have to do the same debugging twice!

Merge all your routines to date with the test rig and make quite sure that there are no lingering bugs - this is another advantage of structured programming, by the way, we build our program out of debugged routines and so (hopefully) have no bugs in the final version - then save the whole thing as TRIAL1BAS (don't worry about saving it as an ASCII file). This test program will now form the basis of what we do next month.

What we will be doing then is to extend the decision making capability afforded by YES/NO to the much more flexible structures afforded by MENUS. We will also be looking at screen design.

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ADVENTURER'S ATTIC

Phillip Riley reviews the new adventure game, "Not a penny more, not a penny less", and presents your Questions and Answers and an even bigger contact list.

This month we have a review of a new game by Domark, based on the Jeffrey Archer book of the same name. It is a graphic/text adventure with a little speech and they claim that it is a new type of game and different to anything that you have played before. Now I know what you want to know, how did it rate? Well not terribly good I am sorry to say.

It is certainly different to most other adventures but I don't think that the differences make it better. The graphics are rather simple and fortunately can be switched off. To move you must type in the full direction (for example to move SOUTHWEST you must type in "GO SOUTHWEST"). For someone who is used to just typing in "SW" this is annoying and takes a lot of getting used to.

Another drawback is that you don't so much solve problems by yourself, in a lot of instances if you merely examine the right person or object the game will take care of the rest. In most cases the various locations come in small groups and the game will move you around to these places upon examining the right person (this is the main way of moving, by examining a person).

So the next question that you would probaby ask is what is the storyline. Well you play the part of Stephen Bradley, a visiting fellow at Magdalen College in Oxford. You and three other people have been swindled out of one million dollars by Harvey Metcalfe, an American business man. You decide to get all of the money back from him without his knowledge.

You must plan how each person will recoup his losses and help each other along the way. As you play, a total of all expenses will be kept and these must also be recouped from Harvey.

It is a different type of adventure but I really don't think that it is a particularly better game. I would rate it at 5 out of 10.

Now some points of interest, first of all anyone who is thinking of buying the Time and Magik Trilogy. If you don't have a 6128 you will need the 64K ram expansion plugged into your 464 or 664, this is not explained on the packaging.

Next a handy hint from Mark 'Mantis' Nelson (we still don't know why MANTIS). If you are a music lover plug your speech synth. jack into the earphone socket of a walkman and get Iron Maiden in stereo through your computer. If you don't have Iron Maiden then Alice Cooper will do (I tried this and my computer went into a meltdown situation. I am now the only person in our street who lives in a twenty foot lump of concrete).

If anyone else out there has something that they would like to say please let us know. It can be anything concerned with adventures (we would like to keep it on adventure games as this is an adventure column!) What you think of a particular game or a handy little secret that you have found in a game. In fact anything that you can think of that would interest other adventurers, and so onto the finish and a nice one from Mantis.

See ya and don't forget, bugs are people too. I hadn't thought of it that way before, bye.

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QUESTIONS

Here we go for another month and first of all Darren Bruggeman would like to now some of the more common commands in Bastow Manor. He knows Drop, Look and Climb but not much more, can anyone help him?

Chris Moloney would like to know how to wear the thermoplas suit in Necris Dome.

In the Pawn, Mark 'Mantis' Nelson has dropped the wristband and crossed the dotted line. He is in the area of the misty waterfall. What he would like to know is, has he finished the game as it does not tell him. I think that Mantis deserves the title of "THE MOST UNSURE ADVENTURER TO SEND US A LETTER".

Well that is all we have in the way of questions this month. I think that many of you are starting to use the contact list. Most of the people who have written to the attic recently have commented on it and what's more all of the comments have been good, not bad, eh.

ANSWERS

First we have four answers from Barry Hoole concerning Mordons Quest. Spray the paint from the can that you will find in spiderman's workshop to get past the invisible barrier. Type "PERSEVERE" to get past the adamantine barrier. Unlock the iron door from the inside using Cretans key (do not do this if you wish to score full points), and ignore the whale completely.

Barry has also given us three answers for Warlord. To step into the ring of crystals you must wear the cloak. The slab with the blue light in it is in the hut to the North of Danean settlement, and to deal with the Roman you must eat food, carry rope, capture the Roman and give him to the druid.

Now for Dracula and two answers from Dean Stibbe. To leave the courtyard you must go to the Southwest corner of it and look around, you should find a staircase, climb up it and you will be at Drac's front door. To catch Renfield you must take the net from the storage room at the top of the stairs. Proceed along the track until you catch a glimpse of Renfield. Climb a tree and when Renfield is below you drop the net.

Here is a cryptic one from Mantis for Mindshadow. If you are going to buy a pole you may as well use it.

Troy Cox was having trouble with Batman. Well holy relief Batman here is the answer from Scott Barker. The piece in question has already been collected from the room where you take all the pieces. When you have all of the pieces and the Batcraft is assembled you hop into the Batcraft and push towards the front.

So another months column comes to an end, don't forget we want to here from you, so keep sending in your letters.

ADVENTURER'S CONTACT LIST

(Please don't abuse the help being offered)

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Karla Slack P.O. Box 201, Springwood N.S.W. 2777	Adventure Quest , The Hobbit, Zork II ,The Neverending Story (1) Wishbringer
John McNeill 1 Hawkins St. Chatswood Hills, Qld 4127	Jewels of Babylon The Trials of Arnold Blackwood
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Michael Fitzgerald 54 View Road Burnie Tasmania 7320	The Hobbit, The Neverending Story
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Dave Weatherhead 2 Searle Court Nth. Dandenong Vic 3175	Aftershock, Imagination Seabase Delta, Necris Dome
Mark Nelson 128 Parkin Street Rockingham. WA 6168	Enchanter, Gremlins, Infidel, Midshadow, Message from Andromeda, Wishbringer, Heavy on the Magick.
James Green 24 Rosemary Row Rathmines N.S.W. 2283	Adventure Quest,The Pawn, Mordens Quest, Mind Shadow, Sorceror, Return to Oz, Enchanter, Aftershock, The Neverending Story, Imagination, Message from Andromeda, Red Moon, Mural.
Barry Hoole 4 Dobson Road Shepparton Vic 3630	Acheton, Adventure Quest, Arnold goes Somewhere else, Aftershock, Ashkeron, Black Crystal, Brawn Free, Castle Advent., Castle Blackstar, Circus, Classic Adventure, Colossal Adventure, Countdown to Doom, Crystal Quest, Desert Island, Dun Darach, Dun-geon, Adventure, Emerald Isle, Enchanter, Espionage Island, Eye of Bain, Feasibility Experiment, Golden Apple, Golden Baton, Ground Zero, Guild of Thieves, Heavy on the Magick, The Hobbit, Inca's Curse, Infidel, Invincible Island, Jewels of Babylon, Kentilla, Last Will and Test-ament, Leather goddesses of Phobos, London Adventure, Lords of Time, Mansion Quest, Marsport, Mission X, Mooonmist, Mordons Quest, Murder at the Manor, The Neverending Story, The Pawn, Pharoahs Tomb, Philosophers Quest, Planet of Death, Return to Eden, Return to Ithaca, Rifts of Time, Sherlock, Ship of Doom, Smugglers Cove, Snowball, Starcross, Subsunk, Ten Little Indians, Terrormolinos, Time Machine, Time Quest, Tir Na Nog, Traveller, Trials of Arnold Blackwood, Valhalla, Volcanic Dungeon, Warlord, Wise and Fool of Arnold Blackwood, Wishbringer, Worm in Paradise, Zork II, Zork III

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Mail: 11 Laack St., Bundaberg, QLD 4670.

CABOOLTURE AMSTRAD USER GROUP
President: John D'Archambaud (071 95 4860)
Secretary: Stephen Yench
Treasurer: Craig Deshon
Venue: Contact above number for more details.

CAPRICORN AMSTRAD USERS GROUP
President: Graeme Annabell (079 27 4915)
Sec/Treas: Anthony Trost (079 33 1951)
Venue: Waraburra State School, Johnson Road, Gracemere on the first Friday of each month at 7.00 pm.
Mail: 4 Sunrise Crescent, Gracemere, 4702

COMPUTER USER GROUPS OF AUSTRALIA Pittsworth Branch
President: David Siebuhr
Contact: Ron Langton (076 931 690)
Venue: Every first Tuesday of every month from 5 pm. at the St. Peter Lutheran Church Hall, Grand Street, Pittsworth.
Mail: CUGA, PO Box 166, Pittsworth, 4356

GOLD COAST AMSTRAD USER GROUP
President: Stephen Greenwood (075 572 442)
Treasurer: Pamela Scott (075 323 334)
Secretary: Ray Maclaren (075 398 743)
Venue: Benowa State High School, Mediteranean Drive, Benowa on the first Saturday of each month at 2.00 pm.
Mail: 7 Coral Gables Key, Broadbeach Waters. QLD 4218.

IPSWICH AMSTRAD USER GROUP
Contact: Peter Wighton (07 288 4571)
Venue: Every second Wednesday from 7.15 p.m. at Bremer High School, Blackstone Rd, Raceview

MACKAY AMSTRAD USER GROUP
Contact: Des Mulrealley (551 409)
Ron Coates (547 222)
Venue: Meet every second Sunday morning. Contact the above for location and time.

PENINSULA AMSTRAD CLUB (amalgamated with BACC)
President Ivan Dowling (07 269 8795)
Treasurer Keith Johnston (07 203 2339)
Secretary Tracie Payne (07 267 6645)
Venue: Kippa-Ring State School Library, Elizabeth Avenue every third Tuesday of the month at 7.30 pm.

SOUTHSIDE AMSTRAD USER GROUP (QLD)
President: Michael Toussaint (07 200 5414)
Vice-Pres: Peter Incoll (07 208 2332)
Secretary: Mick Howe (07 209 1839)
Treasurer: Wayne Stephens (07 287 2459)
Librarian: Carol Watts (07 287 2882)
Venue: Loganlea State High School (in the Communications Room) every 3rd Sat. of the month starting at 2.00 p.m.A Basic programming course is held fortnightly.
Mail: 10 Carramar St, Loganlea, 4204

TOOWOOMBA AMSTRAD USERS GROUP
President: Stephen Gale (076 35 5001)
Vice-Pres: Priscilla Thompson (076 35 5092)
Secretary: Adrian Dunsmore (076 91 1561)
Treasurer: Edwin Gerlach (076 33 1054)
Venue: Toowoomba Education Centre, Baker Street, Toowoomba on the 4th Monday of each month starting at 7.30 pm.

TOWNSVILLE AMSTRAD USER GROUP
President: Ian Wallace (077 73 1798)
Vice Pres: Doug Selmes (077 79 6011 xt 252)
Treasurer: Chris Nisen (077 79 6299)
Secretary: Alister Buckingham (077 73 3955)
Venue: Science Block of the Kirwan High School in Thuringowa Drive on the first and third Tuesdays each month at 7.30pm.

THE WARWICK AMSTRAD USER GROUP
President: Mrs. D. Christensen
Secretary: John Wode (076 61 5176)
Treasurer: Neville Christensen

WEIPA AMSTRAD USERS CLUB
President: Andrew Seabom
Vice-Pres: Dave Wootton
Treasurer: Frances Casey
Secretary: Gary Chippendale (070 69 7448)
Venue: Noola Court in Weipa. Contact above for more details.
Mail: 15 Noola Court, Weipa, QLD 4874.

WESTERN SUBURBS AMSTRAD USERS GROUP
President: Peter Wighton (07 288 4571)
Secretary: Jimmy James (07 376 1137)
Contact: Keith Jarrot (07 376 3385)
Venue: The Jamboree Heights State Primary School, 35 Beanland Street, Jamboree Heights at 1.30 p.m. on the first Saturday in each month.
Mail: Jimmy James, 36 Penong Street, Westlake, Brisbane 4074.

TASMANIA

SOUTHERN TASMANIAN AMSTRAD USER CLUB
President: Frank Self (002 49 5499)
Secretary: Peter Campbell
Treasurer: Cindy Campbell
Publ. Off: Danny Brittain (002 47 7070)
Venue: Elizabeth Matriculation College on the first Wednesday of each month from 7.30 pm.

NORTHERN TASMANIA AMSTRAD COMPUTER CLUB
President: Keith Chapple (003 26 4338)
Treasurer: Shane Crack (003 97 3298)
Secretary: David Double (003 44 4243)
Publicity: Bobby Lockett (003 44 8972)
Tech. Off: Richard Wilson (003 93 1437)
Junior Del: Jay Donati (003 31 6597)
Venue: Launceston Community College (opposite Park Street) in Room 27 on the first Saturday of the month at 5.00 p.m.

N.W. COAST AMSTRAD USER'S CLUB
President: Peter Gibson (004 24 7586)
Treasurer: Robert Simpson
Secretary: Karen Stevenson
Venue: Hellyer College, Mooreville Rd, Burnie on the third Friday of each month at 6.30.
Mail: Secretary, 112 Payne St., Burnie 7320

NEW ZEALAND

THE AMSTRAD COMPUTER CLUB OF CANTERBURY
Contact: Christine Linfoot 897 413
Ian Orchard 524 064
Venue: Four Avenues School, cnr. Madras Street and Edgeware Road, Christchurch 1 on the fourth Wednesday of each month.
Mail: Box 23.082 Bishopdale, Christchurch, NZ.

WELLINGTON AMSTRAD USER GROUP
Contact: Tony Tebbs 791 072 (evgs)
Venue: Cafeteria, NZ Fisheries Research Division, Greta Point, on the first Monday of each month from 7.30 pm.
Mail: PO Box 2575, Wellington, New Zealand.

User Group Contact List

Please note that the following names are listed as contacts for new user groups and should NOT be viewed as a problem solving service.

NSW

Nick Rogers	Bogan Gate	(068) 64 1170
Chris Craven	Canowindra	(063) 44 1150
Trevor Farrell	Coolah/Mudgee area	(063) 77 1374
David Higgins	Cooma/Monaro	(064) 52 1531
Paul Wilson	Moruya	(044) 74 3160
Frank Humphreys	Mummulgum	(066) 64 7290
Reuben Carlsen	North Sydney	(02) 957 2505
Stephen Gribben	Singleton	(065) 72 2732
Ken Needs	St. Ives	(02) 449 5416
Chas Fletcher	Toongabbie	(02) 631 5037
Nick Bruin Snr.	Tweed Valley	(066) 79 3280

VIC

Brian Russell	Ballarat	(053) 31 2058
C. van de Winckel	Ballarat	(053) 313 983
Rod Anderson	Camperdown	(055) 93 2262
Paul Walker	Heathmont	(03) 729 8657
Terry Dovey	Horsham	(053) 82 3353
Andrew Portbury	Leongatha	(056) 62 3694
R. Kernebone	Miildura	(050) 23 3708
Angela Evans	Mt. Evelyn	(03) 736 1852
Keith McFadden	Numurkah	(058) 62 2069
Maureen Morgan	Warnambool	(055) 67 1140

QLD

Beryl Schramm	Boyne Island	(079) 73 8035
Steven Doyle	Caloundra	(071) 91 3147
Ric Allberry	The Gap	(07) 300 1675
Kylie Telford	Goondiwindi	(076) 76 1746
D.F. Read	Ingham	(077) 77 8576
Ian Jardine	Pialba	(071 28 3688)

SA

Lindsay Allen	Murray Bridge	(085) 32 2340
Michael Spurrier	Murray Bridge	(085) 32 6984
Mrs. S. Engler	Penola	(087) 36 6029

WA

Barry Kauler	Narrogin	(098) 83 1011
Graeme Worth	Scarborough	(09) 341 5211
P.M. Nuyens	Waroona	(095) 33 1179

TAS

Conal McClure	Scottsdale	(003) 52 2514

NT

G.P. Heron	Tiwi	(089) 27 8814

For new readers: if you want to start a group in your area just drop us a line with the relevant details and we will add you to the list.

BOOKS

CPC TITLES

	Subscriber Price	Normal Price
Advanced Amstrad Programming Techniques	$23.95	$25.95
Advanced User Guide	$19.75	$21.95
Amstrad Compendium	$21.65	$23.95
Basic BASIC	Temp O/S - Due Oct	
Childs' Guide to the Amstrad Micro	$12.65	$13.95
Disc System, The Amstrad CPC 464	$26.15	$28.95
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Graphics Programming Techniques	$23.45	$25.95
High Energy Programs for the Amstrad	$ 9.95	$ 9.95
Ins and Outs of the Amstrad	$21.65	$23.95
Machine Code for Beginners	$18.95	$21.95
Machine Lang. for the Absolute Beginner	$21.65	$23.95
Making Music on the 464/664 (OK for 6128 too)	$21.75	$23.95
Powerful Programming for Amstrad 464/664/6128	$23.55	$27.05
Practical "C"	$26.80	$29.65
Ready made Machine Language routines	$21.65	$23.95
Structured Programming on 464/664/6128	$27.95	$30.95
Whole Memory Guide - 464	$27.95	$30.95
Writing Adventure Games on 464/664	$21.65	$23.95

PCW TITLES

Advanced LocoScript on the Amstrad PCWs	**<<N E W>>**	$37.50	$39.50
Desktop Publishing with the Amstrad PCW	**<<N E W>>**	$33.95	$35.95
LocoScript Pocketbook		$16.95	$17.95
LocoScript2 and the Amstrad PCW Computers - a complete guide		$41.00	$43.00
Mallard Basic - Introduction and Reference by Locomotive		$37.50	$39.50
Mastering the Amstrad PCW 8256/8512		$29.50	$32.25
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CP/M Plus Handbook - Operator's and Programmer's guide for the Amstrad CPC6128 and PCW 8256 and PCW 8512 (Soft 971) by Digital Research Inc. Over 500 pages of everything you need to know about CP/M Plus. This revised Edition now includes a GSX supplement	$49.95	$52.95

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Business Computing with the Amstrad PC1640	$42.00	$44.00
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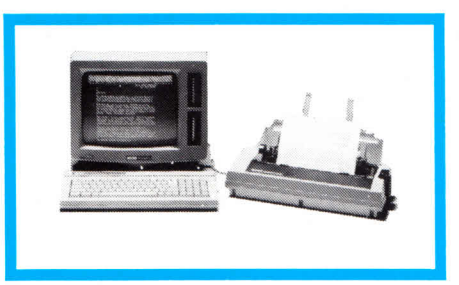

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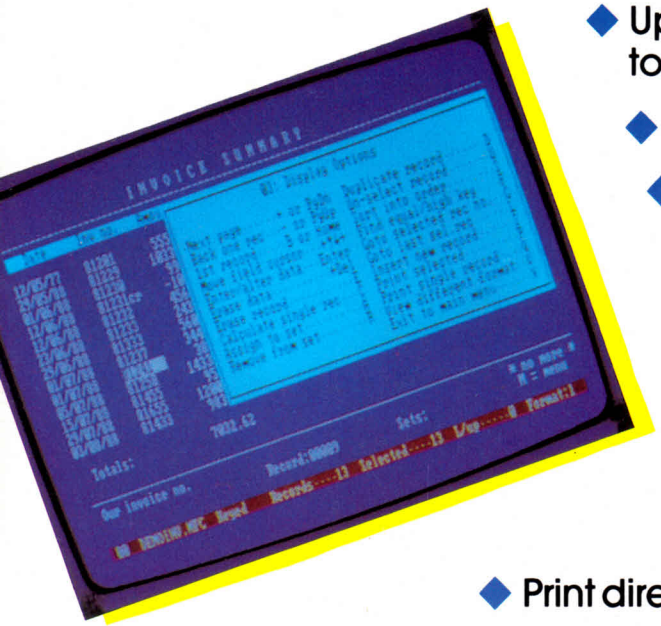

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