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The independent magazine for Amstrad computer users



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publishing
on the CPC & PCW

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What's so special about the Mac, the Atari St, the Amiga, Windows and Gem?

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History of the last record			
Field	Value	Field	Value
1	1234567890	11	00000000
2	00000000	12	00000000
3	00000000	13	00000000
4	00000000	14	00000000
5	00000000	15	00000000
6	00000000	16	00000000
7	00000000	17	00000000
8	00000000	18	00000000
9	00000000	19	00000000
10	00000000	20	00000000

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*** PCW users: be patient, MASTERFILE 8000 will be ready early in 1987 ***

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More Amstrad machines coming

AMSTRAD has confirmed it is working on additions to its PC and PCW lines for release during the second half of this year.

In keeping with its traditional policy, the company is against revealing details of the new machines until they are ready for release.

But sources close to the development team told Computing with the Amstrad that the new PC will be even cheaper than the current range of IBM compatibles.

This is because it will contain more Amstrad-designed components than the present models which rely on third party suppliers for vital elements.

Alan Sugar believes he can build an even more cost-effective machine by having

greater control over component design and manufacturing.

For instance, Amstrad is said to be keen to produce its own hard disc drive - to replace the unit it currently buys from Tandon - and disc controller.

There will certainly be revised versions of the PC1612 board, and there is talk of an enhanced graphic adapter card for higher resolution and more colours.

The new PC is not expected to make its debut until late in the year, but there should be a new 'improved' PCW this summer, probably incorporating a better quality printer.

Amstrad is planning a major thrust in the printer market with as many as four

new models, not necessarily for its own machines.

A company spokesman would only say that: "There are a number of new machines under development at the moment, some further ahead than others."

"There will be additions to the PC and PCW ranges, though these products are some way away from completion."

"You won't see them during the first half of 1987, that's for sure".

What is a near certainty is that any new machines from the Amstrad stable will be cheaper than current models.

"If people think we're competing aggressively now, they'd better watch out in the coming months", Alan Sugar has warned.

French micros hit

UNBEATABLE competition from Amstrad machines has been blamed for lay-offs at leading French computer manufacturer Thomson.

The firm has announced the closure of its micro-manufacturing plant at St Pierre Montmart, resulting in the loss of 480 jobs.

Thomson is expecting a loss of nearly £18 million on its computer operations because of inroads into its home market made by imports of Amstrad micros in particular.

Looking for writers

PUBLISHER of award-winning entertainment programs for the CPC and PC, MicroProse has appointed Simon Barnard as software development manager.

Formerly with Activision as software producer, Barnard told Computing with the Amstrad: "I want to hear from program writers with new ideas or finished products."

"We are hoping to tap the rich resources of UK software authors in order to expand our range of products, particularly strategic simulations like *Crusade in Europe*".

New labels

THE Vaneoh Group has entered the Amstrad entertainment software market with two new labels - Vaneoh and Prism Images.

There are 20 new releases promised for the first four months of this year, the first being graphic adventure game *Arms for the CPC*.

There is a cash prize of at least £10,000 to be won in connection with *Arms*, which costs £4.95 on cassette and £7.95 on disc.

PC PASSES POLY'S TOUGH TEST

THE Amstrad PC1612 has been given its toughest test so far by students at Leicester Polytechnic - and has passed with flying colours.

Sixteen of the new machines were installed in the commercial laboratory of the School of Mathematics, Computing and Statistics.

They were used continuously, 12 hours a day, five days a week by students - mostly running standard business software like Gem Wandstar and dBase II. At

the end of the first month of this grueling test, principal lecturer Dr Peter Thevallis said: "In terms of doing a job and value for money they're excellent."

"The PC1612s have proven their reliability. There has been only one fault - a minor problem with a screen that was soon rectified."

"If they continue to be so reliable and the price remains roughly the same, we'll certainly be buying many more."

Leicester Polytechnic bought the 16 machines - part of a total order for 30 - in order to meet an increase in student numbers which meant that more teaching minutes were needed.

The PC1612s are being

used to give students a glimpse of the kind of commercial software - like Open Access, dBase II, WordStar and SuperCalc - that they will meet in the commercial world. The Polytechnic has also ordered Turbo Pascal and Turbo Prolog that will run on the machines.

Also under test is Novell's Pkg Net-10 token and ring local area network which is running on a network of four Amstrad double floppy disc PC1612s with a modified hard disc PC1612 acting as the server. If tests prove successful, the 10Mbit per second LAN will be installed permanently.

Dr Thevallis said the Polytechnic has experienced no difficulties in networking the PCs. "We've added the Pkg Net cards to the networked 1612s and they've been fine", he says.

LOTUS LINE

AMERICAN developer Lotus has announced a new graphics program, Presentation Plus, to work with its 1-2-3 and other packages on the PC1612.

Also new from Lotus are WML, a natural language interface, applications generator T.A.C. and stock market data extraction utility Signal.

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Amstrad - choice of the stars

AMSTRAD computers are achieving top-of-the-bill status among the stars of stage and screen.

Label of the celebrities known to have purchased machines are Sheila Hancock and Nigel Williams.

Sheila Hancock, the renowned comedy actress married to John Thaw of *The Bannerman* fame, has acquired a POW8512 to write her autobiography.

"I was looking around for a suitable computer and just everyone recommended

Amstrad", she said.

"And now that I've got one, I can understand why".

Meanwhile former *Coronation Street* star Nigel Williams was one of the first to receive the new Amstrad PC.

"The handsome actor who went on to appear in *Secret Army* and *Blot* on the *Landscape* is a self-confessed computer buff.

"So when I saw the facilities the machine offered at the price, I couldn't wait to get my hands on one", he told *Computing with the Amstrad*.



Amstrad users... Sheila Hancock and Nigel Williams



Games briefs

A NEW company has been set up to produce games software for Amstrad machines.

Starlight Software has signed a European marketing agreement with Aristonsoft and says its first two releases will be 3D arcade adventure *Greyfel* and space action simulator *Deathscape*.

LATEST release from Software Marketing is a racing game for the CPC.

Street Machine can be used by up to eight players and features graphics, sound effects and full screen scrolling. Price £8.95 on tape, £14.95 on disc.

AN annual sports simulation for the CPC has been released by A'N'P Software.

Zero is an inter-planetary game, based on the ice hockey played on it.

You take part in the Earth Congress Championship 2086 with a choice of opponents, either the computer or another player.

The aim is to score as many goals as possible. Price £7.95 on cassette, £12.95 on disc.

NEW from Palace is *The Sacred Arrow* of Amstrad for the CPC.

A follow up to *Cauldron* and *Cauldron II* this is the first game written and designed by comic artist Dan Malone.

The game follows the legend of the sacred arrow and is a 76 page mini comic is included to tell the story.

The program also features a soundtrack and sound effects. Price £8.99 on cassette and £12.99 on disc.

THE bestselling board game *Braville* has now been converted for the PCW by Leisure Games.

Up to four people can play at once and features include a dictionary of over 11,000 words and eight levels of skill. Price £19.95.

Immigrants get micro training

THE Spitalfields area of East London has for centuries provided refuge for successive waves of immigrants to England.

Today, Bengalis and Vietnamese occupy the backlands district where Huguenots and Jews once found sanctuary.

And helping to prepare the newcomers for permanent jobs is a Youth Training Scheme equipped with Amstrad micros.

Unemployment rates as high as 80 per cent among the immigrant population living in and around the dilapidated Tower Hamlets.

But Roy Tindie, manager of Springboard East YTS, is doing his best to brighten those statistics with the aid of a couple of PCs and a CPC.

Young Bengalis and Vietnamese are learning English and computing skills on the machines in preparation for jobs in the London area.

Tindie told *Computing with the Amstrad*: "We are using Mini Office II as a training medium for computer skills like word processing in order

to give these youngsters the qualifications necessary to find work in the City.

"Our previous one-year YTS had a good success rate and we are hoping for similar results from our current two-year scheme involving 30 youngsters.

"Mini Office II, with its word processing, database and spreadsheet features is an ideal vehicle for training youngsters to use applications programs of the type they will encounter in city offices and banks.

"For some of them, the courses could even open the way to setting up their own businesses".

Tindie uses Microsoft to access educational databases and to contact prospective employers and government agencies.

"I find I can get amazing responses from people by using MicroLink tapes and electronic mail. I can often get a situation resolved the same day instead of having to wait up to three months to do it by mail".

Prices slashed

A GROWING number of PC-compatible manufacturers have reduced their prices in response to Amstrad entering their sector of the market with the PC7512.

Latest price-slasher is Teedy, which is offering a basic PC compatible for about the same price as Amstrad's - but with only half the memory and incorporating the one-ported 8088 chip.

The news has barely raised a ripple at Amstrad Headquarters. An unimpressed spokesman told *Computing with the Amstrad*: "We believe the pricing policy we've set makes us so competitive that, whatever other people do, we will still have the most attractively priced products".

BUMPER NEW YEAR SHOW

THE sixth Official Amstrad Computer Show promises to be the biggest - and best - yet.

Organiser Database Exhibitions has taken up additional space for the New Year event at the Novotel, Warrnambool, London.

The entire floor area of the Champagne Suite and the Exhibition Centre - a massive 33,000 sq ft - will be given over to stallholders.

It means a dozen more suppliers of Amstrad hardware, software and peripherals can be accommodated this time - pushing the total to well over 180.

And, as there has been a waiting list of exhibitors for every show in the series, these additional stands have been quickly snapped up.

It means a round number of new products and post-Christmas bargains will be on

offer - among them a new machine from RDS Electronics for the PCW. The Charterline is also destined to appear and costs £160 including software.

Canon Software is launching a follow-up to its database Concord II. Concord Genesis for the PC1612 will cost £99.99.

Transform is introducing Polix PC IV, an integrated package for the PC1612 featuring database, word processor, spreadsheet and graphics. Price £90.

Carrix will have an upgrade for its Simple Accounts package available, as well as a new demo disc for its Job Estimating and Costing program.

Minerva's new accounts package First Calc for the PCW and PC will be on show. Price £29.95.

Sandpiper Software is offering a new stock control

package for the PC and PCW, which can be integrated with its current Accounts software and costs £109.95.

Also available will be a new database called File Manager, price £99.95.

Professional Data Service is launching a multi-lingual word processor for the PC which facilitates the use of French, Arabic and Hebrew. Price £280.

Armor has Protes, a new word processor for the PCW priced £79.95. New programming language BCPL will be available for the CPC and PCW priced £29.95.

Mirage Micro Computers has a new version of the Mirage Inquirer for the CPC priced £69.95.

All these and more are at the Novotel from January 9 to 11. Opening hours are 10am to 6pm Friday and Saturday, 10am to 4pm Sunday.

For the armchair warrior . .

TWO new strategy games in the Wargamers series have been released by PSS.

Annals Of Rome for the PCW and CPC range places you in a ruling power group in the Roman Senate, displaying armies and commanders in successive foreign and civil wars.

A maximum of 13 opponents can be faced ranging from the incompetent Gauls to the deadly Carthaginians. Price £12.95 on cassette, £17.95 on disc.

Battlefield Germany for the CPC is a simulation of war in central Europe between NATO and the Warsaw Pact countries.

Incorporating the latest in artificial intelligence techniques, features include varying levels of difficulty with strategic views and a hot based map. Price £12.95 on cassette, £17.95 on disc.

For the top end of the Amstrad entertainment market comes Decision in the Desert, a re-creation of five important North African Campaign battles by MicroProse. In announcing the release of this swift-moving simulation for the PC1612, MicroProse sales manager John Tweedy takes a swipe at some of his firm's competitors.

"Decision in the Desert has been released in the UK a month ahead of schedule", he told Computing with the Amstrad.

"Late releases of promised products have plagued the software industry in the past and caused considerable harm to the goodwill of the buying public.

"MicroProse intends to set the lead in rectifying this situation by delivering on time, or - as in this case - even earlier".

Number two in the MicroProse Command Series, Decision in the Desert follows Crusade in Europe and costs £24.95.

Tovarich without trouble on a CPC 6128

RETIRED language teacher Peter Barber has written a redefinition program in Basic on his CPC6128 which allows him to print out the Russian alphabet.

With the help of Protect+ and Masterfile software he has produced the 33 Cyrillic characters necessary for Russian text work.

"It has been purely a personal programming exercise", he told Computing with the Amstrad.

"I've recently begun a new career under the Manpower Services enterprise scheme as an indexer of books, and it's possible I may be asked to tackle a Russian language school text book".

It took 81 Cyrillic and his successors decades to invent and refine the alphabet now used by most Eastern European countries. It took Peter Barber about 10 hours on his CPC6128 to redefine it for printing out.



Peter Barber . . . Cyrillic at his fingertips

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E = £19.95

Program: *Dracula*
Price: £7.95 (cassette)
Supplier: CML, CML House, 2
 Kings Park, Carpenter
 Road, London E19 2HD.
 Tel: 01-832 2038

DRACULA is an adventure game based on Bram Stoker's horrific masterpiece of the same name.

It is played as three separate games - *The First Night*, *Arrival*, and *The Hunt*. Each can be played independently, although the storyline runs through all three.

The parser is one of the simple verb-noun variety - adequate but a little dated in comparison to the full sentences accepted by more

adventures.

Directions and some of the more common commands can be entered as single letters, which saves wear and tear on your fingers.

The first game is described as being for the beginner and is set in the Golden Krone Hotel.

The situations are described in such a way that they hint at the required response.

This works fine the first time you play the game but works against you in subsequent attempts.

An example of this is the

hotel reception. You walk up to the desk and try to ring the bell - you know it's there because you rang it last time.

The program refuses to let you, replying "I have not observed any bell as yet".

The Arrival covers your coach journey to castle Dracula and your meeting with the Count.

In the third game you play the role of Dr Seward, a psychiatrist whose task is to locate and destroy the Count in his English lair.

Dracula is a very atmospheric game in which your untimely death is accom-



panied by some stunning digitised pictures.

It has its minor irritations but a suite of three adventures for £7.95 is still good value.

James Hiddell

Presentation	7
Atmosphere	8
Playability	7
Value for money	8
Overall	8

Program: *Die*
Price: £9.95 (cassette),
 £14.95 (disk)
Supplier: Infogrammes,
 16/19A, Abbey Road,
 Enfield, Middlesex EN2
 8JH
 Tel: 01-884 4120

DIE is the story of baby-sitter Alfred and his charge young Valentin, who enjoys nothing more than a session of Alfred beating.

The action takes place in 30 rooms and involves a series of oddities including stools, balloons, custard pies and the inevitable banana skins.

Practical joker

The graphics are detailed and extremely colourful. As Valentin you can pick up, drop, throw, climb and bend down, as well as move left, right, backwards and forwards.

The more devices your mind, the more dastardly the practical joke, the more points you collect.

Try balancing a bucket of water over a doorway. It takes some figuring out but is well worth the effort when it comes to toasting up the points.

The only snag with playing tricks on Alfred is that they annoy him immensely.

The state of his temper is indicated by the colour of his face - if it's bright red you'd better run as you're in for a spanking.

The length of the game is determined by how many times you are caught by Alfred.

Your physical state is indicated by an enlarged picture of your face at the top of the screen where your



expression, initially smiling, slowly turns to a frown.

Minor moans aside it is a very enjoyable game.

Neil Aslett

Sound	5
Graphics	8
Playability	8
Value for money	8
Overall	8

Program: *City Blaster*
Price: £9.95 (cassette) £14.95 (disk)
Supplier: Mission Computers,
 Mission House, 560
 Mission Training Parks,
 Milton, Abingdon, Oxon
 OX14 4JH
 Tel: 0238 82222

THIS is an amusing platform game, just slightly reminiscent of the Jet Set Willy style of game popular two or three years ago and still very playable today!

As Slick, battling the Finnish plot of Alou Castellan to blow up the Houses of Parliament, you have 16 hours to disarm the bomb by securing London to collect the pieces and assemble a BDU (Bomb

Disassembly Unit).

On your way you will visit the Tower of London, Buckingham Palace and the British Museum to name but a few famous landmarks, all depicted in fine graphic detail.

A half-flip feature, which in certain locations flips the screen by half a screen sideways, may leave you feeling slightly disorientated at first, but does improve with practice.

Game play is enhanced by the fact that other characters get involved.

They have an annoying habit of collecting various objects - such as ton

weights and keys - that you need to complete your mission.

If you do succeed in assembling the BDU, your task is completed by taking the Tube to Westminster and defusing the bomb in the Houses of Parliament, when Alou's fate will also be sealed.

If you fail in your mission, the effects are quite startling!

Sound effects are adequate, but do not fully exploit the sound chip's 3 channel possibilities.

It would also have been more satisfying if the graphics had been more



colourful and characters had a bit more zip to them.

Overall, a cute little program that will slowly seep into your consciousness and take you over with its simple charm.

Water Leach

Sound	6
Graphics	7
Playability	8
Value for money	7
Overall	7

Program: *The Boxing*
Price: \$8.95 (casual) / \$12.95 (hard)
Supplier: Arco Software, 38 West Hill, Danford, Kent DA1 2EL
 Tel: 0352 95572

If it isn't long now before the computerised martial arts craze blows the dust.

The Boxing, an amalgam of karate and boxing, is the latest in a long line of oriental offerings and judging by the standard, it stands a good chance of being the last.

There's no two player option so you are restricted to betting an electronic opponent.

The amount of damage

Family Thai

which you inflict is displayed in two ways.

The first is shown by the length of the two stamina indicators at the top of the screen — the shorter your indicator, the closer you are to being knocked out.

The second is more dramatic and uses pictures of both boxers' faces to show the effect of each blow that lands.

The majority of fighting games give you a total of 14 kicks and punches plus directional movement.

The Boxing provides only six aggressive moves, three

blocks and four directional movements.

This lack of variety probably wouldn't be too much of a drawback were it not for the size of the boxes.

On the plus side the game employs some rather clever programming which allows you to slowly circle your opponent, facing him at all times.

The action, what there is of it, takes place in four different locations — a breaker's yard, an alley, a park and a boxing ring. The backdrops are all drawn in fine detail.



As the fighting craze is on the wane, any program that's going to sell in large numbers has to be very good. I'm afraid that *The Boxing* does not fall into that category.

Steve Brock

Sound	4
Graphics	4
Playability	4
Value for money	4
Overall	4

Program: *Future Knight*
Price: \$8.95 (casual) / \$14.95 (hard)
Supplier: Gemini Graphics, Alpha House, 10 Canon Street, Shaftesbury ST1 2PE
 Tel: 0742 763472

THIS is an intriguing scenario for a platform-style game. You are cast as Sir Randolph sent to rescue the fair maiden, Anella — a task to warn the scales of a yet red-blooded male's heart.

She is held in the evil clutches of Spobbot the Terrible. Off you journey as *Future Knight* to Spobbot's castle far where all types of

Knight errant

castles await you...

Using your small pistol, you can kill the various alien creatures roaming the castle — watch out for the red, clanking skull.

And useful objects can be picked up on your travels: Bombs which destroy all the alien in sight, confusers which confuse everybody but you, flash bang spells and a shortener, whose use I failed to discover!

The maze of interconnecting ladders and platforms is beautifully de-

signed, with special attention given to shadow and perspective.

And the movement of sprites is very well programmed throughout.

Magic spells can be picked up, including bridge spells and distinct spells which set fire smart bombs.

These even kill the evil Henshehdroid, who makes guest appearances from time to time.

The sound effects and moody title music are excellent, adding to the



overall medieval atmosphere of the game, but a slight increase in the speed of play would not go amiss.

Walter Laszlo

Sound	5
Graphics	5
Playability	5
Value for money	5
Overall	5

Program: *Infiltrator*
Price: \$8.95 (casual) / \$14.95 (hard)
Supplier: U.S. Data, Method Way, Redford, Buckinghamshire MK2
 Tel: 021 862 2888

REMEMBER the first time you ever played Elite and there were so many different controls you thought you'd never get the hang of it?

Infiltrator poses the very same problem. It has masses of controls and you'll struggle like mad at first, but as things begin to gel you'll start to enjoy the game.

You play the part of Johnny McRoberts, super spy and eye helicopter pilot whose mission is to penetrate and destroy enemy ground installations.

to take and destroy enemy ground installations.

To help you carry out this task you have been supplied with the Gizmo Data-1 stack helicopter code-named SnafuMaster.

Once airborne, the first thing you must do is select the tactical computer and get the coordinates of the enemy base.

Calling up the communication system you feed these into the ADF (Automatic Direction Finder), a most important piece if you are to reach your destination without running out of fuel.

Airborne agent

The golden rule to remember is to request identification from every plane which appears on the screen. Each will reply with its name and a request for your ID.

You must assess from the name whether each is a friend or foe and reply with an appropriate ID.

Having landed safely at your destination you infiltrate the enemy base posing as a guard.

You then search the base — photographing secret documents, passing guards and finally planting explosives.



When all this is done it's back to the helicopter and get the hell out of there!

If you've got the time and patience you'll enjoy playing *Infiltrator*. It's a game you can really get your teeth into.

James Hubbard

Sound	5
Graphics	5
Playability	5
Value for money	5
Overall	5

Program: Rogue Trooper
Price: £9.95 (casualist)
Supplier: Phoenix, 4 Little Essex Street, London WC2E 6RF
Tel: 01-409 4602

NU Earth is a war-torn planet on the edge of the galaxy. So polluted are its seas and atmosphere that only you, Rogue Trooper, with your genetically engineered body can survive unaided in such conditions.

Your entire regiment was wiped out by the Nerts as a result of information leaked to them by a traitor. Your task is to search Nu Earth for the eight vital tapes which will expose the traitor.

You are armed with a gun but are provided with grenades

and other equipment as and when they are needed.

You also have access to the digitised personalities of three of the GIs who died in the ambush.

These will add power to your fighting, protect you, heal your wounds and provide battle computer information.

While searching the planet's surface you must look out for medical kits, ammunition and the villains.

The medical supplies should always be your

prime objective, because without these you won't live long enough to collect the tapes.

The landscapes which you see are litened with the ruined buildings of a bygone age.

The graphics used are limited to four colours but are quite detailed.

The animation is good but horizontal movement can be a little sluggish at times.

The controls can be operated by joystick or user-defined keys and consist of the four directions and fire. Rogue Trooper is a



very competent one-man-against-an-army type of game but it doesn't have the same speed and excitement of games such as Green Beret.

James Rickell

Sound	4
Graphics	4
Playability	4
Value for money	4
Overall	4

One man army

Program: Predator
Price: £9.95 (casualist)
£14.95 (hard)
Supplier: Heaven Computers, 2611 Milton Topping Drive, Milton, Abingdon, Oxon OX14 4JX
Tel: 01235 620209

WITH Starquake and Wizard's Lair such hard acts to follow, Stephen Crow set himself a tough task to produce a satisfactory and stimulating follow up.

Has he succeeded, I hear you all ask? Well, to all intents and purposes the answer is a resounding yes! Predator is an excellent

arcade adventure of the bombing-around-america variety, covering a huge playing area.

You play the part of brave Sir Galahad in his valiant mission to rescue the sacred Precursors.

To do so you must find the four charms of eternal youth, and exchange them with the Evil Queen for the Precursors.

But they are not just readily available: Battening and trading with the local townsfolk is the order of the

day. The gameplay is spread over 512 screens and involves a lot of chattering about, collecting food and resistance on the way.

Keith Prosser, responsible for this Amstrad conversion, has given us an exciting fast action game.

It has good sound effects and four colour graphics, with special attention paid to fire detail.

Although the race theme is hardly new, this implementation offers a very playable, thoughtful and fun

Ghost blaster



game which will take you a very long time to master.

Any chance of a secret shape?

Victor Lezko

Sound	4
Graphics	4
Playability	4
Value for money	4
Overall	4

Program: Electric Glide
Price: £9.95 (casualist)
Supplier: English Software, 7 North Parade, Pennington Gardens, Manchester M2 3JX
Tel: 061-409 1362

ELECTRA Glide is described as being "the first fantasy racing epic".

What could this be? Oversea flying on dragons? Hellcats on horseback? No, nothing so glamorous.

It looks very much like any other motor racing game, but with half the excitement!

The action takes place in England, America or Australia, depending on which circuit you select.

What is the exact difference

is between these circuits. I don't really know, as the race takes place in front of the same mountain backdrop in all three cases.

Preliminaries completed, you just push the joystick forwards and the race begins.

I use the word race loosely as there are no other competitors, you just drive as far as you can before the time limit expires.

The screen design is the same one that's been in use for years - a road lamp-plate with dotted white lines which narrows as it vanishes into the distance.

Short circuit

Below this is a control panel which displays the time remaining, speed and points scored. I completed the first circuit by just keeping the accelerator control flat out.

I didn't steer around the bends - it does that for you. I hit lots of obstacles, but I still finished within the time limit.

In an attempt to give the game some excitement the programmer has decided to put bouncing balls and rotating cubes on the track.

A third obstacle comes in the shape of a jet which whizzes overhead and



deposits electrostatic currents in your path.

None of these add much to the game's appeal. If you want a racing game, take a good look at the others in the market before settling for this one.

Jon Davis

Sound	2
Graphics	2
Playability	4
Value for money	4
Overall	3

Program: *Scrabble*
Price: £16.99
Supplier: Leisure Genius, 24
Vandon Road, London W11
2JG
Tel: 01-277 6670
Computer: PC/MS/68010

THERE can't be many people who don't know the game of Scrabble. It has been going for donkey's years and will probably continue to grace Christmas stockings and birthday tables for many more to come.

It's a competitive, mind-exercising game that appeals to all ages, but it does have its problems.

You're nearly at the end of the game, six points behind the leader and it's your turn.

You see the chance you've been waiting for, the word **SOUSSEUR** will slot in nicely along the bottom row taking in a triple word score.

Suddenly your opponent's arm smashes across the board, throwing tiles all over the room...

Word juggler

Leisure Genius has got over this problem and came up with a version of Scrabble that is perhaps even more playable.

It remains faithful to the original in every respect, while adding a couple of conveniences too.

No more looking for missing letters down the back of the sofa or in the dog's basket.

No need to tediously insert and mix the tiles before each game - and missing left-tipped pen marks off the backs of high scoring letters is a thing of the past.

The game can be played by two to four players, any of which can be human or computer.

Computerised opponents can be allocated levels between 1 (easy) and - (depressingly clever).

Other options include

watching the computer's "thought" processes, applying speed of response and viewing all the letter racks.

At your turn you have a number of options. If a word is not immediately obvious, letters in the rack can be juggled.

If you're really stuck, the computer can be asked for suggestions. And as in the original board game, letters may be exchanged or a turn passed.

The computer can be forced into playing whichever word from its 20,000+ vocabulary it is currently holding in its memory - although this is perhaps a little uninspiring.

The computer plays a tricks game in the upper levels and comes out with many obscure words that neither I nor my Oxford dictionary have ever heard of,



which can be slightly irritating.

The graphics, in the context of the game, are well drawn and the representation of both the board and tiles is pleasing and clear.

This package is definitely good news for keen Scrabblers - unless of course you're the sort who throws the board in the air when you're losing...

Niles Reynolds

Sound	4/5
Graphics	4
Playability	4
Value for money	4
Overall	4

Program: *Strike Force Harrier*
Price: £19.99
Supplier: Microsoft, Atterwell House, 34, Hopedale St, London EC2A 3JH
Tel: 01-277 6637
Computer: PC/MS/68010

Hands-on flying

was wondering just how long it was likely to stay in the air.

Then came my second pleasant surprise. Only six keys are essential to flying and most of those could be done away with as the software supports both Kempton and Cascade joystick interfaces.

Once confident with those controls, I thought in others to experiment with.

There's a choice of three practice/combat modes and three levels of difficulty. Your mission is to destroy enemy headquarters.

This is not achieved solely by seeking out the HQ and bombing it, but by the methodical clearing of enemy tanks and SAM missile sites along the way, while fending off attack from enemy fighters.

You then set up your own operational areas from

which you are able to refuel and re-arm - but these can be attacked and need to be defended.

There are a possible 672 operational areas to be utilised, so you will need to be pretty alert to take new areas while defending existing ones.

The cockpit has comprehensive instrumentation, showing air and vertical speeds, height, roll and pitch, attack radar and terrain map.

With other weapon guiding systems and warning instrumentation, it all combines to create tension and atmosphere, disrupted only by an occasional warning beep.

Graphics are generally good and clear, although I would have liked to have seen slightly better defined enemy aircraft and missile sites.



A passage in the manual reads, "For security reasons, the handling characteristics and performance should not be taken as an exact replication of today's Harrier".

I can hardly see KGB operatives posing a threat to national security swooped over their Amstrad's playing Strike Force.

But I'm sure they would thoroughly enjoy this excellent simulation - and perhaps it would keep them off the streets.

Niles Reynolds

Sound	7
Graphics	6
Playability	6
Value for money	6
Overall	6

I HAD been looking forward to the arrival of Strike Force Harrier - then I noticed the 28 page manual... good grief, the game has 31 operational keys!

It looked like I was going to read as many fingers as I could lay my hands on.

I was pleasantly surprised, however, when I checked the booklet over.

It was well structured and clearly written, explaining how to get flying quickly and then expanding on flying techniques and attack defence tactics.

It is also well illustrated with authentic British Aerospace diagrams.

Consequently I was flying inside five minutes, but looking at those 31 keys I

Product Jet
Price \$39.95
Developer: Sublogic, c/o P&P
Address: Trade Act Road,
Carle Industrial Estate,
Wallingford, Oxon, OX10 9JL
UK Tel: (0505) 217544
Computer: PC1512

THE previous offering from Sublogic was Microsoft's Flight Simulator, a program that has become one of the standards used to judge IBM compatibility.

It was with great interest therefore that I booted up the most recent offering, Jet for the Amazed PC1512.

Once the program has loaded you have an option to calibrate a joystick and install the type of screen you are using before going on to select the game scenario from a series of menus.

There are three main ones to choose from: Dogfight, Target Strike and Free Flight and an option to load scenery discs.

Having chosen the scenario you are prompted for a skill level and then given the choice of flying one of two jets - an F-16 or an F-18.

If you have opted for the Dogfight or Target Strike you will have to aim your jet accordingly with air-to-air missiles, or air-to-ground missiles and bombs.

In Dogfight mode you are

Join the jet set

pitched against Soviet MiG-21 and MiG-23 fighters, their numbers varying with the skill level you have selected.

To complete your mission successfully you must shoot them all down and return to your base to refuel and re-arm.

At this point you move up a skill level then take off for another mission. If you run out of ammunition you must also return to your base to stock up.

The Target Strike takes two forms. If you have opted to fly the F-16, your targets are a random selection of airstrips, factories, fuel depots and missile silos.

When flying the F-18, you take off from a Navy-class aircraft carrier and your targets are Soviet Kryn-class cruisers.

The third scenario, Free Flight, gives you the option of practicing your flying. I found this rather pointless after a while - an option to land at another airstrip would be a welcome addition.

The other option is to load scenery discs. Unfortunately none were enclosed with the review sample, but the 48-page manual says they can be purchased and allow

you to fly over real world landscapes in America and Japan.

Having selected all your options you are placed in the pilot seat. The on-screen cockpit display is excellent and consists of a window view with indicators around its edge.

All the usual information is displayed such as heading, airspeed, altitude, weapons selected and brake, fuel and undercarriage status.

In addition there are three selectable instruments, a radar display, which when switched on is superimposed over the outside view, shows the location of enemy jets and missiles relative to you.

An altitude indicator draws a series of lines on the screen to show your position in relation to the ground, and there's a range indicator - essential in combat mode.

It's a small circle that acts as a sight for your weapons and turns black on crashing.

Should you use this option, not only do you see your jet fall away beneath you, but you can also select another option - Central Tower mode - and watch



yourself float down in your parachute!

You can select this mode at any time and get a view of your jet from the control tower at your base.

The final feature is the selectable view. Using it you can change your on-screen view to any of the main directions - including up.

And if you do manage to shoot down any enemy aircraft, selecting the rearward view will show you a token marker on your fuselage for each one you hit.

So, what's it like to fly? In a word, it's difficult!

Having just got used to flying a Cessna in Flight Simulator, the change to a jet capable of flying almost ten times as fast was difficult to say the least.

The enemy jets are shown as small dots or inverted T's when far away and are drawn in vector graphics when too close.

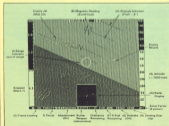
The definition of the view of your surroundings is poor and certainly not up to Flight Simulator's standard.

But considering everything that's happening and the speed at which the screen is updated, it isn't really surprising.

Since instructions are given on using the program with an EGA card I suspect this would make a big difference and I would be interested in the opinions of any reader who has tried one.

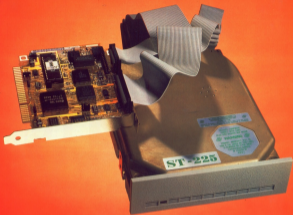
Overall, a brilliant program that is a joy to play. While not as good graphically as Flight Simulator, it must be the first choice for any budding Top Gun!

Paul Gardner



Jet. Display and instruments screen.

Sound	3
Graphics	7
Playability	88
Value for money	50
Overall	59



HARD DISK KITS FOR THE AMSTRAD PC1512

Each kit includes everything you need to install a hard disk into your Amstrad PC.

The Seagate disk drive is supplied pre-formatted and mounted in a steel cage to remove the chance of any interference changing the data stored on the drive.

Cables are supplied with the low power consumption half-length controller card, together with full instructions to make the installation simple.

The whole kit has a one year warranty, and a free technical help-line is available in case of any problems.

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Card Index Create your own address book, phone directory, tape library title list. Use the flexible editor to enter or amend data. Sort and search. Call up detailed reports on contents in any form. Produce mailing labels on your printer.

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DATABASE SOFTWARE

TO ORDER, PLEASE USE THE FORM ON PAGE 107

A MSTRAD's low cost IBM clone has brought many new users into the PC software market. Several will have upgraded from a home micro and are likely to be horrified at the high price of software.

Until recently you would not have been able to get an MSDOS C compiler for less than £130 and could easily have paid many times more than that. However this situation has changed with the two low-cost packages from Zorland and Mix reviewed here.

Zorland is well documented but the Mix manual is superb. In fact the Mix offering would save the beginner the cost of a separate book.

There is an extensive tutorial and full explanation of all the library functions with examples - all a newcomer to C could want.

The Zorland documentation, while complete with a tutorial, would in no way substitute for a book on C, so this would have to be added to the cost of the package.

Neither compiler is sold specifically for the Amstrad PC. Most PCs come with a linker on the MSDOS disc which is needed by a compiler to link the object code with the run-time routines. Unfortunately this is not the case with the PC1512.

Mix comes with a linker, but Zorland does not, so it must be bought as an extra. Zorland can supply one at £9.95 but the cost of this and a book bumps the price up to a total of £20 to £26 for the first-time user.

Both packages are supplied with WordStar-compatible editors. In the

High level language

IAN SHARPE compares the merits of two low-cost PC packages that bring C within everyone's reach

case of Mix the editor is sold separately though a discount is available if you buy the compiler and editor together.

The phrase WordStar-compatible does not mean that you are getting a full function WordStar look-alike but that whatever facilities are provided are accessible using WordStar commands.

The Zorland editor supports only a small number of these and I feel that it would not be adequate for any serious program development.

So when considering Zorland you must also bear in mind the possibility of having to buy a separate editor, though any word processor capable of producing an Ascii file - which most people will have anyway - will do the job.

Mix scores once again on documentation, as a 96 page manual for the text editor is included.

The Mix editor allows you to execute Dos commands and compile from within it. Any compiler errors will return you to the offending line with

the cursor positioned ready for the necessary alterations. The compile edit cycle is therefore quicker and the editor provides a friendly and productive environment.

The documentation is due for revision, as extra features not mentioned in the manual have been added. For the record, pressing Esc and typing Ctrl will bring up a menu detailing the options available such as compiling and linking, all of which are accessed using the function keys.

When you first use either package you must make working copies of the discs. With Mix this is a simple matter, but those unfamiliar with MSDOS may find installing Zorland a little less easy. However neither presented any great problems.

Unix compatibility is a phrase often mentioned in connection with C compilers, but what does that actually mean, and how important is it?

The idea of producing a compatible compiler is that Unix provides a standard to work to so that programs written to run under Unix or another compatible compiler can be used without alteration.

This ideal is not attainable under MSDOS because a Unix C program can use system calls which of course will not work on your PC and file handling will not be quite the same.

However apart from these points a compiler can approach compatibility very closely, and both Zorland and Mix do so very well.

When buying third-party libraries the closer your compiler adheres to the Unix standard the more likely you are to be able to use them without problems.

Further than this, the importance of Unix compatibility to you will depend on your application, but I suspect that it does not matter very much to most people.

C is a very small language with only about 30 reserved words and relies on libraries of functions to provide the facilities implemented as reserved

What is C?

C is a powerful and versatile language which lends itself to a wide range of applications.

As you work with it you build up a range of useful functions which are then available for use in future programs. In this way you can develop your own version of the language that grows towards your type of application.

You can interface with the computer at a low level, yet still enjoy the advantages of a higher level language. Its compiled programs are fast and relatively compact and the source code is portable across systems with a minimum of alteration.

Good C programmers are in short supply, and this, along with the advantages that C offers, is

making it popular among both those wanting to go beyond Basic and those already using other high level languages.

... and Unix

Unix is a multi-user operating system linking several terminals which can be PCs with terminal software to a single processor and usually one hard disc.

It is written mainly in C, in fact the language was developed for this task by Dennis Ritchie, and a Unix development system comes with a C compiler.

So C is very closely associated with Unix and when judging a compiler it is usual to compare it with the Unix implementation as well as referring to the standard text - The C Programming Language by Kernighan & Ritchie.

From Page 21

works in most other languages. Both compilers come well equipped with libraries of standard functions, though Mix numbered 158 functions against approximately 100 for Zorland.

You can build up libraries of your own or buy them designed for specific applications. Unfortunately if you want to exploit the Amstrad's graphics potential you will have to do just that, as neither compiler comes with graphics functions.

If you need graphics I would suggest you investigate the cost of a library before you invest in C, because the only ones I have seen advertised are expensive.

Zorland is capable of producing COE or COM files, whereas Mix only produces the latter. Zorland will recognise and use the 8087 maths co-processor if present and will also generate variable code if that's what you need.

One thing I liked about Mix was that you have the option to compile programs that load in the run-time routines they need when they are executed.

These routines are held in the RUNTIME.OVF file which must be present on the disc. The advantage is that you can have several COM files on the disc all using the single overlay file.

This means that multiple COM files will take up less disc space than if the run-time routines had been included in each file. As supplied, Zorland uses either a compact (total 64k program and data) or small (64k program plus 64k data) memory model.

A developer's upgrade is available at £18.95 to allow you to use up to one megabyte each of program and data.

This aspect of the compiler's operation is not explained very well in the Mix manual, but it appears that only the small memory model is used, though Analytical Engines tells me that an upgrade is due to be released soon.

Zorland was the slower compiler of the two although both are fairly fast. Mix is supplied with utilities to optimise your program for speed or size, though the Zorland manual implies that these functions are part of the compilation process.

Zorland has a compiler option to generate an integer-only file which will be still smaller and faster.

I wrote a few simple programs based on the Personal Computer World benchmarks, to test the efficiency of the compiled codes. They involved 1000 iterations of tasks such as writing to disc files, printing text on the screen, integer, floating point and

	Zorland	Mix		
		Normal	Speedup	Shrink
Integer arithmetic	0.235	0.533	0.243	0.667
Floating point	3.7	8.8	8.8	8.8
Trig/log	28	109	109	109
Text printing	67	84	84	84
Disc filing	14	12	12	12
File sizes (bytes)				
Not including run-times				
Floating point .COM file	23493			
Floating point .SXE file	22668	6621	6663	5096
PLUS 22616 byte RUNTIME file				
including run-times				
	24168	25128	24893	

Table 1. Benchmark timings in seconds plus the file lengths

trig/log calculations.

The absolute timings for each test are not important but the relative timings for code generated from the same source file are of interest.

As you can see from Table 1, the results are quite surprising in that Zorland produced the fastest code even after the Mix version had been optimised with the speedup utility supplied.

These benchmarks are by no means an exhaustive test of the code generated by either compiler under all possible circumstances, but I believe they will prove fairly representative.

I noticed that the floating point calculations were not as accurate with the Mix-compiled version. As these were the result of 1000 iterations this would probably only be of major significance in scientific work.

So which one should you buy? Both packages offer outstanding value for money, but I think the beginner will find the Mix compiler and editor both cheaper and easier to work with.

The manual is good enough to substitute for a book, the linker is provided and the ability to work from within the editor will make learning less frustrating. Analytical Engines says that a trace utility is under development to allow easy debugging of your programs and this will make Mix even more attractive to the beginner.

The comparative cost of the Zorland compiler plus book and linker will be slightly more than the Mix package even if you decide not to invest in a better text editor.

For the more experienced programmer the choice is not so easy. A few will consider Zorland's ability to produce variable code or use a maths co-processor to be important. The resulting code is faster than Mix despite the speedup utility but on the other hand a Microcompiled program can be made to take up far less disc space if more than one COM file is to be present.

Those experienced in MS-Dos will probably have a linker and a good text editor, so Zorland would prove less expensive. Its greater accuracy and speed make it the first choice for scientific applications or heavy number crunching. ■

Product: Zorland C
Price: £29.95 plus VAT
Supplier: Zorland, 144 Griffin Road,
London SE18 7QA
Tel: 01-317-2520

Product: Mix C Compiler and Editor
Price: £27.95 plus VAT
Supplier: Analytical Engines, PO Box
25, Eastleigh, Hampshire SO8 8WJ
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Put a full stop to punctuation problems



By **PALI RAO**
Adapted for the Amstrad by
KEN GOODMAN

THIS program was designed to help children who are already vaguely familiar with the various aspects of punctuation to improve their punctuation skills.

It can be used by a wide age range, and because there is a provision to load, save and enter new data, sentences can be created to match different pupils' abilities.

An un-punctuated sentence is displayed in the centre of the screen. In order to insert the required marks you must move the arrow using the left and right cursor keys.

When it is in the correct position type in the character required from the keyboard. Once you feel that you have completed the task press Return or Enter.

The program's correction cursor will then scan your work, pointing out any errors.

Should it encounter one, a brief comment will be made in the lower half of the screen concerning the correct use of the particular punctuation mark required. This process continues until you have punctuated 10 sentences.

Throughout the exercise the screen continuously displays the score for the last sentence as a percentage, the number of turns you have had, the number of totally correct sentences and the number of mistakes you have made — once again as a percentage.



...it's easy as pie

MAIN VARIABLES

sent	Array holding the sentences.
unpunct	Un-punctuated sentence.
ip	Array holding player's attempt.
used	Used in title page.
turns	Number of turns.
choice	Random number used to pick a sentence.
mistakes	Number of mistakes made.
miss	Average mistakes as a percentage.
tot	Total number of possible errors.
cor	Number of correct entries.
perc	Average score as a percentage.
score	Percentage marks for last sentence attempted.
hscore	Best score as a percentage.

PROGRAM STRUCTURE

120-180	Get starting values.
180-300	Title page.
300-530	Instructions.
570-850	Load sentences into sent[].
850-890	Screen graphics.
740-810	Main loop.
840-870	Pick a sentence and enter punctuation.
1010-1180	Move the arrow and insert punctuation.
1220-1290	Check the result.
1330-1800	End of round.
1840-1880	Comment on mistakes.
1940-1980	Wait for space bar.
1600-1720	Input player's marks.
1760-1800	Menu.
1900-1950	Save new data.
1990-2210	Type in new data.
2250-2310	Load new data.
2350-2370	Choose filename for new data.
2420-2450	Sentences.

Full listing starts on Page 26

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HALL OF FAME

Zork! (zee'rd) — Barry Ablett

From the beach room go South, East and get the coffin. Return West and then continue South to the altar. You aren't going to get the coffin down the hole and should you try you will be told you haven't got a power. That's a hint!

Play and you will find yourself in the forest again. Since it is daylight you should turn off the lamp. As a general rule turn the lamp off whenever you get the chance.

Head South and then North to the clearing and East to the canyon view. Climb down, go North to rainbow's end then drop and open the coffin.

Inside is a jewelled sceptre which you should wave. The rainbow will solidify. (You will need to cross over from the other side later). If you look now you will find a pot of gold. Get that and the coffin.

After that, go South West. Up to canyon view, North West then West to the window. Dive in the kitchen, open the bag, get the garlic, then go into the living room and put your treasures in the case.

Turn on the lamp and open and enter the trap door again. This time the trap door doesn't close behind you!

Move North, East, North, North East and then East. You are now on top of the dam.

Go North to the lobby and pick up the matches and then go either North or East (doesn't matter which), into the maintenance room.

Get the wrench and screwdriver and push the yellow buttons. Return to the dam and you will see that the green bubble is lit. Use the wrench to turn the ball and then drop it.

You have now opened the dam and will be returning later to reap the fruits of your labours but meanwhile, it's time to go to Hades!

Dungeon Adventure (zee'rd) — G.V. White

Pay the toll by giving any treat-

ure to the troll and then eat the small mushrooms. Note - you no longer have any possessions as you are too small!

Now go to the strong room and push the door. You must now eat the giant mushrooms and then find the right combination of small and giant mushrooms to eat to restore you to your correct size.

Once you have done this, restore all your possessions then eat the invisible things that you keep bumping into on the bridge!

Go to the troll's cave and get back the treasure that you paid him earlier.

You are invisible at the moment so use the opportunity to get the rare spices but not the mushrooms. Make sure you leave before you become visible again.

You must now find the evil gem in the marshes and attack it with the hammer. Not only do you free the ghostly ones but also increase your score by 15 points.

The next stage is to visit the viewing gallery in the tower and read the sign. Now go down to the evil images, shut your eyes and go West, South, Down then open your eyes.

You will find yourself on a ramp outside of a red and gold room. You will also find you have company - a steadily black sphere!

Go down the ramp and into the dark doorway - the two spheres will destroy each other. Stand on the pedestal and say NEVER.

Go East to the strong room and get the treasure chest. (Push the door if you can't get back out). Take the salt pig and go in. You are near the ramp base so you should drop the pig in the shallow water, look then take the pearl.

Go up and get the togs from the treasure vault then go to the statue room.

Turn the statue and go East and get the thirteenth. You have now got three of the gems mentioned on the sign.

IN MY December 1986 column I mentioned *Adventure*, a game on SIGM volume 11 in the Public Domain Library, and stated that it required two disc drives or a ram-disk in order to run. Apparently I was misinformed and it will run on a single drive under CP/M Plus.

Graham Bennett has written in to tell me that the ADV.COM and CP/M .SMB files should be put on one side of a disc and the remaining files on the other. You can now use the disc to boot CP/M and then run the program by typing in

ADAV

When prompted to insert the disc for drive B you should press Enter and

PROBLEMS

STEPHEN Baldwin has written in asking for help with *Spy-Trek*, by Americans, an adventure that I haven't heard of before.

Can anyone tell him how to stop the plane crashing and give me some more information about the game?

When prompted for drive A, turn the disc over and press Enter again. The game will then run normally.

Anthony Robinson has written in to ask what the exact wording is for putting the computer online and using the teleport in *Message from Antares*.

The exact wording is: Insert key in the keyhole, and for the teleport, enter the teleport, press the button.

RWalker is having difficulties getting started in *Mender*. To leave the first screen, type in the direction in which you want to travel.

If you find that you can't move in the direction then either there is no exit, in which case try a different direction, or something is stopping you, such as a closed door.

Remember - adventures are emulations of real-life situations and the commands you give should roughly correspond to those you would give if you physically encountered the situation.



A touch of the Flash Gordons

LEATHER Goddesses of Phobos is a new Infocom adventure based loosely on the Flash Gordon type of comic strip that dominated the 1930s. The inclusion of three playing levels — Tame, Suggestive and Lured — brings it bang up to date!

With a game of this nature it would have been easy to accuse the writers of discrimination but they have neatly side-stepped the issue by allowing you to play the game as either a male or a female.

Your task in the game is to collect

eight improbable objects in order to assemble an even more improbable machine that will prevent the leather goddesses from turning the Earth into a sea playground.

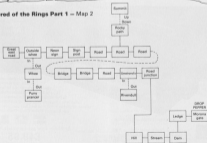
Your companion in your travels (Tiffany or Trent, depending on your original choice of role) will provide invaluable information about the objects you need.

You begin your quest at Joe's Bar in a sleazy part of Upper Sandusky, Ohio. Since you have inhibited rather too much of what passes locally as alcohol, you have an urgent need to visit the bathroom.

Once you can bring your mind back to less pressing matters, you note that two objects are visible. One of them is



Bored of the Rings Part 1 — Map 2



From Page 31

eminently collectible and the other impinged on more than one sense.

If you manage to get the second object, please write and let me know how you did it!

Within a few moves you will find yourself kidnapped and on regaining your senses, discover that you are in a cell. Luckily the door isn't locked and you should make a careful exploration of the surrounding locations.

Your companion is soon found, as are two black circles. These are teleport systems so ensure you are fully equipped before using them. One will take you to the steamy jungles of Venus and the other will deposit you by a Martian canal. It's 1936 remember!

If you decide to visit the jungle you will be faced with two problems. By the time you have solved these you should have found two more circles.

One of them leads to instant death aboard a space ship, but the other leads back to Phobos and an opportunity to use that teleport to

Mars.

Here you will find a Royal Barge and a few more problems. Taking a trip on the canal is recommended, as is doing some sightseeing along the way - anyone got change of a ten marmite piece?

One of docks that you should tie up at - my kind of dock - sees you visiting a sumptuous palace where you must answer riddles. If you succeed you will be well rewarded.

What to ask for? The dead alien's message when translated will help. As for anything else, do what comes naturally!

You should now find yourself entering the catacombs and this is where I will leave you. There are many other circles but if you have followed me so far, you will have a respectable score and be well prepared to tackle the rest of the adventure.

As with Hitchiker's Guide to the Galaxy, the packaging and presentation is excellent. Included is a pair of 3D-glasses - to read the comic of course.

And there's a map of the catacombs

- though it's not as helpful as it may sound - and a comprehensive guide to playing Infocom adventures.

I have to confess that I don't think this game is as good as Hitchiker's, as too many objects described on-screen are not recognised by the program.

While this is common in most other adventures, it is unusual in Infocom games. Having said that, it is still far superior to any adventure from any other software house!

The game will run on all CPC and PCW machines as a CDD file checks which machine you are using and loads the appropriate version.

Overall, this is definitely the funniest Infocom game I've seen. If you like adventures, then you simply have to get it. If you don't, get it and find out what all the fuss is about!

It's a brilliant piece of software that, even at £29.95, is exceptional value for money and an example of state-of-the-art adventure programming.

Makes it isn't possible to compare Infocom games with other adventures, they're in a class of their own!

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RADIATION LEAK

By MARK SWINSON

RADIATION Leak is a solo, arcade strategy game that will run on all CPC machines. The action takes place in the year 2050 AD when technology has progressed so much that nuclear waste can be treated to make it harmless. While awaiting treatment it is stored in lead caskets and buried in disused mines.

Unfortunately caskets buried during the last century are now leaking radiation. Because of this the surrounding environment is at risk and it has been decided to send three droids underground to deal with the problem.

You control these droids and your task is to treat all the caskets in the mine. Only one droid is allowed to be in operation at any one time - the others are backups in case anything goes wrong.

The mine consists of six caves and the caskets in each have to be neutralised by guiding the droid to them.

When you have treated all the caskets in a cave you move on to the next by moving the droid through the green door. Complete the sixth cave and you return to the first where more caskets have come to light.

Those are leaking radiation at a much faster rate and as the droids are affected by radiation it becomes more and more dangerous for them to remain in the cave.

If the radiation level goes above a certain limit, your remaining droids become non-operational and the game ends.

As well as treating the caskets you have to watch out for rocks strewn around the mines. If the space under one is vacant the rock will fall, crushing any droid unfortunate enough to be in its path.

The droid is immediately replaced by a backup until all three have been destroyed.

CONTROLS

L = move left
P = move up
K = move right
A = move down
Q = adjust screen
G = quit game
or use joystick

MAJOR VARIABLES

chance	Stores screen characters.
dir	Stores INCHI direction codes.
caskets	Number of caskets on each screen.
max6	Maxes on high-score table.
max5	Maxes on high-score table.
droids	Number of droids left.
newsheet	Flag for a new screen.
score	Number of times six screens completed.
caskets	Number of caskets treated.
screen	Number of current screen.
rad	Count for radiation level.
r	Colour assigned to character.
rock	Vertical test coordinate for rock.
rock1	Number of rocks that will fall.
rock	Vertical coordinate of falling rock.
space	Vertical test coordinate for space.
space1	Number of spaces each rock will fall.
x,y1,x,y2	Current and previous x,y coordinates.

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464/664/6128

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Numbers
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Teach your children to cross the road safely as a Pelican crossing.



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Derrick
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Hilo
Maths Test
Mouset
Number Signs
Seesaw
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NUMBER SIGNS

Provide the correct arithmetic signs and also to solve two out of five.



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Learn maths the fun way. Type in the answer to balance the scales.

Ages 8-12

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Codebreaker
Dog Deck
Corn
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Hangman
Maths Hike
Pile
Odd Man Out
Pantomime
Towers of Hanoi



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Improve your child's spelling with this fun version of the popular game.



ODD MAN OUT

Find the word that does not fit - before your time runs out.

TO ORDER, PLEASE USE THE FORM ON PAGE 107

NEW for the Amstrad

EASIART software

An excellent icon menu driven drawing package using a tracker ball, joystick or a menu, which enables you to doodle or produce masterpieces.

Some features:

Spray, pattern fill, colours, zoom, cut and paste, erase, circle, triangle, rectangle, text, grid, line thickness, save, load, printer dump, icon generator. (Dope or disc £15.95 inc VAT p&p). Tracker Ball with Easidraw £29.95 inc VAT p&p.



(EASIDRAW)

EASIDRAW software

A superb menu driven package using a tracker ball, a mouse or joystick which allows you to sketch or draw to size.

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The RB2 design incorporates Marconi's many years of experience in making Tracker Balls for the Military and for Air Traffic Control which demand maximum performance and reliability. The RB2 is designed as a quality device for the serious hobbyist, for educational uses and for low cost CAD/CAM applications.



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____ Labels £7.50 per 1000
I enclose a CHECK/PC for £

From: _____
Name: _____
Address: _____

Tel. No. _____

From Page 47

determining the precise areas of fields, calculating true volumes and doing miscellaneous conversions. A calendar is incorporated.

Farrington is offering The Farm Office on a three month trial for £300, including training. The cost of buying the package outright is £1,495.

Car dealers go for Amstrad

A LEADING supplier of computer systems to the motor industry has begun stocking the PC1512.

Carter-Pattist VisiSystems is offering the Amstrad clone as an alternative to the IBM PC in its vertical packages.

Managing director William Ivis said: "The Amstrad PC1512 opens up new opportunities for us because used car dealers will now be able to afford our VisiSystems systems.

"We displayed the Amstrad HD20 with colour screen at the Motor Show with VisiSystems sales prospecting software and it created phenomenal interest".

LAN system for PC 1512

A NEW local area network system for the PC1512 from Equinox Computer Systems offers average transfer rates up to 1MB per second across RS422 twisted pairs at a cost of £295 per node.

The LAN local area network supports PC/At/clone 2.1 file and record locking, making it suitable for use with true multi-user software such as DataFile, Revelation and Smart.

A two-user starter kit, including software and cables, costs £295. Additional installations are £295 each.

Package deal

A NEW communications software package for the PC1512 has been released by S and S Enterprises.

Called PC Prestair, it works at all baud rates, including 1200BPS, and handles Prestair graphics as well as electronic mail and bulletin boards. Price £25.

Also for the PC from S and S is Business Writer, a new word processing package that features the ability to do arithmetic in the document. Price £25.



Running Amstrad training sessions... Roy Curtis

Training on the PCW

AMSTRAD Distribution is offering training courses for PCW users at its Newcastle, Staffs, headquarters.

The one-day sessions, conducted by training consultant Roy Curtis, are initially taking place once a week.

There is a limit of six persons per session, each student using an individual PCW.

The course costs £75, including lunch and refreshments, and there are plans for an advanced Amstrad user course in the near future.

Rights transferred

THE Digits Group is entering the micro software market for the first time following the appointment of former Gemini Marketing sales boss Jeremy Hill as a director.

Digits says three best selling Amstrad PCW products - DataStone, SuperType and Classic Invaders - are now its property.

Hill told Computing with the Amstrad: "These products were previously published by Gemini, but the exclusive rights have now been transferred to Digits. We are supplying these at the same price as

before and offering software support. Existing Gemini customers requiring help should in future contact Digits".

Hard disc backups

FIRST product for the PC1512 from Ideal Software is MiniBack, a hard disc back-up system with added features including automatic daily incremental backup of key files.

MiniBack allows back-up of named files and/or sub-directories to floppy discs. The user need specify only once which files or types of files have to be backed up, using Dos wildcard characters. From then on the backing up process is semi-automated.

A complete back-up of all the specified files can be made at the start of each week, or as otherwise preferred.

In between complete archiving of files MiniBack files away only the information changed since the previous full back-up.

It also permits particular files to be deleted though not actually removed from the disc and preserved for retrieval at any time.

The user specifies how many old copies of each file should be held in this way, and preserved files are backed up when the next changes are backed up.

MiniBack maintains a log of the back-ups which consists of names of files, date and time done. Price £89.95.

Enhanced software

SOFTWARE house Seven Computing has enhanced its business packages for the Amstrad PC and PCW by increasing the number of programs in each from three to five.

The Flex-Collection for the PC1512 includes Database FlexFile, word processor with mailmerge FlexWrite, spreadsheet with graphics FlexCalc, general purpose file encryption program Lock-It, and FlexLabel which can print either mailing labels or goods tickets.

All run in 256K of memory except FlexFile which requires 380K. Price £49.95.

The Micro-Collection contains five similar programs for the PCW series - MicroFile, MicroWord, FlexLabel, MicroSpread and Lock-It. Price £49.95. An upgrade package for existing MicroFile/MicroWord users is available priced £12.95.

New software helps to solve old problems

There are now so many accounting suites available for the PCW that users face immense pressure to ignore those not supplied by the major vendors. This tendency makes it very difficult for new software packages to enter the market.

Consequently, on receiving a comprehensive system from Cavalier, a supplier hitherto unknown to me, a supplier thought was not as to my first thoughts were not as to whether it was better than those currently available/which in some cases would not be difficult to believe, but rather turned to whether they had wasted their time producing it.

The system comes in two parts called Instock and Inset at £59.95 each. Alternatively they can be bought as an integrated system consisting of purchase ledger, sales ledger, nominal ledger available in the Inset package, with sales order processing, invoicing, stock control in Instock, and maintenance and contact list available in Inset. Many of the major software houses charge double, with only payroll added.

Until you have used a program whose whole design philosophy is built round another machine and whose manual is a not always successful re-write of some other variant, you cannot imagine the frustrations that can develop.

Consequently this system's most important merit is that unlike many

JO STORK reviews an accounting system and is greatly impressed

packages whose parentage is highly suspect, Cavalier has been a product designed from the outset round the Amstrad PCW8512. Users of the PCW8500 should not be discouraged, but must accept some limitation of their data file sizes.

I place much importance on a system being right for the hardware, since eventually it makes it so much easier to use. The proof is that despite the host of features offered and the fact that some aspects are differently organised to the way I would have designed them, I had very little trouble.

Cavalier uses a series of clear menus similar to that shown in Figure 1 to lead you to the function required. A couple of short Yes-No type answers later and the task commences.

In short, you should find running the package straightforward providing you have studied the manual, pre-planned the classifications by which you will store stock items, customers and so on, as well as practiced a few transactions on dummy trading files. This is no more than you should do with any package.

Turning to each of the modules in turn, it is the nominal ledger which raises interest well above a mere book-keeping system. You can create up to 99 of your own major accounts, such as Office or Transport. As if this was not enough for any PCW-based organisation, each of these may be subdivided into a further 99 minor accounts such as Postage or Fuel.

An account listing is shown in

Bank Account	1201
Creditors Equipment	9120
Debitors Equipment	9220
Petty Cash	1250
Purchases P.A.T.	2050
Reserves (Profit/Loss)	2150
Sales P.A.T.	2060
Share Capital	2110
Share Balance	2101
Store Equipment	9110
Store Equipment Dep	9210
Sundry Creditors	2010
Sundry Debtors	1010
Trade Creditors	2001
Trade Debtors	1000
Heating Costs	2020
Light & Power	2030
Postage	2040
Rent & Rates	2010
Stationery	2010
Telephones	2010
Closing Stock	5150
Opening Stock	5101
Sundry Purchases	1020
Sundry Sales	6020
Trade Purchases	6001
Trade Sales	6001

CAVALIER ACCOUNTING MENU

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1. - Run & Mirror Database
2. - Bank Control
3. - Sales Processing
4. - Purchase & Invoice Database
5. - Inventory Ledger
6. - Sales Ledger
7. - Purchase Ledger
8. - Accounting Audit & Period Bal
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From Page 47

with this part of the system and in time the suggestions will become much more realistic.

My first disappointment was finding the system written in Lotus-compatible Basic. I have no objection to it as a language, and Jetam is quite efficient, but I wonder what the response times will be, particularly during sorts, once you have built large files.

Speed is never a problem during data entry, displaying, or listing, but at times - even with my test files and the data Cavalier very kindly provided - the time taken began to rise.

Sophisticated systems need machine code and not an interpreter, and whether this comes via assembler or compiler is immaterial. This problem is compounded by a certain amount of delay while programs are switched as I moved round the modules.

My next complaint is that the two

comprehensive manuals did not contain an index. As always, I read them through before booting the system. All seemed clear and I had few problems working the system, rarely needing to refer back to them.

However, few things are more irritating than being unable to find quickly the answer to a routine query or specific detail while in the middle of a posting or producing an invoice.

Having looked at this system I return to my original question. Should you, in a market drowning in a sea of accounting packages, consider it or merely look at the products of the better known major suppliers?

From the point of view of the package itself, I have no hesitation in recommending that you give it a close examination. It is cheaper than the majority and offers as much as most PCMs users could ever require. No system I have ever used or created was perfect, therefore my quibbles should not rule it out.

My major doubt about whether a new user should bypass the brand

leaders stems from the questions of support and a help desk. A sudden rush of orders can swamp the limited resources of a small new company, thereby leaving you with only an engaged time for support.

Conversely, if the sales do not materialize you do get marvellous personal service - until such time as the company folds. I sincerely hope Cavalier can get the balance right and for what it is worth, I offer this further impression.

The way in which this system has been tested, modified and presented for review impressed me greatly. This makes me believe that Cavalier has what it takes to solve this aspect of becoming a software supplier and is therefore worthy of serious consideration.

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CW2

If your ambitions for using computer graphics are to sketch your grand-mother's cat or to simulate Picasso you will not find much to interest you in Microdraft, Timatic's new CAD and technical drawing package designed for the PC1612, PCWR256 and QPCW128.

If on the other hand you wish to use your Amstrad to help you with serious technical drawing and design then this could be the answer.

There are two kinds of drawing package. First there are those which store the image as a set of pixels in much the same way as the image is displayed on the screen. An excellent example is the Electric Studio Light Pen software.

However, such packages have limited resolution, require considerable storage - typically 48k per image, record only the image itself rather than how it was constructed and are not compatible with plotters.

The second type are more appropriate for architectural, electronic, mechanical, schematic or other technical drawing. They store the image as a set of elements such as lines and arcs and reconstruct it cursorily on either a screen or a matrix printer or plotter. Accuracy is normally only limited by the chosen output device.

Drawings stored in this way can be more readily edited and require much less storage but often take longer to reproduce because of the processing required.

Microdraft is an example of the latter. Internally, all elements are represented to a resolution equivalent to 60lines on an A3 sized image - over 100 times the resolution of a PCWR256 screen. The drawings accompanying

Sure draw for the professional

MIKE CROWE examines and illustrates the qualities of Microdraft, the latest drafting package from Timatic

this article were produced using Microdraft and give some indication of the type of quality it can produce.

Microdraft's presentation ignores the conventional user-friendly approach and caters for the experienced professional. The emphasis is on speed and efficiency rather than ease of use and learning, which would be required by a novice.

It might even go a little too far: Menu prompts are cryptic and poorly signposted giving an unwelcoming feeling to the occasional user.

This approach is in stark contrast to DR Draw which I reviewed in the October 1988 issue of *Business Computing with the Amstrad*, whose interface is optimised for the novice and is painfully slow and clumsy for the expert.

Figure 1 shows the format of Microdraft's main drawing screen. The current menu appears top right and has a maximum of 10 options selectable using the numbers, or any other user-defined keys. Keys 8,1,2 are the same in all menus and other frequently used selections are assigned to keys 3,4, and 5.

There is a danger that with auto-

repeat keys it is possible to be taken through 10 menus before you know it - sometimes with dramatic consequences!

Menu selection and cursor control is a lot easier via the PC1612 mouse and Timatic says PCW owners will not have to wait long for a Remington mouse package which works with Microdraft.

However, I cannot help feeling that just a little more help could be provided - perhaps using windowed menus, which could also increase the amount of the screen dedicated to the drawing itself.

On balance, having seen professionals using Microdraft with a high degree of proficiency, I feel sure the designers' priorities were about correct - but a greater burden is placed on the tutorial and reference sections of the handbook for new-comers.

It's impossible to describe the full capabilities of such a powerful package in this short article but I hope I can convey the flavour of the facilities it offers.

One way to think of it is as a set of drawing instruments which allows anyone capable of drawing with pen and paper to produce and amend high quality computer-based technical drawings. Figure 2 illustrates the point.

I found the most heavily used function to be straight line drawing. You can specify the two ends of the line by any combination of the following:

- Cartesian coordinates in any units, typically millimetres.
- Polar coordinates, optionally relative to an existing point.
- Pre-stored points in a 3D coordinate memory.
- End of an existing line nearest the cursor.
- Intersection of two existing lines.
- Cursor position, with the cursor controlled by the arrow keys and the



Figure 1: Microdraft in action: The main drawing screen

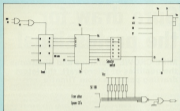


Figure 2: Microsoft is suitable for circuit schematics and for layout drawings.

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step size selectable.

An extra feature in the latest upgrade release 2.2 is Snap, which lets you indicate the nearest point to the cursor on a "drawing grid". This allows accurate alignment of elements of a drawing without precise cursor positioning.

There are other options for specifying lines which pass through one point and which are perpendicular to another line or tangential to a circle.

Microsoft can draw circles from a given centre and radius, or from three specified points through which the circle must pass.

Arcs and ellipses can also be drawn and a particularly useful construct for schematics and block diagrams is the box—a rectangle with sides located by defining two diagonal corners.

Mechanical engineers will welcome the automatic "filleting" function which, roughly speaking, rounds off sharp corners to a given radius.

The auto-dimensioning features, which draw and labels a dimension line complete with arrowheads and witness lines where appropriate, should delight most draftsmen. The drawing in Figure 1 shows an example of filleted corners and dimension lines.

Areas may be hatched with parallel lines but there are no textures in-file available with Microdraft, which confines itself to features available with curvilinear plotters.

Text can be added anywhere. Only one font is available but Times, will be releasing an add-on package which will include additional ones.

However, the default font is suitable for most purposes given that you can

set the character size for each piece of text, though some of the less commonly used characters are missing.

Powerful zoom facilities exist to allow detailed work at high magnification and you can move to the neighbouring part of a drawing when working at high magnification using the Pan feature.

The real joy of Microdraft is that its redraw speed is so high that you can flip between detail and overview in a matter of seconds.

Apart from its speed, the features which distinguish Microdraft as a serious CAD package are the Blocks, Macros and Library features.

A group of elements such as lines, circles, text and so on, which make up a composite element like a nut and bolt or an electronic symbol, can be designated as a block. Thereafter this can be moved, copied, rotated, mirrored or cancelled as a single item.

What is more, blocks may be nested so that components, sub-assemblies, assemblies and so on can all be treated as single composite items. One function on a block which seems to be missing is the ability to expand or reduce its scale directly.

A whole drawing may be saved to disc as a file and may be incorporated in the current drawing using the Macro function which allows recalling not provided for blocks.

Release 2.2 of Microdraft can interface with a new optional add-on Library package which provides a more efficient means of storing and calling up predefined symbols and shapes. Unlike Macro, which uses a whole file (minimum 1k) to hold each drawing, Library allows hundreds of shapes to be held in one disc file and called up by name.

Several features have been included to give it its high speed performance. For example, Microdraft does not use the standard GSA graphics extension but instead has its own far more specialised and efficient graphics interface.

To save time, hatching is only produced on the screen if explicitly requested. Furthermore, text is only written when it is of readable size—in contrast to DR Draw which can waste minutes laboriously writing illegible text.

This unfortunately means that text is often suppressed leaving the draftsman uncertain whether he has already entered it and if so where—it would be better if suppressed text were at least depicted as lines.

In view of the work that goes into a drawing it is surprising that Microdraft departs from the common practice of automatically backing up drawing files rather than overwriting them. Few users would begrudge the extra seconds taken and extra disc space used to save a drawing to give added security of keeping the old version.

My initial impressions of the manual are favourable—it has 58 A5-size spiral bound pages, clearly printed on good quality paper. On first reading it seemed satisfactory, but I found it disappointing when used as a reference book alongside the manual. The lack of index and page numbers is a serious shortfall in a professional publication.

It is difficult to locate an explanation of a particular set of menu options. A full menu tree map would be useful along with a page per menu reference section. It would also be easier if the menu name itself were displayed, rather than just the selections.

The software works fast and well on an unexpanded PCW808. The basic package comes on one side of a 2in disc and comprises three programs: MICROART (the interactive drafting program), MIPLOT and MPRINT.

MIPLOT produces superb hard copy of a drawing file on a Hewlett-Packard compatible plotter as can be seen from Figure 3, while the very acceptable results of MPRINT and the limited PCW printer are shown in Figure 4.

The PC1512 implementation allows all software to be resident, but CP/M restrictions force the CPC and PCW to use 13 overlays. On the PCW all MICROART software can be accommodated in memory or drive M; making for almost instant overwriting.

On CPCs the overlays are held on disc and are much slower. On both the PCW and CPC the hard copy programs must be loaded and run after the drawing file has been prepared by

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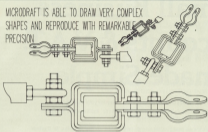


Figure 8: The output from a plotter

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MICRODRAFT (but on a PC1512 IMPRINT and MPLLOT may be run concurrently with MICRODRAFT).

Timatic Systems, and its sister software development company Dalek Software, took a brave decision to develop a drafting system for the Amstrad and we should be pleased they did. Microdraft is a no-nonsense package for serious engineering, architectural, electronic and technical drawing.

It is definitely not aimed at the hobbyist who wants to knock out a couple

of sketches a year but at under £80 for the CPC or PCW versions - which includes over 100s of sophisticated software - it is well within the price range of the serious amateur.

Microdraft will not turn a novice into an expert draftsman overnight. It does take time to become proficient at using the program, although once mastered the unconventional user interface is very efficient.

The package is undergoing continued development and Timatic is responsive to enquiries and is guided by user suggestions for enhancements - although there seems to be no shortage of ideas in-house!

Timatic generously sends later releases of Microdraft to bona-fide users who signed and returned the licence agreement and who return their master disc. Add-on packages are in the pipeline concerning libraries, additional fonts and to support mouse control.

All in all Microdraft seems a thoroughly professional product.

Product: Microdraft
Price: £28.95 (PCW or CPC), £149.95 (PC1512)
Supplier: Timatic Systems, The Mariner, Aintree, Manchester
Tel: 0204 286717

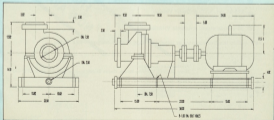


Figure 9: For many purposes good quality drawings can be produced on the PCW printer

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The word revolution is overused, but it really is the only way of describing what is happening today in the world of print and design. It is a hidden, largely mysterious revolution to most people, but Ametraid owners can be there at the heart of it, reaping the benefits.

The revolution stems from the speed with which ideas can now be turned into print, the vast variety of fonts that finished material can take and the relative cheapness of access to the most advanced processes.

Most people have heard about direct input at newspapers, where journalists key in their stories for typesetting. It is exactly that process which is now available to almost anyone who can create a document on a disc.

And if you're set up for electronic communications the possibilities are even greater. You can now not only write a book at your keyboard but also send it off for direct typesetting down the telephone as from your disc.

Or, if you have no immediate plans for winning the Booker prize for 1987, there's a host of applications if you're running a small business.

Pages with panache . . .

Concluding Bruce Hugman's article on low-cost printing with the PCW

In fact if you're involved in any kind of organization which needs to produce programmes, brochures, newsletters, promotional material, stock-lists or catalogues there are great opportunities - and savings.

Here we'll just sketch in some of the possibilities and hope they'll give you the confidence to take the plunge and - above all - to experiment!

In the normal course of events, if you want something printed you send a hard copy of your material to a typesetting house or to a printer,

where someone sits at a keyboard and inputs the material all over again.

At anything up to £70 an hour this is an expensive process and if the material is very complex some errors are almost bound to creep in.

There are now many typesetting firms who have translation equipment for taking data directly from discs, some able to cope with over 700 different formats.

But all they do to your document is to insert typesetting commands. These determine the style and size of the type used, the length of lines and so on, and the amended text is then fed into the firm's machine.

All you have to provide is an ASCII file - some firms will even do this for you - with a hard copy marked up as to how you want the material set.

You'll get your text back on a strip of paper, a galley, which is then ready for cutting up and turning into artwork for plate-making and printing.

If you have a monitor and the appropriate software you can send your file down line to some companies.

This is a slightly more complicated process which requires you to embed the typesetting commands into your document - but if you've managed to get on top of LocoScript you'll have no trouble mastering that process from the manual supplied.

You'll probably find a typeface manual helpful while you're preparing your material. And if you have had no experience with galleys and design you may want the help of someone who has during the early stages.

However, careful study of existing printed material and referring to your type manual should get you well on the way.

There are several options in terms of the final cost and quality of typesetting and you can choose the one



Figure 1: The copy for this newsletter was laser set there directly via an Apple Macintosh and has corrected errors included. The typesetting for the four pages cost £10, master pages, including the masthead and logo, were pre-printed in bulk at £100 for 1,000 A4 sheets and the edition photocopied on to them.

From Page 57

which fits your purposes and your budget.

Direct from disc, the cheapest is daisywheel setting which gives a clean, smart finish for things like company reports or internal documents at a cost of around £3 per A4 page.

If you're going to want a lot of daisywheel output, however, it will almost certainly be cheaper and more convenient to buy your own printer.

The next option is laser setting from an Apple Macintosh. While some professionals have reservations about the quality of this, few amateur eyes would see anything wrong with it. This costs about £16 per A4 page and Figure 1 is an example of the finished work.

Finally, you can go to the top of the market using high quality digital photo or laser setting on very expensive equipment.

Database Publications produce this magazine this way - but for the

individual it can work out rather more expensive than the alternatives previously mentioned.

In general, these options will save you money when compared with conventional typesetting (which comes in at £30-£40 per page) when you have four or five A4 pages or more.

On the other hand, down the line setting, for which you are charged per rate for the actual material set and which provides high quality photo setting, is far and away the cheapest at about £3 per foot (which is more or less an A4 page) and is good value for even the smallest item.

Otherwise letter headings, business cards, invoices and other small items are likely to be more expensive than if you simply hand them over to a printer.

Your typesetting will usually come back through the post in a few days and you then have to lay it out and paste it up ready for printing (see the panel for a step-by-step guide).

Two colour printing is not a great deal more expensive than one colour - if you find a printer who has a machine that prints two colours at the same time. But full colour (with colour photos for example) is very expensive. However, if you're in that market you'll hardly be slaving away over your Amstrad to save a few quid.

Remember that for short runs (up to a hundred or so) good quality photocopying can be a sensible option.

With a little imagination and careful choice of typeface, paper and ink colour you can produce very classy material as you can see from Figure 8. And remember that once you have mastered the process you have a highly marketable skill.

The process may sound a bit complicated at first, but once you've tried your hand at it you'll find it's quite manageable and you should be delighted with the results.

If you use your imagination you'll find there's no end to the projects you

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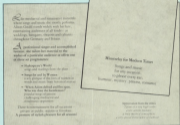
can undertake for yourself – and for others: Programmes for amateur plays, magazines for any kind of organisation you can think of, stock records, catalogues, even a Christmas newsletter (you've just got time to get started for 1987!) – you'll find they're all well within your grasp.

Once you have a high quality finished product, do make sure that it's presented well. If it's professional material or a catalogue you can place or staple it in a card holder or a clear plastic wallet with your company's name on the front.

If you're going to be doing a series of productions (monthly newsletters or catalogues, for example) then there's much to be said for having the masthead title or company name printed in bulk in advance and copying each month's or quarter's publication on to the required number of sheets.

This is just a start, but here's hoping it's given you some of the information and inspiration you require to begin producing some impressive material from the keyboard of your Amstrad – and possibly bringing in some extra income as well. ■

Figure 1: This small promotional leaflet, printed on marbled paper in burgundy ink, gives an indication of the quality you can achieve.



A step-by-step guide to production

Here are the basic steps for the production of a simple, low budget, four page A4 newsletter, promotional brochure or report, printed on an A3 sheet folded over.

These notes are for preparing a disc to hand to a typesetter – the procedure for electronic communication is comparable but different in detail. Firms offering this service provide user manuals.

- Format a new disc.
- Create a standard *LotusScript* document with all text, including titles, headlines and sub-headings.
- Edit and correct (remember any mistakes you make will appear in the typesetting). Because you will be making an *Acsl* file (which strips all commands out) you don't have to worry about layout and style in your editing.
- Print out a draft copy.
- Do a rough layout of how you want this final document to look.
- Decide the type style and size you want for each title and block of text and write it on your hard copy (you'll need to have a type style manual to hand, ideally one from

the company you're going to use for the setting).

- Back-up your disc.
- Using *copy/loop/paste* regroup the material so that everything in one style and size appears together (for example, all your 36 point Times Roman Bold titles, and all your 10 point Helvetica Medium text and so on).
- Check that the content is exactly as you want it to appear in print, then print out two copies (one for your reference and one to send off).
- Mark up the hard copies with the size and style of type for each section, what the maximum line length is to be, which lines are to be centred and so on. This has to be done manually because your *Acsl* file will be naked of layout and style commands.
- Make an *Acsl* file.
- Back up the disc.
- Send off your disc and marked up hard copy.
- While you're waiting for the setting to come back through the post collect any photos or other visual material you're going to include and refine your rough layout of how you want the final document to look.

- Prepare two white boards, slightly larger than A3, by drawing an A3 sized outline on them and dividing each into two A4 sized pages. Remember the pages will be 4 and 1 (in that order, left to right and 2 and 3 when they are flat).
- When your typesetting arrives, cut out all the bits and pieces with a scalpel and start arranging the jig-saw on your boards, leaving space for photos and illustrations.
- Measure up the spaces for photos and take your originals along to a copy shop which can make you a screened PWT (photo mechanical transfer) to the exact size you require. Get copies of other visual material in the same way, though it probably won't need to be screened.
- Next paste everything down using aerosol adhesives, which allows you to move stuff about for some time after it's applied.
- When you're quite happy with the look of it – and all your lines are straight! – take it along to the copy-shop or printer who has offered you the best price for the job.
- Finally, bask in the glory of having achieved what you previously thought impossible.

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Get your mind into top gear

BILL AGNEW takes a thoughtful look at **BrainStorm**, a program designed to produce structured ideas



BRAINSTORM from *Carton* is effectively an electronic scratch-pad which can be used to create structured lists of items from random jottings and to show the relationship between them.

Basically, you decide on a topic and make a list of the main levels, then take each of the issues and make a list of key points. Then you detail each key point, create further descendants from them, and so on. The topic, the issues, the key points, and (say) one set of details — in that case, four levels.

BrainStorm will help you delve deep, planting your thoughts at each level so that they stand a chance of sprouting into other levels, while noting any ideas that occur.

The result of your ideas session can be examined at one time on screen, or sent to printer — in which case **BrainStorm** will indent each level appropriately, thus providing a visual feedback of structure.

The attractive glossy black packaging, with its logo of *The Thinker* really sets the mood to enjoy the program. Unfortunately, mood isn't everything, and my first twenty minutes of **BrainStorm** were nearly my last.

My initial discovery was far from enjoyable — different meanings for the NOW's keys instead of the comfortably dedicated *WordPerfect* set-up. To have to give up the hard-won mastery of the keyboard was hardly welcome. And in addition to getting used to

an unfamiliar keyboard configuration, there were a dozen or so special controls to learn — Control + D = Next, Control + H = Hunt (Search for), and so on.

However, **BrainStorm** awaited and I persevered. On the whole, it was worth it.

So, what are the benefits of this ideas processor, supposedly the greatest thing since pencil and paper?

Brainstorming is a well-tried technique used in group work for generating ideas. Everyone seeks the first thing that comes to mind on a

given topic, and these random ideas are noted down, usually on a blackboard or something similar for everyone to see.

They are then put into some kind of order by the group leader, and the brainstorming and ordering continue until all ideas are exhausted.

BrainStorm the program works in a similar way but is meant to be used by an individual rather than a group. Of course, it does not generate the lateral thinking and cross-fertilisation of group interaction, but it does invite you to dig into your own personal

: Training and development	(General — 1st level)
: Management development	(Topic — 2nd level)
: Mid-career refreshing	(Phase — 3rd level)
: Political/interpersonal skills	(Content — 4th level)
: Technological up-dating	(Content — 4th level)
: Career planning	(Methods — 5th level)
: Learning techniques	(Assess — 6th level)
: Measurements of progress	(Assess — 7th level)
: Self assessment	(Assess — 7th level)
: Performance evaluation	(Assess — 7th level)
: Cost effectiveness	(Assess — 7th level)
: Review and redesign	(Phase — 3rd level)

Figure 1. A typical level structure

AS WE'VE seen in the last three months, spreadsheets consist of a lot of numbers (well-labelled for easy understanding) all interconnected by sets of formulae. We've learnt how to enter all three.

For the numbers we want to use in our model we just type in figures.

For letters, however, we have to warn the micro beforehand by pressing the T (for Text) key. It's the same with formulae, the Amstrad has to be told they're coming. We do this by pressing F before we enter them.

While our models have been quite simple so far and shouldn't be beyond even the most mediocre typist in real life there's a fair amount of keyboard effort put into creating a spreadsheet. A lot of it is repetitive, the same numbers and labels coming up all over the place.

Because of this, most spreadsheets have the ability to copy contents from one cell to another. As previously, I'll be using Mini Office II for my examples, but the principles will apply to any spreadsheet worthy of the name.

Copying numbers or labels from one part of the sheet to another is simple. You just move the cursor to the cell you want to copy - making it the active cell - and press the D (for Duplicate) key.

This tells the micro it is to take the label or number in that cell and copy it. But where to? Again the cursor is moved, this time to the cell you want to receive the duplicate.

As soon as the cursor is in position and the receiving cell is active, a press of the Copy key has the program doing the copying.

Suppose that you've got the figure 5 in cell C5 and you want to have a 5 in cell F1. All you do is move the cursor to C5, press D, move the cursor to F1 and press Copy. The result is that both C5 and F1 now contain 5.

The details may vary slightly from spreadsheet to spreadsheet but the principles of telling the micro what to copy and where to copy it to will be the same.

So now you know how to copy two

A.....	B.....	C.....	D.....
1	1.00	1.00	2.00
2	2.00	2.00	4.00
3	3.00	3.00	6.00
4			

Figure 1: A simple spreadsheet

Copying, relative and absolute

Using Mini Office II NIGEL PETERS shows how to take some of the toil out of creating a spreadsheet

of the elements of a spreadsheet. But what of the third, the formulae used? Let's see what we can do with these by taking a look at Figure 2.

Despite the lack of labels, it shouldn't be too hard to see where the figures come from. Unless things have altered radically since I was at school, 1 and 1 make 2, 2 and 2 make 4 and I'm fairly confident that 4 and 4 make 8. Even if I wasn't I could use the spreadsheet to check up.

All right, I agree that the example is trivial but it's useful for the point it's

the result into this cell".

In the case of the formula in C1, the two cells are A1 and B1. For C2 the cells are A2 and B2 and I leave it to you to figure out what cells go together to make up C3.

Now the cells in each formula (and the numbers they contain) are all different. But the way the formulae treat these cells is the same. The cells in row 1 are used in exactly the same relationship as those in rows 2 and 3.

The terms used in the formulae vary, but the underlying theme of "add the two on the left and stick the result in here" is the same.

Suppose you decided to set up the model shown in Figure 3 (which is advised as you'll learn a lot more from doing that than just reading). I hope that when you enter the numbers in columns A and B you use the new-found skill with the Copy key to save the typing.

But we're still stuck with typing in the three formulae in column C, the results column. Or are we?

Certainly we have to type in the first of the formulae A1+B1 into cell C1 but there's no need to laboriously enter the others. After all, as we've just seen, they're practically the same.

What we need to do is a relative

A.....	B.....	C.....	D.....
1	1.00	1.00	2.00
2	2.00	2.00	4.00
3	4.00	4.00	8.00
4			

Figure 2: Simple formulae

trying to make, it's obvious that for each row the first two numbers are added and the result placed in the third cell along. Figure 3 shows the formulae used.

Although the formulae in column C are all made up of different cells, they do have something in common: in each case the formula is saying, in effect, "add together the numbers held in the two cells to my left and put

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From Page 65

copy. How this is done varies from spreadsheet to spreadsheet but they all have this facility. In the case of *Mini Office II* we just do what we did before.

First we move the cursor to the cell with the formula we want to copy. Then we press D, move the cursor to the cell we want to receive the copy of the formula and press the Copy key.

In the case of Figure 8 we make C1 the active cell, then press D. Next we move the cursor to the cell we want to copy to, in this case C3. Then we just press Copy and the formula $A2+B2$ is put into C3.

Of course we don't see $A2+B2$ in the cell C3. After pressing U (for Update) we see the number produced by the addition of what's in A2 and B2. In this case 4. However, the formula appears in the contents section of the status area, explaining how C3 is arrived at.

The point to notice is that when we copied C1's formula into C3, we didn't get an exact copy. We copied $A1+B1$ but got $A2+B2$. The spreadsheet takes the relative positions of the cells in the first formula and works out the second formula using cells that correspond to the same positions around the receiving cell.

It's easier to see in practice than it is to describe in words. Try it out for yourself and you'll soon grasp how simple it is.

Going back to the spreadsheet of Figure 8, we can copy the formula into C3 where we get $A3+B3$. Notice that here we could use either C1 or C2 as the "copy" cell for the relative copy operation. The result is the same: The two cells on the left are added together and the result put in the cell on the right.

We could carry on like this down the C column, copying one row's formula from the row above until we run out of rows. We can also copy from column to column. To see this, make C1 the active cell, then press D, move the cursor to D1 and press Copy. The result is that the formula $B1+C1$ is placed in D1.

This makes sense as we've copied

A.....	B.....	C.....	D.....
1 10.00	1.00	11.00	
2 15.00	2.00	17.00	
3 20.00	3.00	23.00	
4 25.00	4.00	29.00	

Figure 8: VAT at standard rate

A.....	B.....	C.....	D.....
1 1.00	1.00	2.00	
2 1.00	1.00	2.00	
3 1.00	1.00	2.00	
4			

Figure 9: Absolute copying

the formula that said "add together the two sums on the left" into cell D1. Well the two cells to the left of D1 are C1 and B1, hence the formula that arrives in D1 as a result of the relative copy is $B1+C1$.

Again it's easier done than said. Try it out in practice in your own spreadsheets and you'll soon have the hang of it. Once you've got the knack, you'll find that it makes creating spreadsheets a lot easier. You can test your skills on layouts such as Figure 8.

There's no mystery to this spreadsheet, it's just a reference guide to VAT. The first column has the price, the second the VAT to be paid on this price and the third the price including VAT.

There's no need to enter 6 different formulas in columns B and C. All you have to do is to enter $A1*B1/5$ in cell B1 and copy it down the B column. Similarly with C1 which contains $A1+B1$. Don't forget that you have to use U to get the spreadsheet to display the results.

Suppose that somewhere in your spreadsheet you'd tucked away the formula $A1+B1/4$ in a handy cell, say C1. Later you want the exact same formula in another cell, say E7. How would you do it?

If you try and use D with the Copy key, what you get for your pains is $C1+D1/4$ in E7. It's a relative copy. Now that's all well and good and relative copies are good things - otherwise I wouldn't have talked about them - but that wasn't what was wanted.

I wanted to take the formula in C1 and have a copy of it in E7 unchanged. What we need is a way of making an absolute copy. And this is where the Enter key comes in.

With *Mini Office II*, to make an absolute copy of a formula all we do is follow the procedure as before but press Enter instead of Copy. What happens next is that the status area puts up a message:

Absolute or Relative

and you have to press A (for absolute) or R (for relative) for each element in

the formula. The program prompts you to answer for each part of the formula by putting a square head to the left of the appropriate bit.

Ignoring the R option we'll concentrate on the A and use it to produce the spreadsheet in Figure 9.

Columns A and B are the same as before, just containing numbers. Enter them into your spreadsheet. Column C contains the formulae. Put the familiar formula $A1+B1$ into cell C1. Now copy it into cell C2 but this time instead of pressing Copy press Enter. The result is this:

Absolute or Relative

copy in the status area. Pressing A twice (once for the A1 part and once for the B1) results in the formula $A1+B1$ appearing in cell C2. Try the same technique to get $A3+B3$ into C3.

Remember, for absolute copying you use Enter and press A for the elements to be copied unchanged. Practice will bring confidence. Honest!

While relative copying is very useful, in practice absolute copying is rarely used unmodified. What's more usual is a mix of both. Figure 10 shows the "formula map" of a spreadsheet which has this mix.

A.....	B.....	C.....	D.....
1 VAT	B1/5		
2			
3 10.00	A1*B1	A1+B1	
4 15.00	A2*B1	A2+B1	
5 20.00	A3*B1	A3+B1	
6 25.00	A4*B1	A4+B1	
7			
8 Formulae when B1 holds net rate			
9			

Figure 10: Formula map for VAT

It's our VAT table again only it's been rearranged. Now the VAT rate is held in B1 (and labelled - variables never cease!). Then this value is used in the formulae in column B. Column C adds the figures from A and B.

Let's look at how we'd enter the formula. Column C is no problem. We just enter $A3+B3$ in cell C3 and then use D and Copy to duplicate the formulae all the way down column C. That's our old friend, relative copying. The formulae in column B are another matter.

Here we want the best of both



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worlds. The A3 bit of the original formula wants to be duplicated relatively giving A4, A5 and so on.

However, we don't want the B1 part to be affected. It has to stay B1 all the way through. So we want a mix of relative and absolute copying.

To do this we follow the same procedure as before, and use Enter rather than Copy. Now we're faced with the

Absolute or Relative

message again. And for each element of the expression we want copied we choose A for absolute or R for relative.

To see this in practice, enter A3*B1 into cell B3. To produce the required formula in C4 we move the cursor to cell C3, press D then move the cursor to C4 making that active. Now Enter is pressed and the A or R options come up.

As we want the first part to be copied relatively, we press R, giving the needed A4. The second part of the formula we want to stay the same,

A.....	B.....	C.....	D.....
1	10%	8.00	
2			
3	10.00	1.00	11.00
4	10.00	2.00	12.00
5	10.00	3.00	13.00
6	10.00	4.00	14.00
7			
8	Figures when B1 holds vat rate		
9			

Figure 16: VAT again

that is B1, so we choose the A option to ensure that element is copied exactly. This puts A4*B1 in B4. The same process is followed for B5 and B6. Figure 16 shows the result.

You may be wondering why I put the VAT rate up in B1 when this makes the copying relatively more complicated (or is that absolutely more complicated?).

Well, imagine that the VAT rate changed from 10% to 20%. Reflecting this in the spreadsheet of Figure 16 would be quite difficult. Still, with this latest model, all we have to do is

change the value in B1, press U and watch the effects ripple through to produce the spreadsheet shown in Figure 18.

A.....	B.....	C.....	D.....
1	20%	8.00	
2			
3	18.00	3.00	21.00
4	18.00	4.00	22.00
5	18.00	4.00	24.00
6	18.00	6.00	24.00
7			
8	Figures when B1 holds vat rate		
9			

Figure 18: VAT increased

As you can see, a little time, trouble and forethought in creating a spreadsheet can pay rewards in its ease of use. And that's where we end for this month. Have a go at all the methods of copying we've covered. Whatever spreadsheet you have you'll find similar features for replicating formulae as it is known.

Next month we'll be looking at what formulas we can actually construct.

"One of the best and most flexible personal accounts systems I've seen - suitable as an inexpensive business system." Computing with the Amstrad (September 1988)

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- A description so that you can see what each transaction was for, eg. "New printer" or "Box of 10 discs".
- An optional single character mark which you may include for further classification, eg. Indeterminate, profitable, etc.
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While most lay people would not consider a church to be a business, today's clergy would almost certainly disagree. The stark reality is that to keep their heads above water it is increasingly becoming necessary to adopt the latest commercial procedures. Here writer MIKE GERRARD examines the role a PCW is playing in one of the most famous churches in the country, St. James's of Piccadilly, London.

Commerce and the Church

NOT many sectors enjoy a public relations office, but Donald Reeves is no ordinary pastor, and his church, St. James's, which is just an arrow shot from the knee states in London's Piccadilly Circus, is no ordinary church.

Built in the 17th century to a design by Sir Christopher Wren, St. James's is a seven-days-a-week church, preaching Christianity in its widest possible sense. The timeslot, when not filled with market stalls and peace caravans, might be playing host to street theatre and dancers, while inside you'll find not only the regular church services but lunchtime concerts, talks on ecology, or meetings of the recently formed William Blake Society — the poet Blake was baptised at St. James's.

The church also boasts a coffee bar, bookshop, and even formed its own orchestra, while on the roof of his rectory (the last private dwelling on Piccadilly), Donald Reeves keeps beehives, and the tower produced countless of nearby parks, has been considered good enough to be sold at Forster & Mason.

The newsletter listing the church's activities for just one month, *The Whole Program*, can be anything from four to eight A4 pages, and till recently was produced on a typewriter by the Visitors Ministry team: Sue Francis, Peter Tuffnell and Jo Berry. Until, that is, they used the Gospel according to Alan Sugar and bought an Amstrad PCW.

Peter Tuffnell did refer to the way they decided to buy the Amstrad as "quite miraculous", which might be stretching things a little, though the coincidences were certainly remarkable.

"In addition to the newsletter", Peter explains, "we also run the bookshop, and that needed bringing into some sort of order, so although we had two main reasons for buying a computer we didn't do so simply because of the cost — we are a church,

after all, and funds are always limited.

"But then we started seeing the ads for the Amstrad, which was much more affordable, and we couldn't decide whether we ought to get one or not. Then I remember saying one weekend about last February, 'Right, in three days' time we're going to make a decision, one way or the other'.

"And what happened in those three days was incredible. When Jo and I went home that evening we switched on the TV and the first word that we heard was Amstrad. Then a Welsh girl came into the bookshop and told us she was using an Amstrad to produce a newsletter and write a book about a visit she'd made to India. Someone else came into the bookshop to order something and when he saw how disorganised we were he told us we ought to get one of those new Amstrads, and then the guy from the place next door came in and raved about it too.

As no one we knew had ever mentioned the machine before, it did seem quite remarkable that suddenly everyone was talking about it and recommending it, so we went round the corner to Kynman's and bought one".

When the machine first arrived at St. James's it was put in one of the few reasonably peaceful rooms available to the Visitors Ministry team, a church tower that dated from 1684, although it's since been moved to the form of one of the towers for convenience and space. None of them had any previous experience of computers, and all had to pick it up and learn how to use it from scratch.

"We could just about type", admits Sue Francis, "and that was the extent of it. We found the manual ... well, let's say tricky, to be polite about it. You had to read page 280 before you could understand page three, except they don't tell you this on page three, of course. That kind of thing.

"But we found that using it was the

best way to learn, and once we'd committed ourselves to producing our first edition of *The Whole Program* on the machine we simply had to find out how to use it.

"Just about everything had been covered by the time we got to the end of the first newsletter", Peter says, "and now the time we save is enormous. Before, my brother used to type it out for us and that would be a full day's work, sometimes more, on top of the more time-consuming task of gathering the information, checking it, making changes and so on.

"Now I do the typing in about four hours", says Sue, "and it's not just that we've halved the time on that, it's also that it's a lot less frustrating doing it. But in addition it's improved the quality of the newsletter no end".

"Yes", agrees Peter, "what we particularly like is that it allows you a great deal more creativity. Obviously you can do lots of things with the different characters, italics, emphases and so on, that you can't do on a typewriter, but it also allows you to put a lot more thought into how your newsletter looks.

"You find yourself playing around with it to discover what it can do, which turns the work into a pleasure, and even with this playing around it still saves time. It is in fact a great deal of fun, and we find looking at the screen is a lot more inspiring than looking at a sheet of paper in the typewriter".

What the team would really like, though, would be the ability to work in two justified columns on screen simultaneously. Each page of *The Whole Program* consists of two columns of text, and a great deal of jiggling goes on to ensure that every column is the same length. Many devious tricks have been tried to produce a template that would allow them to divide each page into two justified halves, but it

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still eludes them.

Preparing the newsletter in this manner would also save them some cutting and pasting, as each column is printed out in HTML, then cut out and pasted on to card in its finished form and passed to the printers who produce plates by photographic means and then print about 2,000 copies. Three hundred of these are sent out to a mailing list, the rest made available in the church itself.

The quality of the original is the key to the whole thing", Sue explains. "We particularly like the 10 pitch, but unfortunately our printers don't. We think it looks a lot better on the page, but it won't reproduce satisfactorily. Our mailing list is still very amateurish, and we know it. We do it through LocoScript with a file of addresses which are printed out on to sheets of paper and then photocopied on to labels.

"Don't ask us to explain it any further, it's a bit of a Heath Robinson job, but it works, though obviously we'd like to start doing it properly. We've still only scratched the surface of everything yet, and haven't gone on to properly investigate other programs which might allow us to do even more".

"We haven't yet gone into the business functions", Peter adds, "though at the moment we're looking at Cardbase to see if it will cope with the needs of our bookshop. We've had some hassles with the manual again, but it seems to be basically good.

"We feel we have to check it thoroughly first because we carry something like 4 to 5,000 titles and if you're going to be buying of these in then you'd better make sure you're doing it into the right program. The PCW is the ideal size and price of machine for a small bookshop, and I'm sure if someone produced a software package to cater specifically for this type of business then it would do very well".

The arrival of the Amstrad hasn't been accompanied solely by songs of praise, however. The first machine they collected from Rymon's died on them after a week, and an instant replacement was made. This second machine now suffers from occasional paralysis, when the screen freezes and the cursor disappears, and it also seems wary of the Alt+Tab combination, used to produce a tab indent.

Sometimes when cutting part of the text after a tab indent the program throws a wobbly and the entire document will be printed out a letter at a



time down the right-hand side of the screen. The people at St. James's are prepared to live with this, however, and are looking to the future and expanding the Amstrad's uses.

"We're very interested in networking", Peter Tuffnell says, "as the church here is a centre for so many activities, with lots of people interested in areas like the peace movement, ecology, healing and so on. It would be a great way of putting like-minded people in touch with each other.

"And our dream would be to create public access to the computer. One of our jobs, in addition to the newsletter and bookshop, is to run the welcome desk, to be ready to help anyone who comes into the church for whatever reason, and believe me we do get all manner of people coming in, being right in the heart of London.

"It's like all the information we have to be put on to the computer and be

available to anyone at the press of a key. This could be advice for the homeless, on drugs, for personal problems, with lists of useful addresses and phone numbers, agencies, charities, whatever.

"There's such enormous scope. Just once in a while someone comes along in business with an idea that actually changes everyone's everyday life, and I really do think Alan Sugar has done it with the Amstrad PCW".

So convinced is St. James's of the PCW's usefulness that the church has recently bought another machine to control an appeal for a million pounds to aid them in the restoration of the church and in keeping their valuable activities alive. Any readers who would like to contribute can contact St. James's at 107 Piccadilly, London W1M 0LF.



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String storage

I WRITE to you in the hope that you can answer some simple questions to which I have not yet found a satisfactory answer from hardware suppliers.

How would I use the full capacity of a PCIM (from Basic) for string storage? Is this in fact possible and if the best way to go about it on a 6128? Is the answer Pascal or some other Basic than the one on the 6128?

The reason I ask these questions is that I am finding the 6128 a bit small for some jobs.

I was converted from a Commodore just 12 months ago and ported my own program structure and battery of business user interfacing sub-routines across from the Commodore to the 6128.

I could use the PCIM with off-the-shelf software which computer suppliers tell me will let me do anything. I don't believe that.

I have spent enough of my time with 6128 II Plus on a CPM to realise that it is a disaster and that I can program a 6128 in Basic—given my battery of sub-routines—much more easily and quickly than I can program the Compaq using 6128 II.

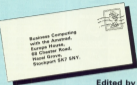
And the result is much better, with more expensive board-interfacing. —**Stan Boardman, Hayfield, Derbyshire.**

● I'm not sure exactly what you mean by "string storage".

Most programming languages limit string length to a maximum of 255 bytes, full stop. But I suspect you really mean Transient Program Area (TPA), if so, your problem is a common one.

The TPA represents the amount of active memory available for temporary storage of program and data (whether string or numeric).

On 8 bit CPM machines this is limited to about 61K, and that figure can't be extended either by using a different programming lan-



guage or by adding a ram upgrade.

Some programming languages work in a modular fashion with external routines, allowing most (even all) the 61K of TPA to be used for data—but the limit still applies. A PCIM612 has 512K of ram, but this gives you a big ram drive, not a big TPA.

Like many other programs 6128 gets round the problem, even on 16 bit machines with a larger TPA, by making frequent disc accesses.

Basic, Pascal and most other languages can be made to do the same. When used in that way, however, the code can become just as complex as that of 6128.

Basically you need either to upgrade to a 16 bit machine like the PC1512, or to write programs which do not confine themselves to data held in memory, or to do both.

Assembly point

I HAVE owned a PCIM612 for three months and recently decided to take the plunge and learn assembly language.

To this end I bought a copy of Ian Sinclair's excellent book *Introducing Amstrad CPM Assembly Language*. I found this very easy to follow and in next to no time I was able to produce simple programs of my own.

However, I now feel that I

would like to go further with this language but am at a loss as to where to find more information.

I would therefore be grateful if you could recommend a suitable follow-up book particularly with reference to the use of graphics. —**A.J. Gosselin, Sutton in Ashfield, Notts.**

● Ian Sinclair's book, excellent though it is, restricts you to 8080 assembly language. There is a huge 286 instruction set that most books dedicated to CPM would not cover.

The best book we've found on 286 is *Programming the 286* by Rodney Tate published by Sybex, but although it is probably the best reference manual around it does not teach you how to use the information contained within its pages.

You will also find one of either of the following books essential if you are to pursue CPM.

CPM Plus Handbook by Digital Research published by William Heinemann; or *The Amstrad CPM Plus* by David Poyry-Lytke and Andrew R.M. Clarke published by The Lavenham Press.

The latter also contains information on DOS, CPM's graphics environment.

Noland Waterhouse has also done some valuable research in directly accessing the PCW's graphics screen and his article in the December 1988 issue of *Computing with the Amstrad* should be of some valuable assistance to anyone wanting to dabble in this.

Multiple accounting

WE HAVE a PCIM612 with a dual disc drive and for some time have researched accounting software that supports multiple bank accounts.

Our type of business requires us to keep a minimum of three accounts—current, deposit and client. Sometimes there may be several loan accounts, a management account and possibly an extra current account.

To date we have been unsuccessful in finding a package that can be used or adapted for such purposes, although the requirements is fairly standard among professional practices.

Although we may be restricted with our current hardware and software (Sage Accounts), we wish to purchase a PC1512 once we know that there is a package that will meet our requirements.

I would be grateful if you could let me have the benefit of your experience in this matter. —**Paul Dumbord, London.**

● The Sage accounting packages are excellent in their own way, but like many other applications programs which aim to automate tasks they try to make you fit in with the restrictions they impose, rather than allowing you to call the tune as by rights you should be doing.

There are some accounting packages for the PCW series, however, which will allow you to post information to several bank accounts.

One such is the *Compaq* suite. This will display the default (nominated) account, but will also give you the option of the posting screen of using that account or choosing another one—you can have as many as you like.

You can in any case safely buy a PC1512 in the sure

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knowledge that there will be answering packages to match your precise needs.

The PC software base is enormous — so enormous that your only problem will be selecting a package on the grounds of price/performance from the wide range available.

Happily we shall be reviewing some of these programs and will certainly bear in mind your point about multiple bank accounts.

Drive M on the right road

HADNT an interesting letter from Squadron Leader G.J. Crosswell in September 1989's Business Computing with the Annotated regarding (among other things) the problem of where to put an address using LoadScript.

OK, we knew that LoadScript couldn't read maps but the messiness with the number of filenames adds insult to injury.

As LoadScript is useless for long documents anyway, it seems a silly decision to penalise short documents as well by naming out of filenames on the disk before memory is full.

Someone out there must know how to load a file of addresses directly to drive B.

If LoadScript will recognise README and the rest why can't it do something more useful and does anyone know how to configure drive M on boot up to do something available such as what I want it to do rather than what LoadScript wants it to do?

But back to the possible. The simplest way to deal with addresses is not, as suggested, by using blocks but by using phrases — much faster.

My system works as follows: I have an address group containing one file with all addresses (which I

hardly ever use — it's quicker to use an address book) plus a direct template with the left margin set so that the address is printed in the right place on an envelope.

When I write a letter I always store the address (as typed on the letter) as a Phrase under B.

To type the envelope I simply Create a document using the address template and Paste in X. When I write to the same person again I simply extract the address from the old letter.

You can, of course, extract the address from an address file if you like by using Phrase as before.

Phrase has enough space to store your most common addresses — there's about 550 characters, so at least that can be loaded up on loading. And of course the manual tells you how to make a new PHRASES.STD file.

The most irritating thing about LoadScript is that it doesn't run under CP/M. All those utilities, utilities, no importing to spreadsheets, Calcbox or other programs. That's why I fancy buying New Word. But can you tell me the following about New Word?

□ How many filenames can I allowed per disc? If it's not more than LoadScript I'm not interested unless they have a cleverer way with addresses?

□ Can I set the keys so that I can send the cursor to the right with the cursor key rather than by pressing Control + M or something equally silly? — Jeremy Taffer, London.

■ You're not quite right when you say that LoadScript doesn't run under CP/M — it does.

It appears to be the operating system because it doesn't allow you access while using it itself, thus preventing you from doing things with drive B as you would like to. We unfortunately know of no way of using drive M under LoadScript except as deleted by LoadScript.

*It's not LoadScript,

however, which limits the number of filenames on a disc. CP/M allows up to 94 directory entries per disc — per newly formatted disc, that is.

Erased filenames remain in the directory until the file is truly deleted by being overwritten by parts of another file or deliberately wiped from the directory.

When LoadScript puts a file into limbo as a back-up or when you erase a file with B, that file actually goes into one of the CP/M User Groups 8 to 15, which are a kind of temporary file graveyard.

You can clear the directory of unwanted filenames either by deleting all files in Groups 8 to 15 with the CP/M ERA command, or by erasing the files in limbo when using LoadScript.

Try using DIR.COM with the command DIR [FULL] before and after erasure, checking the last piece of information given (the number of directory entries used).

CP/M imposes the same limit of 94 filenames on all programs, including New Word. And since New Word is itself often even fewer facilities for handling addresses, it looks as though you won't be interested in buying it.

But the answer to your second query about New Word is Yes. You can use the CP/M SETKEYS utility to set up a keyboard configuration file which will give you

not only full cursor control using the cursor keys, but which will also allow you to put any control codes you wish into virtually any key.

The SETKEYS file can then be used at boot-up when New Word is loaded. As it so happens, the latest version of New Word comes with the keyboard fully configured for what the majority of PCW owners will require — including full use of the cursor keys of course.

Your method of handling addresses under LoadScript is fine — and quick — though as you rightly point out you're limited to a total of about 650 characters, which may not be enough for some people. And of course, the more addresses you put into the PHRASES.STD file, the fewer "read" phrases you can have.

The PHRASES.STD file, incidentally, has many and varied uses. To take just one example, we often get letters from users who require the simpler ways of accessing accented characters in foreign languages than those provided by LoadScript used in the standard way.

A neat method of using the most method is to put each accented character into a phrase.

So a with an acute accent could be put into a phrase called E, and generated by using Paste + E. This is easier to remember than Extra + E followed by a, and requires only two keys instead of three. ■

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MINI File is a user-friendly database which allows you to keep records of addresses, telephone numbers, important dates, grandma's recipes and so on.

The program runs within a graphics environment similar to that of Digital Research's Gem used on the PC1512, and it is this which makes it so easy to use.

When you run the program a menu bar appears at the top of the screen with an arrow pointing to the first of eight options. You can use the cursor keys to select the option you require. Press Copy, which then puts down the appropriate sub-menu.

Within each sub-menu are several options which you can select by using cursor up and down, and confirm by pressing Copy.

The options available from the main menu bar are Load, Save, Sort, Search, Edit, Record, Format and Display.

When loading or saving simply follow the prompt and enter the filename.

Sort will put the records into either ascending or descending alphabetical order according to the record title.

There are two types of search - Multi will search for whole fields and Part for parts of fields. The search will not include the record titles since you can see these on-screen.

Follow the prompt and enter the string to search for. If a match is found the appropriate record will be displayed with the string highlighted. You can press either cursor right to continue the search or Copy to abort.

Edit can be used to delete selected fields from a record. Firstly select the record and then press either cursor right for the next field. Copy to delete the field or cursor left to abort.

Record adds or deletes records. Blank ones are added to the end of the files, but it is possible to delete

MINI FILE

By RANBIR RANDHAWA



any record by selecting it with the cursor keys and pressing Copy.

Format is used for designing the layout of the records. You can design individual records or copy the format to the whole of the file.

In the sub-menu Title enter the record title, field positions a field within a record using the cursor keys and Duplicate copies the displayed record to all the others.

Since this option is intended to be used to create a standard format for

all records take care - the current record will be copied to all others.

Display enables you to look at a record, which you select by using the cursor up and down keys.

The number of fields in a record is shown in the top right hand corner of each displayed record. Mini File allows 24 records to a file with 48 fields per record and 50 characters per field.

Full listing starts on Page 83

VARIABLES

REC	Selected record.
NRCD	Number of records.
CS	General string variable.
TST1	Record titles.
FN1	Fields.
FN2	Field numbers.
PLD	Field positions.

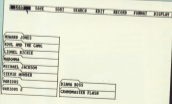


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From Page 87

```

10 REM *****
30 REM = READ FILE *
40 REM = CPU only *
50 REM = by *
60 REM = *
70 REM = J.Janahan *
80 REM *****
85 REM interacting with the Asatrol
90 REM *****
95 REM----OPTI000-----
100 CALL GAMB,,1,1,LOCATE 7+1,3+PR
101 OPTI=1230
102 GOTO 1470
103 CALL GAMB,,1,1,LOCATE 7+1,3+PR
104 OPTI=1230
105 IF KX=CHR(242) AND C10 THEN C1=
C1+1
106 IF KX=CHR(242) AND C1=9 THEN C1=
C1+1
107 IF KX=CHR(224) THEN GOTO 70
108 C1=C1+1:G1=C1+PR:G1=LOC 170,20
8,170,180,190,200,170,120
140 GOTO 70
170 REM----L40-----
180 ON "Tilname"*T=LOC=CHR(10)+25
5,12:GOTO 250
190 WINDOW 80,30,80,4,LOCATE 1,,
200 OPEN:PRINT #PR,REC
210 FOR C=0 TO REC-1
220 INPUT #PR,C1:INPUT #PR,T=C1
230 FOR T=0 TO REC-1
240 INPUT #PR,C1,LOCATE #PR,C1,T
250 NEXT T:GOTO 2:CLOSE#PR
260 CL:WINDOW 80,1,80,1,20
270 GOTO 240:RETURN
280 REM----S40-----
290 IF REC=0 THEN RETURN
300 ON "Tilname"*T=LOC=CHR(10)+25
5,12:GOTO 250
310 WINDOW 80,30,80,4,LOCATE 1,,
320 OPEN:PRINT #PR,REC
330 FOR C=0 TO REC-1
340 PRINT #PR,C1:PRINT #PR,T=C1
350 FOR T=0 TO REC-1
360 PRINT #PR,C1,T:PRINT #PR,C1,T
370 NEXT T:GOTO 2:CLOSE#PR
380 CL:WINDOW 80,1,80,1,25:RETURN
390 REM----S01-----
400 IF REC=0 THEN RETURN
410 CALL GAMB,,1,30,AFRC,ARCA
420 WINDOW 40,30,40,3,LOC 80
430 MOVE 24,20:DRAW 8,-90:DRAW 8
+8
440 DRAW 8,90:MOVE 8,-20:DRAW 8,8
450 PRINT #1," S001",*
460 PRINT #1," REC00",* REC000",* 8
117*
470 CALL GAMB,,2,12,LOCATE 81,11,
12+PR:PRINT #2,DNA(220);

```

```

480 GOTO 2470
490 CALL GAMB,,20,21,LOCATE 40,11,
22+PR:PRINT #1," ?)
500 IF KX=CHR(240) AND C10 THEN C1=
C1+1
510 IF KX=CHR(241) AND C10 THEN C1=
C1+1
520 IF KX=CHR(224) THEN GOTO 470
530 IF C1=0 THEN CALL GAMB,,10,30,AFR
10,ARCA:RETURN
540 C=12:G=0:GOTO 550:GOTO 470
550 REM----REC0=ARCA0-----
560 T=PR:FOR C=0 TO REC-0
570 IF C=0 AND T=C1:T=C1+1 THEN GOTO

```



```

480 G10
500 IF C=0 AND T=C1:T=C1+1 THEN GOTO
480 G10
590 NEXT C:IF P GOTO 540
600 GOTO 245:RETURN
610 ON T=CHR(240)+T=0+11:G1=C1+CHR(2)
620 T=CHR(241)+T=0+11:G1=C1+CHR(1)
630 T=CHR(242)+T=0+11:G1=C1+CHR(0)
640 FOR T=0 TO P-1
650 ON PR=C1,T=PR,C1,T=PR,C1,T=PR,C1
+1,T+1
670 NEXT T:T=PR:RETURN
680 REM----S40-----
690 IF REC=0 THEN RETURN
700 CALL GAMB,,11,30,AFRC,ARCA
710 WINDOW 40,30,40,3,LOC 80
720 MOVE 10,20:DRAW 8,-90:DRAW 8
+8
730 DRAW 8,90:MOVE 8,-20:DRAW 8,8
740 PRINT #1," S40",*
750 PRINT #1," REC1",* REC1",* REC1"
760 CALL GAMB,,2,12,LOCATE 80,7,12
+PR:PRINT #2,DNA(220);
770 GOTO 2470
780 CALL GAMB,,20,21,LOCATE 80,8,12
+PR:PRINT #2," ?)
790 IF KX=CHR(240) AND C10 THEN C1=
C1+1
800 IF KX=CHR(241) AND C10 THEN C1=
C1+1
810 IF KX=CHR(224) THEN GOTO 780
820 IF C1=0 THEN CALL GAMB,,11,30,AFR
11,ARCA:RETURN
830 ON "Tilname"*T=0:GOTO 250 8
840 C1=C1+1:IF REC=C1 THEN GOTO 800
850 ON C1=0 THEN GOTO 780
860 ON C1=12:GOTO 840,900:GOTO 780
860 REM----M11-----

```

```

870 T1=0
880 IF PR=C1,T1+PR THEN GOTO 840
890 IF P=0 THEN REC=C1:GOTO 250
900 CALL GAMB,,4+INT(PR/C1,T1+250),7
+PR/C1,T1 AND 250,LOC=PR
910 GOTO 2470
920 T=1:IF KX=CHR(220) THEN CALL 140
21,30,114,AFRC,ARCA:RETURN
930 CALL GAMB,,4+INT(PR/C1,T1+250),7
+PR/C1,T1 AND 250,LOC=PR
940 TPR=C1:IF PR=C1 THEN GOTO 80
950 IF P THEN CALL GAMB,,20,114,AFRC
,ARCA:P=0
1000 IF C1=0:IF 11=REC THEN GOTO 870
970 RETURN
1000 REM----S40-----
1010 T1=0
1020 T=INT(PR,T1/C1,T1,AND
1030 IF P=0 THEN GOTO 1040
1040 IF P=0 THEN REC=C1:GOTO 250
1050 CALL GAMB,,4+INT(PR/C1,T1+250),7
+PR/C1,T1 AND 250,LOC=PR
1060 GOTO 2470
1070 CALL GAMB,,3+INT(PR/C1,T1+250)+7
+PR/C1,T1 AND 250,LOC=PR
1080 T=1:IF KX=CHR(224) THEN CALL 80
80,30,124,AFRC,ARCA:RETURN
1090 IF T=C1:PR=C1 THEN TPR=C1
870 1090
1100 TPR=C1:IF PR=C1 THEN GOTO 8
1110
1120 IF P THEN CALL GAMB,,20,114,AFRC
,ARCA:P=0
1130 C1=C1+1:IF 11=REC THEN GOTO 970
1130 RETURN
1140 REM----S01-----
1150 IF REC=0 THEN RETURN
1160 WINDOW 120,20:REC=0:GOTO 80
1160
1160 GOTO 250:G=REC+P=0
1170 CALL GAMB,,4+INT(PR/C1,T1+250),7
+PR/C1,T1 AND 250,LOC=PR,C1,T1
1180 GOTO 2470
1190 CALL GAMB,,4+INT(PR/C1,T1+250),7
+PR/C1,T1 AND 250,LOC=PR,C1,T1
1200 IF KX=CHR(220) THEN GOTO 1160
1210 IF KX=CHR(240) THEN GOTO 1170
1220 TPR=C1:IF PR=C1 THEN GOTO 1170
1230 CALL GAMB,,20,114,AFRC,ARCA:RET
URN
1240 LOCATE 81,INT(PR/C1,T1+250),PR/C1,
T1 AND 250
1250 PRINT #1,SPACE(10)+PR/C1,T1:11
1260 IF T=C1+1:0 THEN GOTO 1180
1270 FOR C=1 TO REC-0
1280 PR=C1,1+PR(C1,C+1)

```


I WAS delighted to get my hands on a pre-release copy of Advanced Memory System's Pagemaker. Restricted to CPC users with disc drives, it's the latest in their collection of programs designed to complement the now famous AMOS Mouse - a complete team-driven typesetting and artwork package.

It allows you to produce 44 pages of combined text and graphics which you can edit in a variety of ways, save to disc and print when required. As you can see from the examples shown here, the results can be quite spectacular.

To make the product available to a much wider user base, AMS has developed it to cater for the mouseless, with the software responding to either keyboard or joystick control.

Unfortunately in order to access Pagemaker's tremendous facilities, CPC464 and 664 owners will have to acquire at least 64k of additional ram (AMS say that both the DR-Tronics and the Verice boards are suitable).

The main Mode 2 drawing screen can be thought of as a window that covers approximately one third the height and two thirds the width of an 44 page.

If you're not using a mouse, the default device, you select your method of input with either Control + S, or J, though you can change these options at any time.

Three function keys - Alt-ascii, Screen and Screen2 substitute for the mouse buttons when operating with either keyboard or joystick. They also remain operative when using a mouse - convenient when working from the keyboard in Text mode.

Seven menu icons are displayed in a banner across the top left-hand side of the screen, representing the different

What desktop publishing is all about

David Andrews reviews Pagemaker

modes operative within Pagemaker.

You move the pointer to an icon, click the execute button or press function key 4 and the empty space to the right of the icons fills with a submenu. This takes the form of cards in a filing system and clicking on these produces a drop-down menu of additional facilities where appropriate.

In Figure 1 you can see a simplified breakdown of the menu structure, created using Pagemaker itself. At the extreme right-hand side of the banner is a small icon containing the currently selected spraypaint pattern.

Clicking on it reveals the Quick Click windows, a set of icons which enable you to bypass the menu system. More of this later.

That's the main screen in a nutshell, but hidden away within the menu structure is a wide range of facilities. The easiest way to look at these is to

access each mode in turn.

The first is **Filing mode**, selected by clicking the pointer on the disc drive icon - it's in this mode that files can be transferred to or from disc. These can be whole pages (44k), single screens (70k), or any size of small output or picture. AMS has included some sample files on the disc - two cutouts and a selection from the picture library are shown in Figure 2.

Further options in Filing mode allow you to load Mode 0 and 1 screens previously created using AMOS Art.

The second mode, **Paste**, provides a variety of facilities for manipulating images on the screen. Copy, Flip top to bottom, left to right and Rotate (90, 180 and 270 degrees) all allow you to duplicate any section of the screen.

Stretch gives you the option of instantly doubling or halving the size of pictures, or with the slightly more involved use of a "hover box", of filling an area of any size.

A Ghost facility allows drawings to be overlapped without blanking out the image underneath, and a Scroll option enables any selected rectangular area of the screen to be moved by single-pixel steps in any direction.

Text mode is the heart of the Pagemaker system. Clicking on the Text icon produces a sub-menu of eight options for presenting your text in a versatile combination of sizes, formats and fonts.

You can also enter text directly from the keyboard or alternatively to load files previously saved to disc from a word processor. There's a sample Tawford file on the disc for you to experiment with, and Mini-Office II Ascii files work equally well.



Figure 1: A simplified breakdown of Pagemaker's menu system

as you can see from Figure 18.

The Format facility provides a set of options which decide how your final layout will appear. The default is *Liberal* with text printed exactly where you type it. But you can select *Justify* which ensures that all lines are formatted to the same length, lining up both left and right margins. An alternative *Right Justify* option lines up the right-hand margin only, leaving the left margin ragged.

Selecting *Word Wrap* ensures that words do not spill at the right-hand margin, while a very powerful *Autoflow* facility allows you to direct text to fill any enclosed area irrespective of its shape. Figure 19 also shows you the results of using these options.

The Centre facility ensures that any subsequent output to the screen is centred to pixel accuracy between the cursor and the right margin – ideal for headlines or tables.

To provide some variety from the standard *Amstrad* font, the program holds in memory three alternatives accessed using the *3rd Font* icon. And the disc contains a further 18 fonts you can load into any of the three font stores to use when needed. You can view the currently selected font by clicking the pointer at the far right screen boundary.

If you are not satisfied with the fonts provided you can modify one or even design your own from scratch using the *Definer* option. This is a complete character designer in its own right, capable of producing not only letters but also patterns for the spray/paint routines and symbols for technical drawings. These can all be saved to disc for later recall.

The *Adjust* option is extremely flexible enabling you to increase the size of any individual letters, from a default 16x16 pixels to an enormous 128x128 – again ideal for creating headlines. Vertical and horizontal spacing can also be adjusted one pixel at a time to allow for very accurate text positioning. It can even be made negative to cause for overlapping text. You can see some of the available fonts and special effects in Figure 19.

Moving into *Graphics* mode provides you with facilities to produce artwork. They won't turn you into an artist overnight but with a little time and trouble you can achieve quite acceptable results.

The *Shapes* menu offers circles, ellipses (not implemented at the previous level), triangles, boxes and lines. Simply click on the shape required, move the cursor to the desired position and click to set. At this point moving the cursor expands

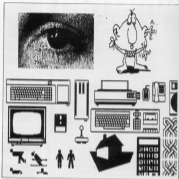


Figure 18: Cutouts and some samples from the Clip Art library

the shape to the size you require and a second click sets it.

The *Paint* option allows you to fill any enclosed area with the currently selected pattern. To help you keep track of the pattern it is displayed as the *Quick-Click* (window icon) at the top right of the screen.

If you opt for the *Spray* facility the

cursor becomes the nozzle of a very effective paint spray. You can use this to generate a fine mist, or alternatively a concentrated spray to paint areas of solid black or white.

The *Patterns* option produces a drop-down menu of facilities being

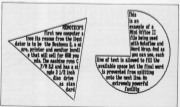


Figure 19: Autoflow in action – that without, then with word wrap

STEP BY STEP

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Using the Amstrad PC1512



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Stephen Morris

This guide succinctly describes how to understand and use all the facilities of the Amstrad PC 1512, from initial setting up of the system, copying disks, using GEM through to printing and printing, using RPS, Double, GEM Paint and BASIC. The guide's clear text, which includes many example screen displays and checklists, provides the simplest and most effective means of learning.

HOW TO USE

Using GEM Paint on the Amstrad PC1512



USING GEM PAINT ON THE AMSTRAD PC1512

Stephen Morris

GEM Paint comes bundled with the Amstrad PC 1512 and this guide succinctly describes how to understand and use the program quickly and effectively. The guide contains many worked examples and shows how to use GEM Paint to create pictures for letters and business.

HOW TO USE

Simple BASIC 2 Programs on the Amstrad PC1512



SIMPLE BASIC 2 PROGRAMS ON THE AMSTRAD PC1512

Robin Kings & Marc Diprose

Although not a primer for BASIC, this guide nonetheless provides thirty examples of the type of programs that can be written using BASIC, in addition to graphics and art programs. The reader is provided with programs to clean files, spreadsheet, database and word processing programs etc.

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From Page 87

you modify the currently selected pattern. You can instantly Flip (F)—B/L—R/L, Invert, and even have at your disposal another simple yet effective character definer for editing the pattern.

It is in the Graphics mode that the Quick-Click Window comes into its own. It produces a window of 20 icons giving you immediate access to some of the more often-used facilities.

For instance there's a powerful Zoom option which instantly magnifies the small area of screen under the cursor and allows you to modify it pixel by pixel. There are icons to toggle the invisible gridlock and the ghosting facility, to select small, medium or large spray nozzles, open, filled or patterned shapes and the instant eraser — much-needed in any case.

The Windows mode also allows you to define various sized graphics or text windows, their main use being to compartmentalise a page into various columns and boxes.

The mode has three sub-menus: Clear and Invert are self-explanatory while Border gives a black-outlined window, the outline remaining on the screen once the window has been closed. While a window is active all text and graphics output is directed to it until you cancel the facility.

The Printer mode supports all Epson-compatibles and provides extremely versatile facilities to dump whole pages, screens, or graphics and text windows. You can select A4 or A5 output, in either draft, standard or RLS format. The first is a high speed low quality dump ideal for checking what a page looks like; the second is a medium speed medium-quality dump; the third is slow but of very high quality.

The final option, **Goodies**, has a dual-purpose icon that during the normal course of manipulating Pagemaker uses a small black rectangle to display the current position of the screen window relative to the page. As you scroll the page the little black rectangle moves accordingly so that you're constantly aware of how the current screen relates to the complete page.

When clicked the icon produces a sub-menu of seven options. The first, Preview, lets you see at a glance the contents of any completed pages saved to disc or the one currently in memory.

The Gridlock option (not implemented as my preview page) will allow you to change the step size of the invisible Gridlock grid — a system

Shadow Script
Old English
Flaming Font
Theatrical
Stencil Large
Texturon
Tall Top

'You can also' Reduce
Enlarge
ejejeje
Fill with patterns

Figure 10: Some of the available fonts and special effects

designed to assist in the correct positioning of text and drawings. When Gridlock is toggled to ON using the GCW the cursor will move by the amounts pre-set here rather than by the single pixel default.

AMS's pride and joy is the Scanner option. With suitable equipment you can use Pagemaker's drawing screen to view digitised video input from either a camera or recorder. The image can then be frozen and the whole or any part of it saved as a cutout for illustrative purposes.

I didn't have the necessary equipment (a video digitiser) to test this but I did see a very impressive demonstration of its potential.

Other facilities in the sub-menu provide for increasing the speed of cursor movement (the default is slow), seeing an indication of X,Y coordinates to help you position graphics, and entering BSX commands from within the software.

It is probably obvious by now that I really enjoyed using Pagemaker, but by the nature and size of the beast its complex menu system can be a little daunting. Also, because of the amount of ram used by a page, the program can't be resident in memory all at once, so there's a lot of disc access and swapping between page discs and the resident system disc.

A newcomer might be put off by all this in the early stages but the technique is soon mastered. And the package is so user-friendly that the well-written manual soon becomes redundant.

So who's going to benefit from such a package? Well, anyone contemplating or currently producing low-budget posters, restaurant or cafe

menus, newsletters, advertisements, circulars... things like that. A little time and effort with Pagemaker and you can have quite a high quality final product.

Beyond this, any enthusiastic home user could use the package to design a logo for a personalised letter heading, or some eye-catching handouts for church bazaars, fairs and dances.

Or why not let the kids help you design party invitations or create their own birthday or Christmas cards?

Obviously if you're going to reap the benefits from software like this you'll need access to a printer, but after that no holds are barred.

Full marks then, to AMS for bringing out this first class package and for putting it within the grasp of those not fortunate enough to own a mouse. If you are restricted to the keyboard or joystick you'll still find it fun to use, although a mouse does give it that extra versatility. Those who have already converted to rodent power and are familiar with AMK Art will adapt to Pagemaker in no time at all.

There were several irritating bugs in the pre-release version I was using but AMS have assured me that these will be ironed out by the time the production copies hit the shops.

It will then be a superb product, and I can whole-heartedly recommend it, if you don't know what all the desktop publishing fuss is about go out and buy Pagemaker. You won't regret it.

Product: AMK Pagemaker
Price: £29.95
Supplier: Advanced Memory Systems,
185-179 Whitehorse Lane,
Wokingham RG40 2GA,
Tel: 0262 410927



PART 2

LAST month I introduced a new PEEK command PEEK, which enabled us to double peek into the Amstrad's memory and retrieve a two byte integer value.

However, it wasn't perfect and numbers greater than 32767 were returned as negative values.

The solution to this problem is to use real numbers so this month we'll dig a little deeper into your Amstrad's Basic and see if we can improve our PEEK.

To find out more about real numbers let's take a closer look at how they are represented in memory.

First of all note that every real or floating point number occupies five consecutive bytes. (Remember that for integers this is only two bytes.) Of these the first four are dedicated to hold the mantissa and the fifth is held the exponent.

This mantissa actually represents the real number in binary but the size of this number (that is the exponent's concern). The exponent decides where the decimal point will finally be inserted in the mantissa number.

That's the origin of the term "floating point" - with very small numbers the decimal point will "float" left and right. If necessary, leading or trailing zeros are added.

The analogy with the decimal system is striking. Some Basic versions have double precision reals meaning that the mantissa (float) ranges over more than four bytes, usually eight, but regrettably not so on the Amstrad.

Integers are stored as low byte, high byte and real numbers are stored as

Digging deeper into Basic to improve PEEK

PATRICK de GEEST continues his series on Amstrad memory matters

m1, m2, m3, m4, exp where m1-4 is the mantissa and exp is the exponent.

How Basic actually translates numbers into their five byte format is a matter too complicated to expand in this article.

However, a fairly good insight can be gained by doing a manual analysis starting from an already assigned real number. Suppose we peeked a real and obtained the following five values:

```
m1 = 500 = 5000000000
m2 = 500 = 5000000000
m3 = 534 = 5001100100
m4 = 567 = 5001010111
exp = 500 = 21000-5000
```

How can we derive the decimal number from these bytes?

First of all put the mantissa bytes in reversed order from most to least significant byte, that is from left to right.

Then write down the binary pattern, ordering the bits from most significant to least significant, discarding m1 and m3 since these are zero:

```
(m4) (m2) = 00100 0111 0111 0100
```

To draw your attention to it I've emphasized the most significant bit in brackets - this bit indicates the sign of the number.

In our case this sign bit is zero so the number will be positive. Be careful as this bit still has an actual value of 1 and will always be interpreted as a 1.

Furthermore, these mantissa bits are fractional, meaning they are negative powers of 2.

In the example there are 10 bits set (don't forget the first one) and the mantissa expression can be evaluated as follows:

$$\begin{aligned} & [2]^{-1} + [2]^{-2} + [2]^{-3} + [2]^{-4} + [2]^{-5} + \\ & [2]^{-6} + [2]^{-7} + [2]^{-8} + [2]^{-9} + [2]^{-10} + \\ & [2]^{-11} + [2]^{-12} + [2]^{-13} \end{aligned}$$

The result of this mantissa operation is 0.8076137686 and in order to calculate the true decimal value of the real number we still have to multiply it by the exponent. This is 500 from which we subtract the offset value 500:

$$21000 - 500 - 210 = 20500$$

This offset arrangement allows for

Jumpblock addresses			Function
CPC064	CPC064	CPC0128	(m1, m2) into f(1,2)
50C50	50C67	50C64	(m3, m4) into f(3,4)
50C63	50C66	50C67	f(1,2) + f(3,4) - f(1,4)
50C68	50C7F	50C80	(m1, m2) into f(1,2)
50E00	???	50E00	(m3, m4)

Table 1. The Jump block addresses used

very small numbers. The last calculator-like can now be done:

0.8416137000 x 89536 = 55756

Those five bytes represent the number 89756 in floating point. Just imagine how powerful Basic is, doing all this math gauding in plain machine code.

Let's now go back to the subject of REXs. We saw that 8288K gave negative results and it was possible to double peak the number 5756 but not 89756.

We came close to the solution though, as the result was the signed integer equivalent of 55756.

When Basic finds a number greater than 32767 but smaller than 89536, in fact a negative integer, while translating into decimal it will automatically subtract 89536 from that number.

To solve the problem in Basic we can add a remedy after the REX command as follows:

```
real#0
1800, address, #real
real #real-89536:real#0
PRINT real:
```

```
org 1800
ld bc,table
ld hl,buffer
jp 89536      (log 89)
table:
dcb byte $
jp 895
buffer:
dcb $
system:
dcb "C"
dcb "000"
dcb 0
895:
cp 0          (2 parameters?)
jr z, 1
ld a, 1
ld h, (1+0)   (hl-address)
ld l, (1+0)
ld c, (hl)    (get lo byte)
inc h
ld h, (hl)    (get hi byte)
ld l, c
ld l, (1+0)   (store real)
ld a, (1+0)
jp 1800      (CP0000 only)
```

Listing 2

```
18 REX program 1
28 REXOFF 89536:count#0
38 REX set 10 count
48 REX 89
58 REX 89756, 89, 18-001
68 REX 0
78 CALL 89536
88 REX
98 REX item 895 set up real
108 DATA 89, 89, 89, 89, 89, 89, 89, 89, 89, 89, 89, 89, 89, 89, 89, 89
118 DATA 17, 89, 89, 89, 89, 89, 89, 89, 89, 89, 89, 89, 89, 89, 89, 89
128 REX 89 machine code 89
138 DATA 70, 89, 89, 89, 89, 89, 89, 89, 89, 89, 89, 89, 89, 89, 89, 89
148 DATA 89, 89, 89, 89, 89, 89, 89, 89, 89, 89, 89, 89, 89, 89, 89, 89
158 DATA 49, 89
168 REX 89, 89...for CP000
178 REX 89, 89...for CP0010
188 REX
198 use: 1800, address, #real
208 REX
```

Program 1

It's not a very elegant method as we need to declare two variables. All the extra five bytes is to simulate the reverse of Basic's UNF command.

UNF stands for Unsigned Integer and will transform an unsigned integer between 0 and 89536 into its signed equivalent.

Take for instance our number 55756:

```
real#0(155756)
PRINT real
```

Notice that the result is the same negative number from our 8288K experiment, -55756.

We have to find a more polished way to mimic this remedy line, enabling us to put the two byte number directly into a real variable, for instance, real:

Can't we just exchange the variable

types `real#0` and `real!` in the REX command and call the same routine? The answer is straightforward: No!

What we would be doing is storing the low and high bytes of the number in the first two mantissa bytes which are the two least significant. Look at the following example:

```
POKE 1800, 155756:0
POKE 1800, 155756:0
real#0
1800, 1800, #real!
PRINT real:
```

The original value of `real!` namely 3.14159265, 1 842 DA OF 49 89 I will have its three last decimals changed

and will become 3.141595, 1874 0F 8F 89 and there is no way we will get back the number 55756. The machine code will have to be rewritten to obtain the real `real!`.

Fortunately this can be done using a mathematical jumpdisk at 85048 on the CPC464 (different on other CPCs) which will convert the disk value into its floating point or real equivalent. Table 1 shows the alternative addresses.

Listing 1 and Program 1 provide improved versions of REXEX.

The code is very similar to the first



Basic translates numbers into their five bit format in a manner most complicated!

```
895:
cp 0
jr z, 1
ld a, 1
ld h, (1+0)
ld l, (1+0)
ld c, (hl)
inc h
ld h, (hl)
ld l, c
jp 895
```

Listing 3

From Page 91

version except of course for the final jumpblock and the beep device. If the number of parameters is not equal to two the routine exits with a beep.

The routine needs register pair DE pointing to the five byte number area in ram, (great! in our case).

The register pair HL contains the

double pointed 16 bit number and finally a jump to \$8040 converts it into its five byte floating point equivalent and returns to Basic.

The routine can be shortened by anticipating the values already set up by Basic before the actual start of the routine. So DE is identical to the value of the last parameter (great!). Reinitialising this register pair is

therefore wasted effort and uses six precious bytes. Listing 8 and Program 8 show the idea.

Now let's check to see if all these modifications perform as we wish them to? Try entering the number 55155 again with:

```
POKE 8480,116
POKE 8481,235
real:real
:DEER,4488,Great!
PRINT real!
```

Great, it works! Try it for yourself with other numbers.

This is a vast improvement over our original routine but it's still not quite perfect. As it stands it will always return positive assigned real numbers. What about the negative real numbers?

● These will be the subject of next month's article, the last in the series.

```
10 REM program 11
20 MEMORY $49FF:count=43
30 FOR v=1 TO count
40 READ a
50 POKE $49FF+v,VAL"11.5"*(v+1)
60 NEXT v
70 CALL $4880
80 END
90 REM *** REC set up ***
100 DATA 81,89,88,20,88,88,83,81,81,81
110,83
110 DATA 17,88,88,88,88,88,88,83,83,83,83
```

Program 11

ROWELL DATA

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CRAIG WINDER offers an alternative to arcade action with his . . .

3D XO

THIS is a three dimensional game of noughts and crosses written in Basic for the PCW series. It will, however, run on other Amstrad machines with slight modifications for the differences in dialects.

The computer always plays as X, but at the start of each game you will be asked whether you wish to play first. After you have made your selection the screen displays the four grids laid out side by side. You will then be prompted to make your move.

The format for inputting this is first of column, row, grid, where columns are along, rows up, and grids start at 1 on the left up to 4 on the right.

Just in case any beginners are confused by the pairs of the listing starting at line 1420, there are now three lines 1470. If you look carefully the first two are part of lines 1420 and 1450 respectively.

PROGRAM STRUCTURE

- 1400 Initialization loads the cross-referenced lists for the winning lines in each square into `lineout()` and `scorein()`.
- 1420 It recalculates the scores for any squares affected by the last move.
- 1440 Subroutine routine to allow for the line score.
- 1460 As above for the individual squares.
- 1480 Calculates the best combination for the next move by the computer using the score functions calculated by subroutine at 1420.
- 1500 Draws the board on screen.
- 1520 Turns the move from player.
- 1540 Main loop, initiating the game and finally declaring the results.
- 1560 Data for the cross-referenced scoring lists.

MAIN VARIABLES

- `lineout()(), scorein()` Cross-referenced list of lines going through the squares of the board.
- `grid()` Scoring weighting elements.
- `board()()` Current position of play on the board.
- `top()` Current top row/colours for the computer's next move.
- `linein()` List of line scores.
- `scorein()` List of scores for the squares.

Full listing starts on Page 97

From Page 85

```

88 REM 30 000 by Craig Weber
89 REM C:\Dancing with the Astrak
90 REM for the PC2 ONLY
91 REM Startup Routine
92 clst = CHR$(27)+CHR$(26)+CHR$(1)+CHR
93 PRINT clst
94 PRINT TAB(100);"TO GO for the PC2B
95"
96 PRINT:PRINT TAB(10);"Please wait"
97 PRINT : PRINT : PRINT
98 REMB submem initialize
99 REM TO
100 REM =====
101 REM =====
102 REM initialization
103 REM Reads data for winning line c
104 observations and for the points score
105

```

```

140 RETURN
170 DIM lines(7),i,sgn,c(64),b,ptst
180 i,board(64),top(26),score(70),se
190 cor(64)
200 DEF FNline(a,y,z)=sgn4*(x(64)
210 FOR i=0 TO 70
220 FOR j=0 TO 3
230 READ lines(i,j)
240 NEXT j
250 NEXT i
260 FOR i=0 TO 64
270 FOR j=0 TO 6
280 READ sgn4(i,j)
290 NEXT j
300 NEXT i
310 FOR i=0 TO 3
320 READ ptst(i),b,ptst(i)
330 NEXT i
340 FOR i=0 TO 70:score(i)=0:NEXT i
350 FOR i=0 TO 6:FOR j=0 TO 6:IF sgn
360 4(i,j)=0 THEN score(i)=score(i)+5
370 NEXT j:NEXT i
380 seed = INT(600) + 30 + 31
390 FOR rd = 0 TO seed
400 dummy = 600
410 NEXT rd
420 RETURN
430 REM =====
440 REM =====
450 REM Recalculate scores for reliev
460 of squares
470 FOR i=0 TO 6
480 i=sgn(3)sgn(i)
490 IF i=0 THEN GOSUB 570:REM recal
500 _line
510 NEXT i

```

My score is 1,1,1

1	1	1	1	1	1	1	1
1	1	1	1	1	1	1	1
1	1	1	1	1	1	1	1
1	1	1	1	1	1	1	1
1	1	1	1	1	1	1	1
1	1	1	1	1	1	1	1
1	1	1	1	1	1	1	1
1	1	1	1	1	1	1	1

Your score ? 1,1,1

1	1	1	1	1	1	1	1
1	1	1	1	1	1	1	1
1	1	1	1	1	1	1	1
1	1	1	1	1	1	1	1
1	1	1	1	1	1	1	1
1	1	1	1	1	1	1	1
1	1	1	1	1	1	1	1
1	1	1	1	1	1	1	1

My score is 1,1,1

1	1	1	1	1	1	1	1
1	1	1	1	1	1	1	1
1	1	1	1	1	1	1	1
1	1	1	1	1	1	1	1
1	1	1	1	1	1	1	1
1	1	1	1	1	1	1	1
1	1	1	1	1	1	1	1
1	1	1	1	1	1	1	1

Your score ? 1 1

```

470 FOR i=0 TO 6
480 i=sgn(3)sgn(i)
490 IF i=-1 THEN GOTO 530:REM don't i
500 = 0
510 FOR j=0 TO 6
520 IF lines(i,j)=sgn THEN sgn4(i,j)
530 i,j)=GOSUB 730:REM recal_score
540 NEXT j
550 NEXT i
560 score4(i)=i*20 : REM Do not s
570 core there again
580 RETURN
590 REM =====
600 REM =====
610 REM recalculate the score for lin
620 = 1
630 total=0
640 FOR i=0 TO 3
650 total=total+board(i)lines(i),i(i)
660 NEXT i
670 score=total AND 255
680 score=INT(total/256)
690 IF score=4 THEN score=RETURN
700 IF score=4 THEN score=RETURN
710 IF score=6 AND score=6 THEN (sc
720 4)=0
730 IF score=6 AND score=6 THEN (sc
740 4)=total*score,i
750 IF score=6 AND score=6 THEN (sc
760 4)=
770 RETURN

```

```

730 REM =====
740 REM =====
750 REM recalculate square score
760 total=0
770 IF board(i)=sgn THEN score4(i)
780 =i*20:RETURN
790 FOR i=0 TO 6
800 IF sgn4(i,j)=0 THEN total=tot
810 al+score4(i)sgn4(i,j)
820 NEXT j
830 score4(i)=total
840 RETURN
850 REM =====
860 REM =====
870 REM recalculate the score for lin
880 = 1
890 total=0
900 FOR i=0 TO 3
910 total=total+board(i)lines(i),i(i)
920 NEXT i
930 score=total AND 255
940 score=INT(total/256)
950 IF score=4 THEN score=RETURN
960 IF score=4 THEN score=RETURN
970 IF score=6 AND score=6 THEN (sc
980 4)=0
990 IF score=6 AND score=6 THEN (sc
1000 4)=total*score,i
1010 IF score=6 AND score=6 THEN (sc
1020 4)=
1030 RETURN

```


From Page 97

Like

```

1000 SCREEN=1
1010 RETURN
1020 REM *****
1030 REM *****
1040 PRINT
1050 FOR i=1 TO 8 STEP -1
1060 FOR s=0 TO 3
1070 SCREEN=0:GOTO Linea(s),i,100
1080 IF s=0 THEN PRINT " 1"
1090 IF s=1 THEN PRINT " 0 1"
1100 IF s=2 THEN PRINT " 0 0 1"
1110 IF s=3 THEN PRINT " 0 0 0 1"
1120 GOTO i
1130 NEXT s
1140 PRINT
1150 FOR s=0 TO 3
1160 FOR i=0 TO 3
1170 IF s=0 THEN GOTO 1140
1180 IF s=1 THEN PRINT "****" ELSE P
NEXT i
1190 NEXT s
1200 NEXT i
1210 PRINT
1220 NEXT i
1230 RETURN
1240 REM *****
1250 REM *****
1260 REM Input players' score
1270 INPUT "Your score 1 ";score1:score
:score1
1280 INPUT "Your score 2 ";score2:score
:score2
1290 IF score1+score2=16 THEN PRINT
1300 RETURN
1310 REM *****
1320 REM *****
1330 REM main loop
1340 PRINT "You are 1 and I am 2"
1350 INPUT "Do you want to go first?
";answer
1360 IF answer=1 THEN GOTO 1370
1370 GOTO 1430
1380 SCREEN=1
1390 SCREEN=1370:GOTO 1340

```

8000

```

1420 IF answer=0 THEN SCREEN=14 THEN GOTO
1430 REM exit loop
1440 SCREEN=0:GOTO 8000
1450 SCREEN=1:RETURN draw board
1460 IF answer=0 THEN SCREEN=14 THEN GOTO
1470 REM exit loop
1480 GOTO 1410
1490 IF answer THEN PRINT "I win!" GOTO
0
1500 IF answer THEN PRINT "You win!" G
TO 0
1510 PRINT "It was a draw"
1520 END
1530 REM *****
1540 REM *****
1550 REM Data for the program
1560 REM Data for Linea(s) :
1570 DATA 01,02,03,04, 01,02,03,15, 0
1,17,23,05, 01,04,11,14, 01,21,01,01,
01,30,33,33
1580 DATA 01,22,03,04, 17,18,17,20, 1
7,21,23,26, 17,27,17,33, 33,34,33,34,
33,37,41,40
1590 DATA 21,22,03,04, 01,20,21,22, 4
9,55,57,61, 01,24,25,34, 49,57,55,53,
49,57,57,56
1600 DATA 01,04,07,08, 01,21,37,33, 0
9,24,45,49, 23,24,27,28, 41,42,43,44,
57,58,59,60
1610 DATA 13,14,15,16, 13,29,43,41, 1
5,28,47,44, 13,34,47,44, 13,34,39,33,
29,38,33,32
1620 DATA 29,25,23,28, 45,44,47,45, 4
9,42,57,56, 41,42,43,44, 41,39,33,32,
47,46,54,54
1630 DATA 02,16,24,36, 01,22,42,42, 1
0,22,24,36, 34,38,41,46, 50,34,38,42,
50,38,34,36
1640 DATA 04,21,20,24, 18,16,41,50, 1
4,28,36,42, 01,07,11,15, 01,14,15,21,
01,21,42,42
1650 DATA 19,23,27,25, 30,39,42,47, 0
1,35,39,43, 31,39,37,35, 07,25,37,35,
11,27,42,42

```

```

1650 DATA 13,11,47,45, 04,00,12,14, 0
4,18,24,32, 04,24,44,44, 04,24,34,44,
04,24,42,41
1660 DATA 28,24,28,32, 26,44,46,46, 2
2,34,44,44, 31,48,29,34, 09,24,46,44,
04,24,38,32
1670 DATA 12,28,44,44, 12,37,42,37, 1
4,33,48,44, 14,31,46,41
1680 REM Data for sprall :
1690 DATA 00,01,02,03,04,05,06, 00,01
,02,03,04,05,06, 00,51,52,53,07,08,09
,10,11
1700 DATA 00,22,41,42,43,44,45, 01,18
,19,20,01,02,03, 05,18,41,40,01,02,03
1710 DATA 04,23,24,25,01,02,03, 10,40
,39,31,01,02,03, 01,24,25,26,04,05,06
1720 DATA 24,25,41,40,01,02,03, 05,26
,31,32,01,02,03, 24,41,33,32,01,02,03
1730 DATA 01,24,25,31,32,33,29, 26,41
,47,28,01,02,03, 26,31,37,44,01,02,03
1740 DATA 05,07,08,01,09,14,24, 02,07
,09,09,01,02,03, 05,07,42,44,44,01,02
1750 DATA 07,32,34,34,01,02,03, 07,34
,42,44,01,02,03, 04,06,09,21,21,21,21
1760 DATA 04,09,20,21,42,44,44, 21,24
,21,24,24,42,21, 21,44,44,28,01,02,03
1770 DATA 00,16,20,27,01,02,03, 27,27
,24,26,44,47,49, 09,17,27,24,27,29,25
1780 DATA 27,44,47,72,01,02,03, 06,20
,23,26,01,02,03, 23,25,44,26,01,02,03
1790 DATA 32,34,44,72,01,02,03, 07,23
,44,34,01,02,03, 02,04,12,12,01,02,03
1800 DATA 16,42,43,44,01,02,03, 01,18
,22,23,01,02,03, 18,26,42,47,01,02,03
1810 DATA 11,14,19,22,01,02,03, 13,17
,22,42,47,48,71, 24,23,34,28,30,37,38
1820 DATA 23,47,47,76,01,02,03, 04,13
,23,24,01,02,03, 29,28,43,48,49,42,52
1830 DATA 04,12,24,28,31,33,29, 28,42
,47,72,01,02,03, 11,21,27,28,01,02,03
1840 DATA 27,45,58,71,01,02,03, 32,37
,33,38,01,02,03, 12,27,47,19,01,02,03
1850 DATA 02,11,14,15,14,17,14, 15,42
,46,47,01,02,03, 13,23,26,27,01,02,03
1860 DATA 05,12,16,18,42,49,49, 14,27
,23,21,01,02,03, 15,23,46,40,01,02,03
1870 DATA 23,48,36,38,01,02,03, 28,23
,44,38,01,02,03, 14,25,29,23,01,02,03
1880 DATA 27,48,44,48,01,02,03, 15,29
,34,39,01,02,03, 34,28,48,72,01,02,03
1890 DATA 04,14,21,20,46,45,72, 39,42
,44,28,01,02,03, 27,35,36,46,01,02,03
1900 DATA 04,14,21,20,46,45,74
1910 REM Data for grid :
1920 DATA 24,38,268,268,2688,2688
1930 REM End of program data

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Prize letter

I WAS very interested to read Nigel Sharpe's article about 3D graphics in the November 1988 issue of Computing with the Amstrad, as displaying a cube is a problem I have worked on intermittently.

I have a method of omitting the cube's hidden edges that might be of interest to readers.

It consists of checking, before drawing an edge, whether it terminates in the corner which is furthest away from the viewpoint (which has the largest *Z* coordinate).

If we label the furthest corner with the variable *far*, you can find it by inserting these lines in the published program:

```

30  far=
34  far=0 to 0
36  if (x1>far) far=
38  far=

```

Then in the subroutine starting at line 1500, which draws pairs of points and connects them, you insert:

```

1602 if (p1far > p2far)
170 1500

```

This routine doesn't work if more than one corner is hidden but this limitation can be overcome by eliminating the perspective in the display — though this can make the cube look a bit odd. It is done with these alterations:

```

1120  xs1=ys1
1120  ys1=xs1
1140  xs1=ys1

```

With the dependence on

ALL programs printed in this magazine are exact reproductions of listings taken from running programs which have been thoroughly tested.

However, on the rare occasions when mistakes occur corrections are published as a matter of course. Should you encounter error messages when you type in a pro-

Getting to the root of the cube problem

Z1 and Z2 removed, pressing the Copy and it keys has no effect on the display, so that you may as well then delete lines 260, 260 F100 and F110.

A suitable scale is obtained with the following alteration:

340 300 0, 100

It's just a special limited method of omitting hidden edges that works for cubes and rectangular blocks, but not for solid shapes in general. — Samuel Jamison, Belfast.

False impression?

I HAVE enjoyed typing in and playing Santa's Sleigh from the December 1988 issue of Computing with the Amstrad.

However, am I right in thinking that the design of the game changed significantly as the program was written?

As the worm appears to depict a chimney with a marauding spider it is surprising to see Santa begin at the bottom and have to work his way up. Moreover, Santa's usual task is to deliver presents rather than to go around collecting them.

It's a pity that program notes rarely give information about the process of developing the program. Simply presenting the fi-

nished product conveys the false impression that designing and writing programs is a smooth orderly process, rather than one characterised by trial and error, periods of baffled confusion, and quite frequent changes of plan.

Another obstacle to gaining ideas about the development of a program is the remembering facility in the Amstrad. Almost invisibly published listings have line numbers listed in multiples of ten.

Without remembering major gaps in line numbers would betray faulty assumptions that had to be removed, while lines not ending in a zero would often reveal that the author had been obliged to add additional code to achieve further intentions.

There is in fact a stronger reason for regarding the remembering facility more as a curse than a blessing. Although it is clever enough to allow line numbers that follow GOTO and GOSUB commands, it has ruled out the possibility of computed GOTOs and GOSUBs, and above all computed RESTOREs.

A well known alternative machine does of course allow lines such as GOTO *n*+100 or RESTORE *n*+100 or GOTO *n*+100 if there is a way of providing the equivalent of computed RESTOREs on the Amstrad. I would be delighted to know it. — Stephen A Fisk, Bridgend, Glamorgan.

The program notes do state that the idea of this particular subroutines was to help Santa collect presents in his warehouse. Anyway you'd never find a spider that big in any domestic chimney.

If we published all the program development notes that related to many of our submissions we suspect

we'd only be able to get one article per month in the magazine.

Some of the games we've published have been worked on for several months before you see them. However, Santa's Sleigh is an exception and was written in a day and a half.

The answer to your last point is that unfortunately you can't use computed GOTOs, GOSUBs and RESTOREs on the Amstrad.

Finding Phoenix

IN THE news section of the January 1988 issue of Computing with the Amstrad, you mention a piece of software called The Phoenix Guide Pack published by Phoenix Publishing.

I would be grateful if you could provide me with their address. —St. J. E. Robinson, Cothelby, Leics.

Our last known details of this company are: 14 Vernon Road, Washley, Here.

Starting off with Mallard

I HAVE recently bought a PC168286 intending to limit my use of it to word processing only.

I have been taking your magazine now for some time months and have come to realise the enormous scope of the machine and I now wish to experiment with writing simple programs myself.

The problem is, however, that I am a complete novice as far as programming is concerned and have not seen any advertisements for

From Page 113

any books or letters which could teach me to use Midland Basic.

Can you recommend a publication which will point me in the right direction to

learn to use this facility — bearing in mind I am complete novice. —Squadron Leader R. E. Vincent, Barry, S. Glamorgan.

● There's a very useful beginner's introduction to Midland Basic just been

released by Gintop Publishers, Standfast House, Bath Place, Barnet, Herts.

It's called Program Your PCW and is written by that very well known computer author Ian Sinclair and costs £5.95.

Tidying loose ends

I HAVE made a few changes to your interesting Backgammon program in the August issue of Computing with the Amstrad to improve the moves available to the computer.

I find that the player is sometimes missing an advantageous little move because it always tries to use the disc in the order as shown.

The new subroutines in Listing 1 follow the program to run the priority sequence on both discs before making any move.

```
204 IF @disc=0 AND @c=0 AND
  @c@p THEN @disc=1@p
  @p@p letter @c=0 letter @c=
  0
```

```
205 FOR @c=1 TO @cmax=
  @cmax @c@p
  206 FOR @p=0@ TO 1 @c@p
  -1
```

```
207 IF @c(@p@1,1)@ AND
  @p@1=0@ THEN @disc=0@
  0
```

```
208 NEXT
```

```
209 IF @c=0 THEN letter
  1@1=0@ @p@1 0
```

```
210 IF @c=1 THEN @c@p@1
  @c@1 THEN letter @c@1=0@
  @p@1 0
```

```
211 NEXT
```

```
212 IF @c=0 THEN @c@p@1
  1 THEN @c@1
```

```
213 @p@1 @c@1 @c@1 @c@1
  @c@1
```

```
214 RETURN
```

If the second disc gives the better priority, it will be used first. This now makes lines 205, 206 and 208, suggested in the October 1988

Prize letter

posting, unnecessary.

If the computer has to use the second disc to reevaluate a full piece, it is unable to go back and make use of the first disc. Lines 210 and 212 can do this.

```
210 IF @p THEN LOCATE 1,20
  PRINT "0" @c @c@p
  *@p@1 @c@p@1
  211 IF @c=0 AND @c=0 AND
  @c@p AND @p@1 @c@p
  THEN @c@p@1 @c@1 @c@1
  212
```

I am not a Backgammon expert, but it seems that the computer sometimes makes moves within its own inner table when more aggressive play would be achieved by using outer pieces.

This is accomplished by line 210.

```
214 IF @c=1? AND @p=0
  OR @p=1 OR @p=0 THEN
  @p@1-1
```

I have also tidied up some loose ends in the program.

While the computer is taking pieces off during the end game, ply (the number of disc points played) is not updated. Line 212 corrects this.

```
215 IF @c AND @p THEN
  @c @c@1 IF @p THEN @c@1
```

When the player is taking pieces off, the number of pieces left is not updated until after the computer's next turn. I have updated both @p@1 as they happen during lines 209 and 210.

I like the more subdued colours suggested by M. McRae in October 1988

```
216 IF @p THEN LOCATE 2
  1,20: PRINT @c@1 @c@1 @c@1
  @c@1 LOCATE 3,20: PRINT "0"
  LOCATE 1,21: @p@1 @p@1
  OR
  15@ IF @c=0 THEN @c@p@1
  @c@p@1 @c@1 @c@1 @c@1
  LOCATE 11,21: @p@1 @p@1
  217
```

posting, but the words "outer table" and "inner table" are almost illegible. This is cured by line 200.

```
200 @c @p@1 @c@1 @c@1
  @c@1 @c@1 @c@1 @c@1
  'locate 24,20: print @c@1
  @c@1 @c@1 @c@1 @c@1
```

If the top-up produces a double, the screen announces "3 to try again". This message is not issued when there is a successful roll. This can be amended with line 215.

```
215 @c@1 @c@1 @c@1 @c@1
  @c@1 @c@1 @c@1 @c@1
```

At the risk of appearing fussy, I do like programs to clear up after themselves so I have added lines 211, 212 and 213 to accomplish this.

```
211 locate 1,1: @p@1 "0,
  @c@1 @c@1 @c@1 @c@1
  212 @c@1 @c@1 @c@1 @c@1
  213 @c@1 @c@1 @c@1 @c@1
```

```
214 IF @c THEN @c@1
  @c@1 @c@1
```

I am sure Backgammon experts will be finding more ways to make the computer hard to beat, and I shall watch with interest for further ideas. —Roy Peterson, Rowland's Cottage, Herts.

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The address is: Postbag, Computing with the Amstrad, Europe House, Chiswick Road, West Green, Stockport SK7 5NR.

Spoiled for choice

YOUR article in the December 1988 issue of Computing with the Amstrad on increasing the buffer size of the DMF2000 printer is interesting and a very worthwhile improvement.

However, on looking up the DMF2000 card chip in the current Format catalogue, I see that it is available in six versions. Could you please let me know which one to use, or if in fact I could just any? —Mike Kegan, Broom, Bingleworth.

● The memory chip I used was the Hitachi HM6264LP-15. You can get it from Flora Electronics for £3.75 (inc. p&g). Their address is 14, Layer St, Pocklington, Manchester M1 1LN. By coincidence they advertised on the page directly opposite my article.

If any reader needs further information on this matter they can write to me but please enclose a stamped addressed envelope. —Frank Phillips, 43 Greenmore Road, Galfrey, Cheshire, SK20 4RS.

Filing systems

I OWN a CPC6128 and I am writing a 280 machine code database program to store and process clinical data in my practice. I am using Amos's Master assembler and the program will run under Amos.

I am trying to code a simple random access disc filing system in order to store, retrieve and process records.

Each record will be about 280 bytes long and there will be over 600 altogether. As a result I do not feel that Amos's serial filing would be able to cope.

I plan on having one large data file on disc which I will create using standard disc firmware calls but which I will then access using the CP/M BIOS calls available under Amos.

A directory-type file will be used to store the track sector number for each individual record in the file.

So far I have been unable to implement such a filing system and the CPC6128 firmware guide has been singularly unhelpful. I would be most grateful for your advice on the following questions:

Am I going about things in the right way? If not can you offer any suggestions?

How can I read the contents of the disc directory file without using the CDS CATALOG or CDF calls?

How can I determine the starting track and sector numbers of a file created under Amos?

Are there any CP/M Plus assemblies available which will assemble 280 assembly source code? — Dr. F. Simpson, Sutton Coldfield, West Midlands.

Firstly, CP/M BIOS calls are only available in the CP/M environment. You can still access firmware routines from CP/M using extended BIOS routines, but not vice versa.

You are right in assuming that Amos is not up to the job of managing a large

COMPUTING
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database.

For any serious application it really is necessary to work with CP/M which provides the functions you require.

The list of standard CP/M function calls is extensive, particularly for CP/M Plus and includes random access filing.

These are available as system (BIOS) function calls and I recommend that you avoid direct access to BIOS routines until you are more familiar with CP/M.

I think that an application such as this is more suited to development in a high level language such as C or Pascal.

Turbo Pascal is an outstanding development package for around £35. HiSoft C is also very good and costs even less.

If you are familiar with C (or are willing to learn) there are also several Public Domain compilers available through the CP/M user groups though you would probably have to provide a separate test editor.

However, if you want to stick with low level software Maxam will produce COM files if you have a less than perfect version. If you haven't come of the best assemblies can also be found in the Public Domain library.

I suggest that you read my 12 part series on CP/M published in *Computing with the Amstrad* starting in January 1988, in particular

the September 1988 article that contained details of the directory structure.

The series described CP/M 2.2 but most of the material applies to CP/M plus. Hopefully I will be starting a series on CP/M plus later this year but if you can't wait, one of the better books on the subject is "The Amstrad CP/M Plus" by Clarke and Powers-Little. — Colin Foster

Prize letter

Character references

WHEN typing in magazine listings, resulting error messages can often be due to confusing certain characters such as @ and # with O and 0.

This list is intended for checking out GDTA statements containing machine code in hex but can be used in the main program as well.

The suspect character is defined using the STMBOS command to produce a solid block with a dot in the centre which is then searched for by listing and edited if necessary.

Start by resetting the computer and then enter:

STMBOS #

Load your program but do not run it as this may conflict with the above command, then check one

character at a time.

For example to check for O replacing @ (and), insert the suspect character in quotes, using the following list:

```
STMBOS STMBOS STMBOS 'O',STMBOS
STMBOS STMBOS
```

Then list the program and replace with a zero any block that appears in the listing that should not be an O.

When satisfied restore O by entering:

STMBOS #

then repeat by checking for # and @ swapped, a colon instead of a comma and — particularly in the main listing — a colon or semi-colon swapped or omitted. — **All Peake, Mumbles, Swansea.**

This is a useful title to and complements our debugging series first published in the May, June and July issues of *Computing with the Amstrad*.

Dumping from Mini Office II

COULD you please advise me of a good graphics dump?

I own an Amstrad DMF2000 printer and wish to print the pie charts, line graphs and so on from Mini Office II which I run on the CPC6128.

I would be most grateful for your advice. — **D.S. Maden, Gwent, Kent.**

Mini Office II incorporates its own graphics dump for the Amstrad DMF2000 and Epson-compatible printers and can be accessed via the fourth icon down on the display which contains the drawing of a printer.

Once you have selected this, on-screen prompts allow you to make your choice of printer.

For those with incompatible printers there is an option to save the whole screen (Control+S). You can later use the saved screen with a dump for your particular printer.

HiSoft Software What's New?

A HOT We've been very busy over the summer months, carefully crafting more programming tools for the Amstrad computers. Our new and new offices (see the address below) will come again and again covering surrounding spaces off many new programs, like **HiSoft FORTH & English**, and improvements to existing ones such as **Pascal80 & Write Hand Man**. Of course, all the old favorites like **C, TurboBASIC** and **DropBox** are still with us and our price catalogue is finer than ever (just phone or write for a copy) . . . but we'd like to use this space to tell you something new!

HiSoft Pascal80

Pascal80, our popular Pascal compiler for the Amstrad disc computers, has changed dramatically. It now includes a fully-interactive editor so you can edit, compile, execute, re-compile and run all from a single menu, screen message (with the menu, a simple **RECOMPILE** FILE) of any type, register variables, upper or lower case reserved words, **CRASHING** and more. Pascal80 is now a complete Pascal development system, it is still much faster and smaller than Turbo Pascal and yet costs only . . .

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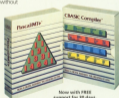
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