BIG

THE HIGHLY COMICAL APPLE MacINTOSH... 85p

STICKS MAY BREAK...
Controller Review p.34

SABRE WULF MAP!
All 256 locations laid bare

Plus Amstrad Review/
Letterbase/Dorkslayer
Arcade Punch-out

No6
SEPT

GAMES, UTILITIES
BODGES & DODGES
for COMMODORE 64,
ORIC, SPECTRUM,
VIC, and BBC 'B'!

AFTER THE CRASH
Atari & Imagine
— The End of an Era?

KOKOTONI WILF

'Kokotoni Wilf is an arcade adventure whose undisguised intention is to steal the title of "best arcade adventure program bar none" from Jet Set Willy'.

As Kokotoni Wilf you must recover all the pieces of the legendary Dragon Amulet (which has been scattered throughout time) for your master the great magician, Ulrich.

Throughout the quest Wilf comes up against many dangers from huge lumbering prehistoric dinosaurs, to hostile alien robots, but the reward for recovering all the pieces warrants the risk.

The 48K program features a number of major advances over Jet Set Willy. The games designer, Elite, stresses that each of the games 60 plus screen settings is genuinely high resolution, as opposed to psuedo hi-res, and doesn't require a title to explain what you're looking at. Furthermore, the sprite characters are of cartoon quality and exhibit their own personalities.

Impressive claims. Jet Set Willy fans will no doubt feel both sceptical and intrigued .....

Watch this space!

48K Spectrum and Commodore 64 available Sat. 15th September.

elite

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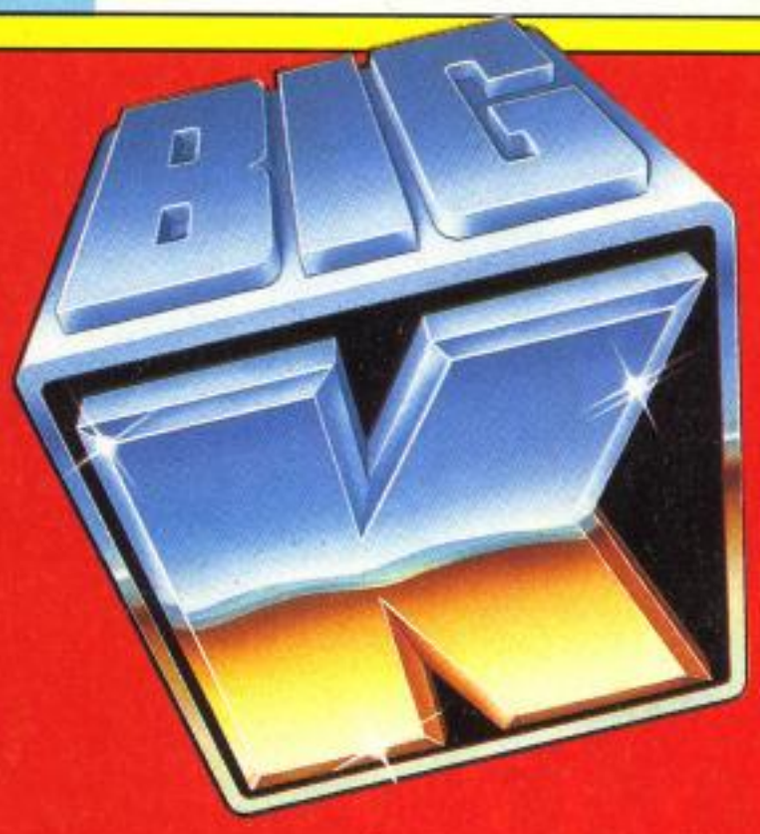

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THE END IS NOT NIGH

You may have noticed that we're a bit late this month. Our apologies. The reason was a reappearance of that perennial Bug in The Great British Operating System — an Industrial Dispute. This caused a wholesale crash within the IPC mega-network, and affected hundreds of magazines, not just BIG K. However, by dint of late nights and unbelievable amounts of tepid coffee we got it together — our largest issue yet.

If you find a bug or two . . . don't call us. We already know about it.

We've also cleaned up (by popular demand) our Reviews Ratings system (see page 18-30). We hope you'll approve.

This month's Cover Story concerns the long-predicted disaster that's overtaken two archetypal computer/games companies — one American, one British (see page 43). In America some pessimists are saying It's All Over. We don't think so — though it is clear that we're going through the end of the First (or is it Second?) Age of Personal Computing. On reflection, it was probably necessary to shake out some of the old assumptions, so that the survivors can clean up their acts.

A great example of what lies just around the corner can be found on page 90. In our view, this — and not just more games — holds a clue or two to the computer future. May it arrive sooner rather than later — and, one hopes, without any more tragedies and disasters.

TONY TYLER

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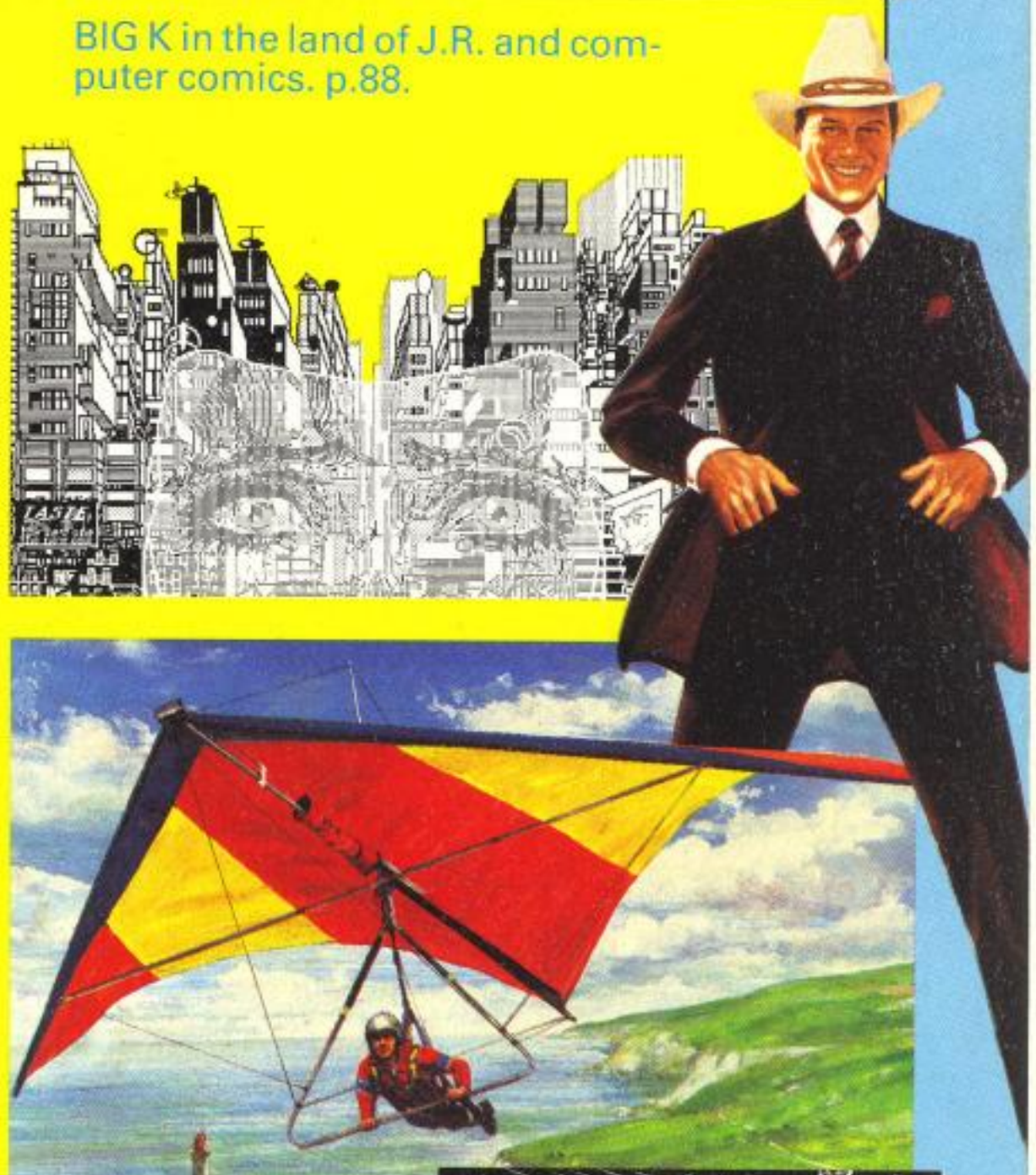
BIG K in the land of J.R. and computer comics. p.88.



TRIED & TESTED BIG K GAMES

From hang gliding to meteor bashing. BIG K games listing. p.52 & 42.

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SABRE WULF

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Auntie/Acorn Love Affair Smoulders On

THE BBC has renewed its contract with Acorn Computers. This puts an end to speculation that Auntie Beeb might make a new partner of Uncle Clive, or even (long shot) Cousin Commodore. The BBC micro, as we know it, stays for another four years.

The Corporation also has plans for a new TV computer series, as well as new books and software. Although Commodore have been selling hardware like hotcakes in schools, of late, they've still a long way to go to catch up with the mighty Beeb, which claimed three-quarters of the total computers bought by schools last year.

Nice to have friends in high places.

Subtitles are on page 94 of your Spectrum

TURNED ON by Teletext? No? Pity. Because if you were — and if you also happened to be a Spectrum owner — joy could be yours mucho pronto since OEL have now produced a Teletext adaptor for the Little Black Box From Cambridge. Priced at a cool £145, the TTX 2000 plus all vital bits is available from OEL Ltd., North Point, Gilwilly Estate, Penrith, Cumbria. CA11 9BN.

Credibility Note: OEL are also the designers of the award-winning Prism VTX 5000 modem.

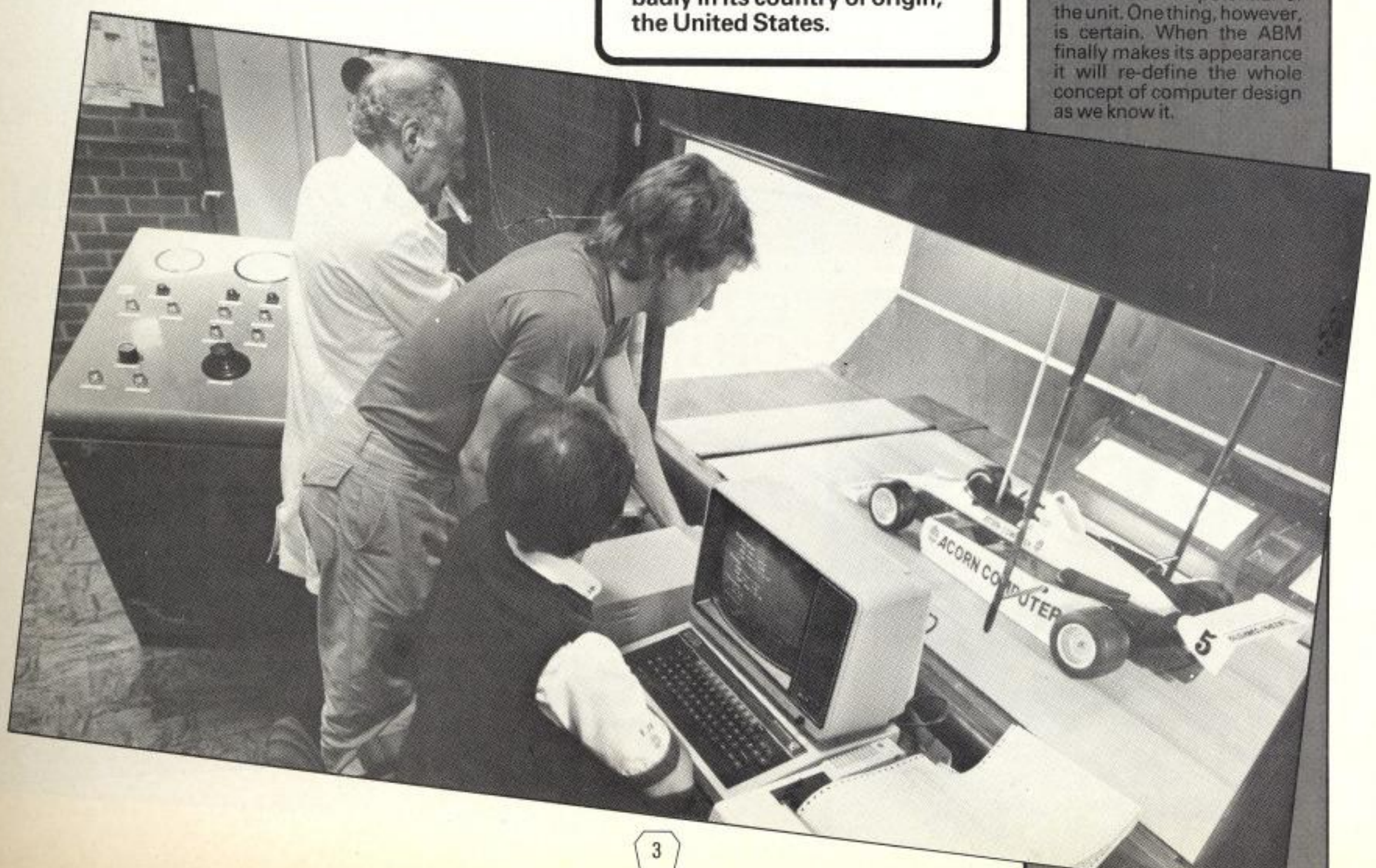
BUG-BYTE SIGN ROBOT HAM

VETERAN SCOUSE software house Bug-Byte have successfully negotiated a deal to produce computer games based on TV's 'Automan' series. Currently being storyboarded, the first game in the series will be in the shops (Spectrum 48, CBM 64) early next month.

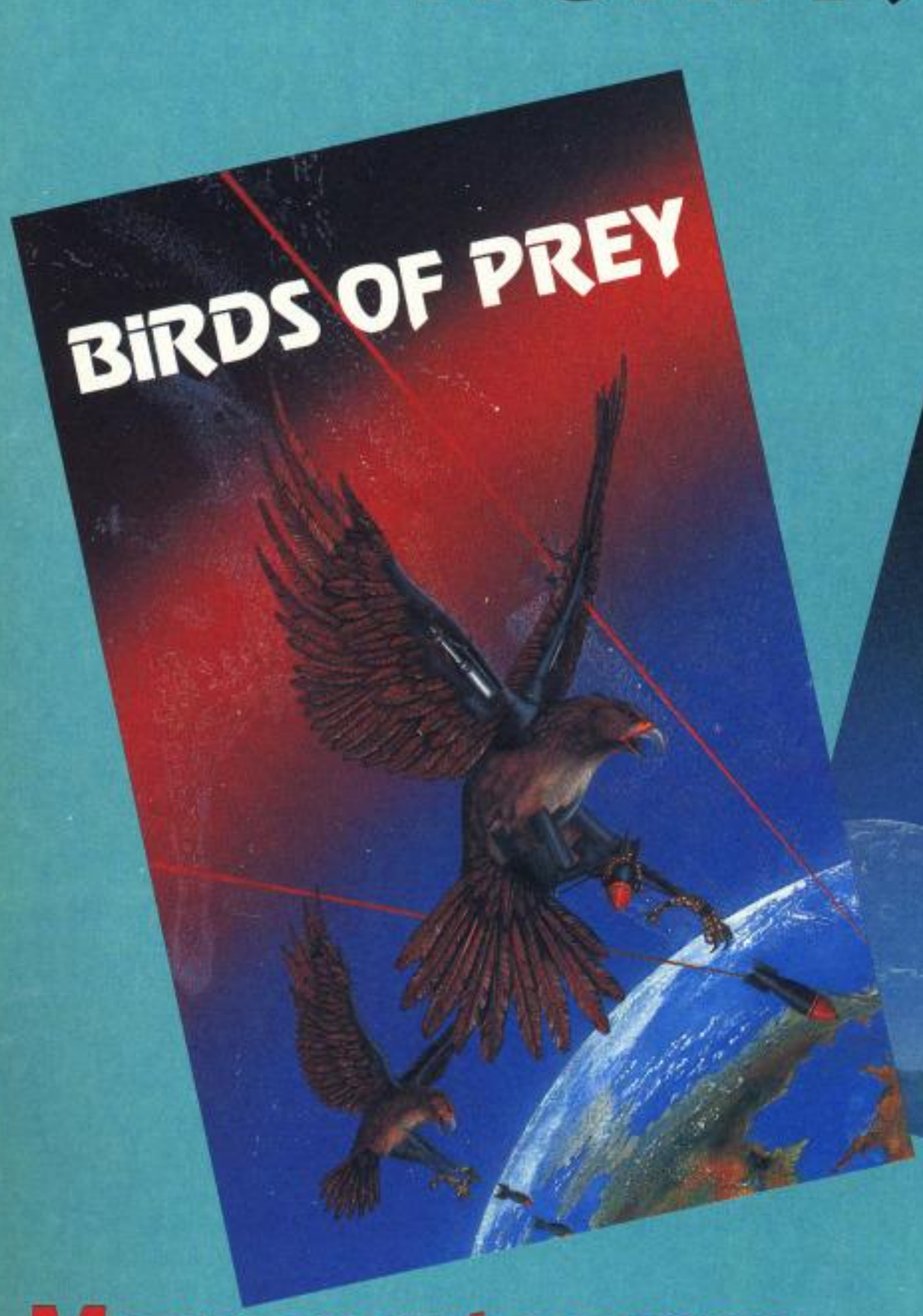
NB: Although a successful show in the UK, 'Automan' has reportedly bombed out badly in its country of origin, the United States.

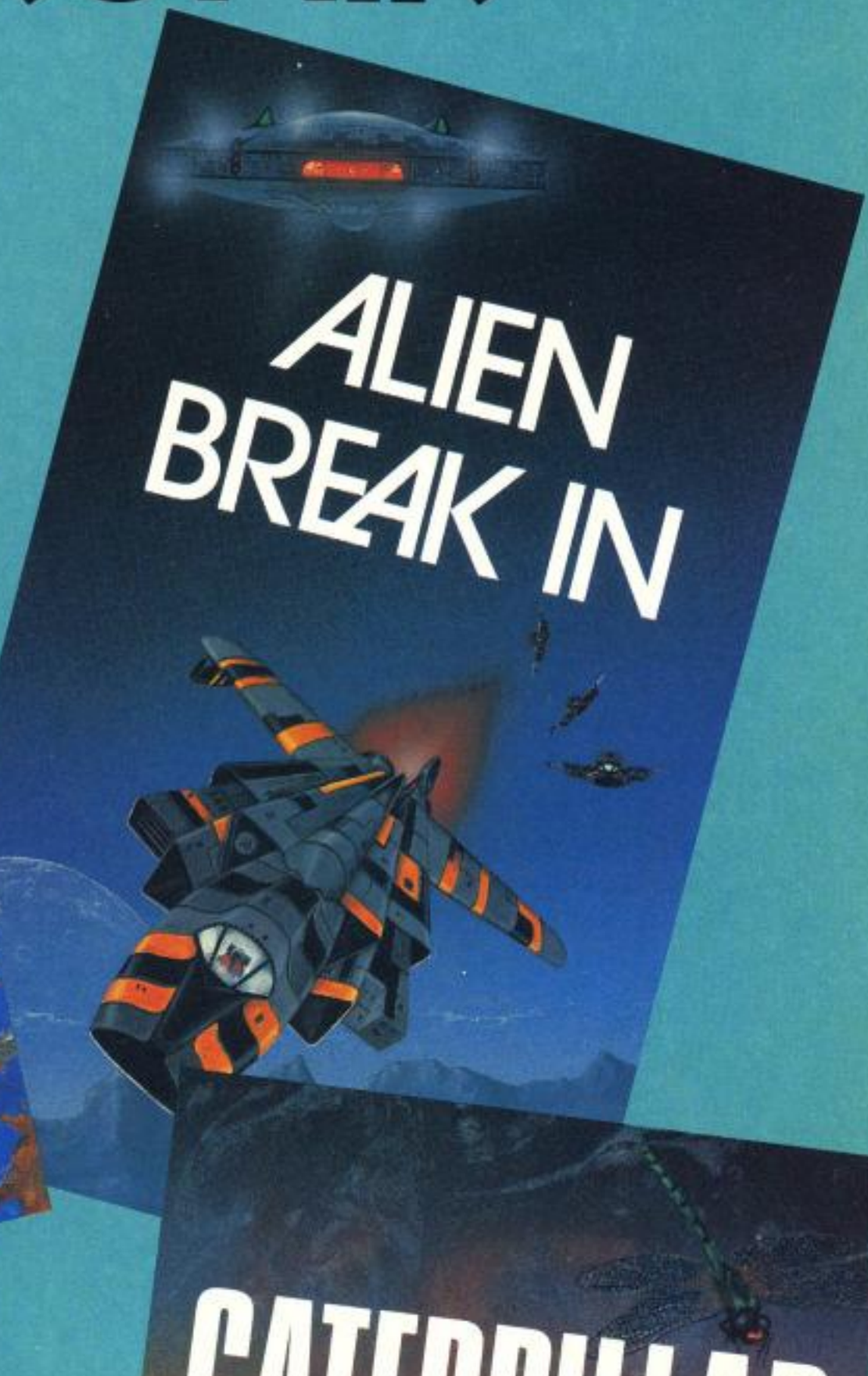
Acorn ABM – First Sighting

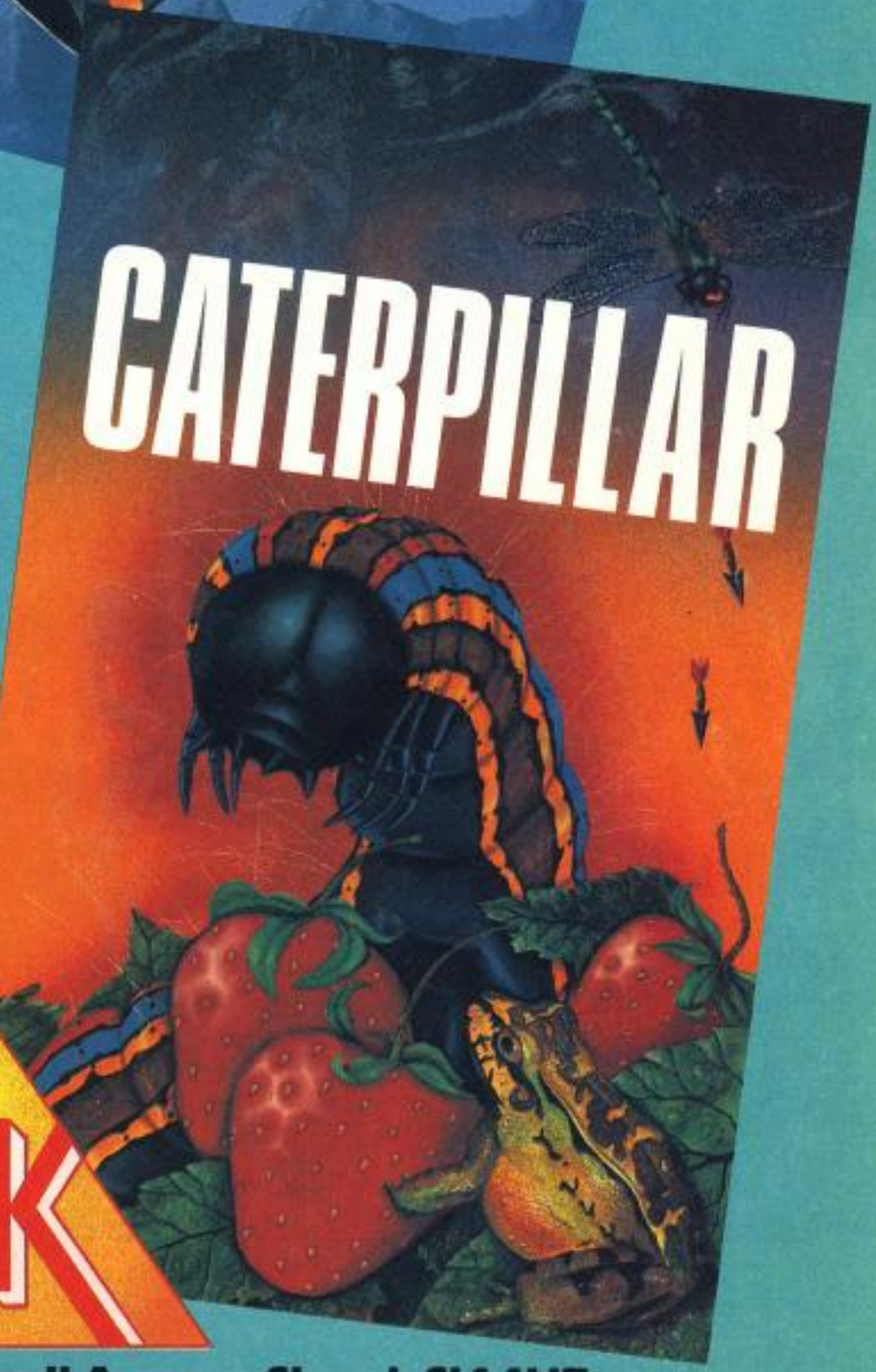
WITH RUMOURS of the long-waited Acorn business micro growing stronger each day, BIG K believes it has uncovered photographic proof of the existence of the new wonder machine. The picture shows the ABM undergoing final evaluation at a top secret Acorn 'safe house' somewhere in England. Industry observers will be quick to note the revolutionary look of the ABM with its slick, executive styling which will undoubtedly ease transportation of the unit from one location to another. The most exciting features are the four massive disc drives, one on each corner of the unit. Obviously compatible with no other system currently on the market, the capacity of these drives can only be guessed at. Speculation surrounds the ABM's rearward configurationwhich some have said must be a massive heat sink, or more ominously, a possible dreaded Sinclair-type dongle which may be done away with at a later date. The ABM operator has a custom-designed work area built into the centre of the unit, between the side ROM and RAM packs. Unconfirmed reports indicate that limited protective clothing may be required to extract the full potential of the unit. One thing, however, is certain. When the ABM finally makes its appearance it will re-define the whole concept of computer design as we know it.



Three more challenges from ROMIK







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U.K. UNDER ATTACK

"OVER-RATED, OVER-PRICED AND OVER HERE"?

UNIQUE TWIN-PRONG ATTACK THREATENS BRIT. MICRO INDUSTRY

AMERICAN-ORIGINATED software is headed for British shores in ever-increasing numbers. U.K. companies are springing up specifically to bring over top-selling American games and, in some cases, convert them to British micros.

Probably the most well-known of these companies to date is U.S. Gold, who scored a No. 1 chart hit recently with *Beach Head* for the CBM 64. In existence only since April, U.S. Gold told BIG K that they had deals signed with many of the major Stateside software houses and planned to release 27 titles before Christmas. These include Datasoft's *The Dallas Quest* and Synapse's *Zaxxon* — the 'official' CBM 64 version. Prices tend to be on the heavy side (not unknown where U.S. software is concerned — the Americans are used to paying around £30 for a game) at £14.95 per cassette. U.S. Gold believe that people won't mind paying such high prices for quality games.

Newcomer Statesoft was, naturally, born on the 4th of July this year and enjoys the backing of the large Spectrum (no relation) group of retail outlets. It has the rights to handle First Star releases for the good ol' 64 and the first two, *Astro Chase* and *Flip 'n' Flop*, should be out by now. A second pair, *Boulder Dash* and *Bristles*, are due out next month. Pricing wasn't confirmed when we talked to Statesoft but £8.95 for cassettes and £11.00 for discs were given as ballpark figures. Statesoft have the rights for translating all First Star titles to the ZX Spectrum but will probably be licensing these to another software house.

Cheetahsoft, with two Spectrum titles already out, has announced that it has aquired the rights to market Imagic games in Britain. *Moonsweeper* and *Dragonfire* will form the first wave of Imagic/Cheetahsoft releases for the Spectrum, in cassette form at £7.95 each. Other machines may be targeted at a later date.

Meanwhile, from the Land of the Rising Sun the mighty MSX machines surge like a tidal wave of Datsuns toward our tiny isle. Among them familiar names like Sony, Hitachi, Sanyo, Toshiba, National, Yamaha and others. All have one thing in common — MSX, the Microsoft-backed language that does away with incompatibility between microcomputers.

The roster of those who are planning MSX games looks like a who's who of the U.K. software industry: Quicksilva, Virgin Games, Artic, PSS, Bug-Byte, Silversoft, CDS, Ocean, Psion, Mastertronic, Mr Micro, Llamasoft, Salamnder, Audiogenic and Kuma. Over 40 companies in all are interested so far.

Despite scepticism in some parts about the impact MSX will have on the U.K. scene the Japanese companies have a lot of money (around £50m) and a lot of patience to get their product established. "We're not looking so much at Christmas 1984," one spokesman told BIG K, "but at Christmas 1985 and 1986."

MOGUL SOFTWARE

is claiming a unique "first" — in blagging the home computer rights to a major new US arcade game . . . before the latter has even hit the arcades!

The game? *Zeta 7*, a rotating shoot-'em-up in the grand tradition, written by US programmer Mike Wacker. By the time you read this Mogul's version for CBM 64 (cassette, with disc to follow) should be in the shops for a mere £7.95.

64 MARCHES ON

ACTIVISION, THE giant American indie software house, have now added the world's best-selling microcomputer — the Commodore 64 — to their list of target machines.

First games on CBM cassettes are: Beamrider; Decathlon; River Raid; Pitfall; Pitfall II; H.E.R.O.; Zenji, *and* Toy Bizarre. *All but the last two are conversions*

The American company has also successfully sued Cornish outfit Microdeal, claiming that the latter's Cuthbert In The Jungle *is a rip-off of* Pitfall. *Microdeal have given a High Court undertaking to shelve the Cuthbert game permanently.*

"I'll swap four of my tapes for your Activision."

You know the feeling. A couple of plays and the best you can hope for from so much of the software around, is swapping it for something better.

Well, the something better has arrived. Activision.

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RIVER RAID · TOY BIZARRE · ZENJI

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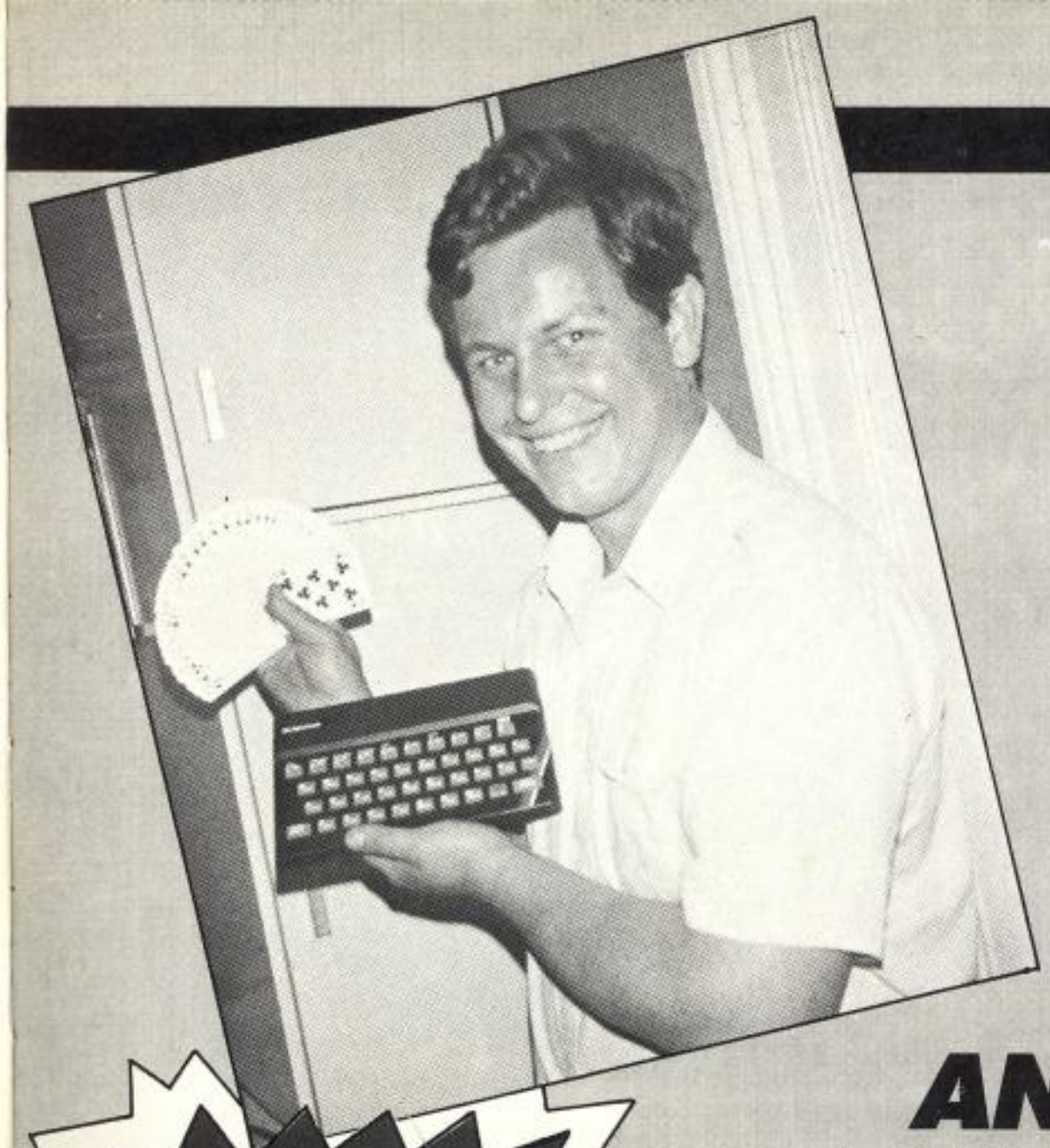


AND NOW, FOR MY NEXT PROG . . .

DAVID HAMBLY, member of the Magic Circle and micro-brat, has fused the two strings on his bow together to become nuncio to what may well prove to be a dread new breed — Computer Magician.

On-screen graphics display three playing cards, face down. The computer 'tells' one to Find the Lady (The Queen). *Cherchez la Femme* — geddit? The old three-card trick.

One points a trembling digit at an appropriate key. Wrong! Every time! Hambly reverses the trick. This time one shuffles three real cards and lays them down to match — but not be visible to — the screen "cards". One instructs the patient micro to Find The Lady, dammit. One of the screen cards turns to show the Queen. One flips the corresponding real card and . . . the bitch is there! Every, but every, time.

David Hambly's speciality is 'close-up' magic. That means that you can scrutinise his hands with a magnifying glass and still not suss how he makes you look a mug. **(We'll tell you one day, Nicky — Ed.)**

Hambly confides that micros suit his no-nonsense style of magic. Producing rabbits became frankly, old hat, **(watch it — Ed.)** and escapology just tied him down **(you're fired — Ed.)**

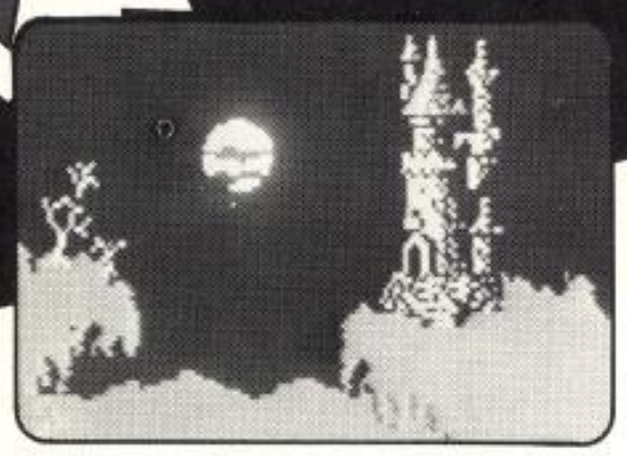
If you're (un)lucky you might come across the man and his micro performing near you one day. Run! No, check it out. David Hambly also likes to behead select audience members on stage. Well, who doesn't these days? ("It's great fun, you can play football afterwards!"). Failing that; if you own a ZX 81, you too can shrivel your friends into a humiliated pulp! David's simple booklet will teach you how to turn a micro-heist or two with cards and ESP. You'll need to spend some time practising, as — and here's the rub — ALL IS NOT AS IT SEEMS!

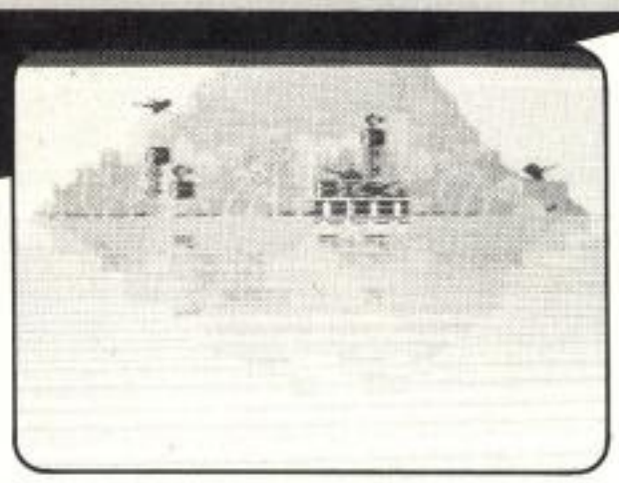
Meanwhile — I know something you don't know. Yes, how it's done. And I can be bought.

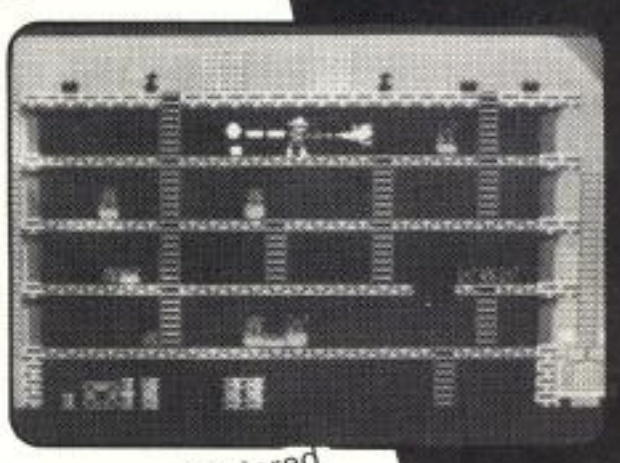
NICKY XIKLUNA

COMPUTER MAGIC with the ZX 81 costs £2.00, and is available directly from:
DAVID HAMBLY
25 Knight's Way,
Hainhault, Ilford,
Essex 1G6 2RS.

Lousy French joke
"Knock, knock!"
— "'Oo's there?"
— "Hugo."
— "Hugo *qui?*"
—Hugo buy an Oric . . . *Moi,* I'll save up for one of zose IBMs."







FROGGY WENT A PROGGING

WHEN MATTEL went down recently, they left behind a team of 13 international software professionals, all booted up, as it were, but with nothing to run. This team of folks from France, Britain and Germany, became the lucky coven indeed when they took the plunge, put their cash and heads together, and came up with 'Nice Ideas'.

Despite the name, in 18 months, they've successfully transcribed and written for their old machines Intellivision and Intelligent Games, and have just finished writing 10 original games for Colecovision.

Bernard (l'artiste) plots and pigments every *pointilliste* pixel on his giant *Gauguinesque* graphs. He works closely with programmers to get both optimum playability and aesthetic clout out of available kilobytes. Bernard explains why Mattel originally needed a base in Europe, and what it is that Euro-talent can offer.

"American artists have a different kind of talent. They can draw things — like houses and cars, but they can't draw a portrait or a tree. Europe has a massive artistic heritage — and has spent hundreds of years training art schools. You just have to look at the work to see."

If this is the dawn of the computer age, la Belle France has left getting-up until the crack of midi. There has been little home production, and the importation of foreign machines has been hindered by France's ideosyncratic though efficient T.V. system, SECAM. Of the few that are sitting in homes (compared to GB), the Oric-1 and elderly Philips G7000 games machine seem to be the winners. Amazingly, computers are only now being introduced into schools.

Is there a danger of France missing out?

"Ah non," ripostes Bernard, "Computers will be big here.

"The French have been prudent in first giving themselves time to think, study and get ideas before going in."

Would he care to re-phrase that?

"Pardon?"

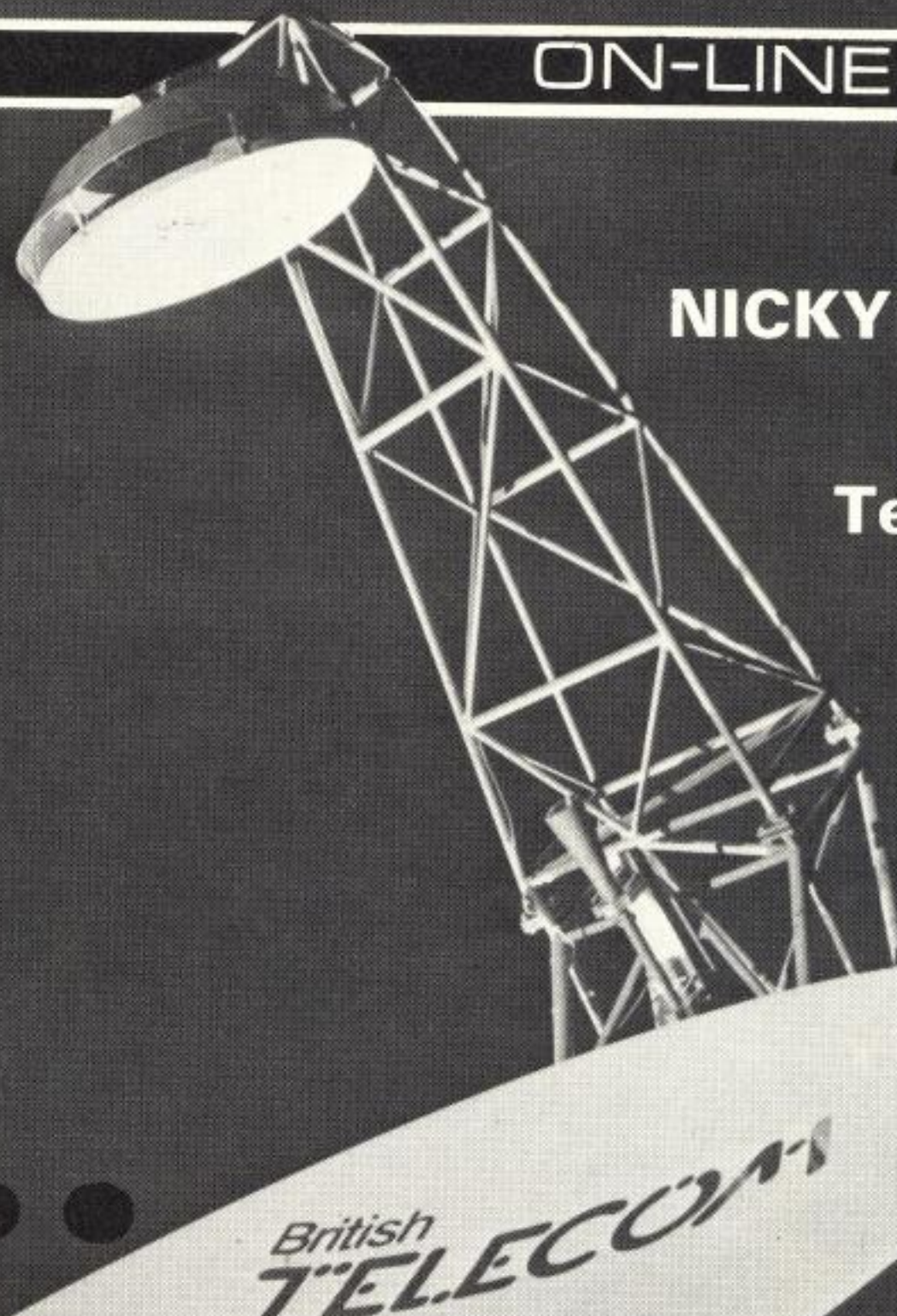
Rien du tout, pal.

NICKY XIKLUNA

ON-LINE **NEWS feature**

This Dish is a Dish...

NICKY XIKLUNA gets into Interhack Technology



British TELECOM

UNISAT 1, together with its back-ups 2 & 3, won't go aloft until 1988. When it finally does hang on in there, it'll be carrying 240 watts of British Telecom, and will be used for Direct Broadcasting (DBS). This'll eventually transform the legions of transmitters across the land into museum pieces. And absolutely no-one will have problems receiving Channel 4 ever again! In the meantime, other satallites are ahead, here, or rather there, and they'll be in use a lot sooner.

Spanning Stateside to Europe this year along the metasphere's busiest buzz-route comes SATSTREAM. It'll comprise a massive amenity, mainly, for the multinationals, extending big business satallite links across North America. Britain's already set-up to catch this stuff with mammoth receiving dishes (up to 32 metres diameter) at Goonhilly Down and Madley.

Even as I monologue away, the world's store of 1,000 or so satellites are twinkling above me. VCS machines in Space.

Most are controlled by INTELSAT, representing 108 countries. INTELSAT 'dishes' out satellites to official signatories — that's British Telecom and Mercury so far in the UK.

So exactly when and how micro/modem users gain access to satellite depends on who leases out a slice of the action from BT.

Indeed, software transmission has already been proposed by some candidates along the lines of software transmission by cable along the West Coast.

The technology exists. Every rooftop can be enhanced by its own monster gleaming receiver dish and antennae. Millions of menial and mediocre messages could go 22,300 miles in a vertical direction, bounce off the satellite in geostationary orbit, and so back down again to their earthly destinations. In half a second (give or take a nanosec or two).

Slipping into conjecture — what rich pickings are there in all this for the well-seasoned hacker to lick his chops over?

Surely it is only right and fitting that alien dudes, whenever they should appear, ought to debut via the good offices of some diligent midnight intersat hacker! Hacker Sat! Hackellite? Hacknik?

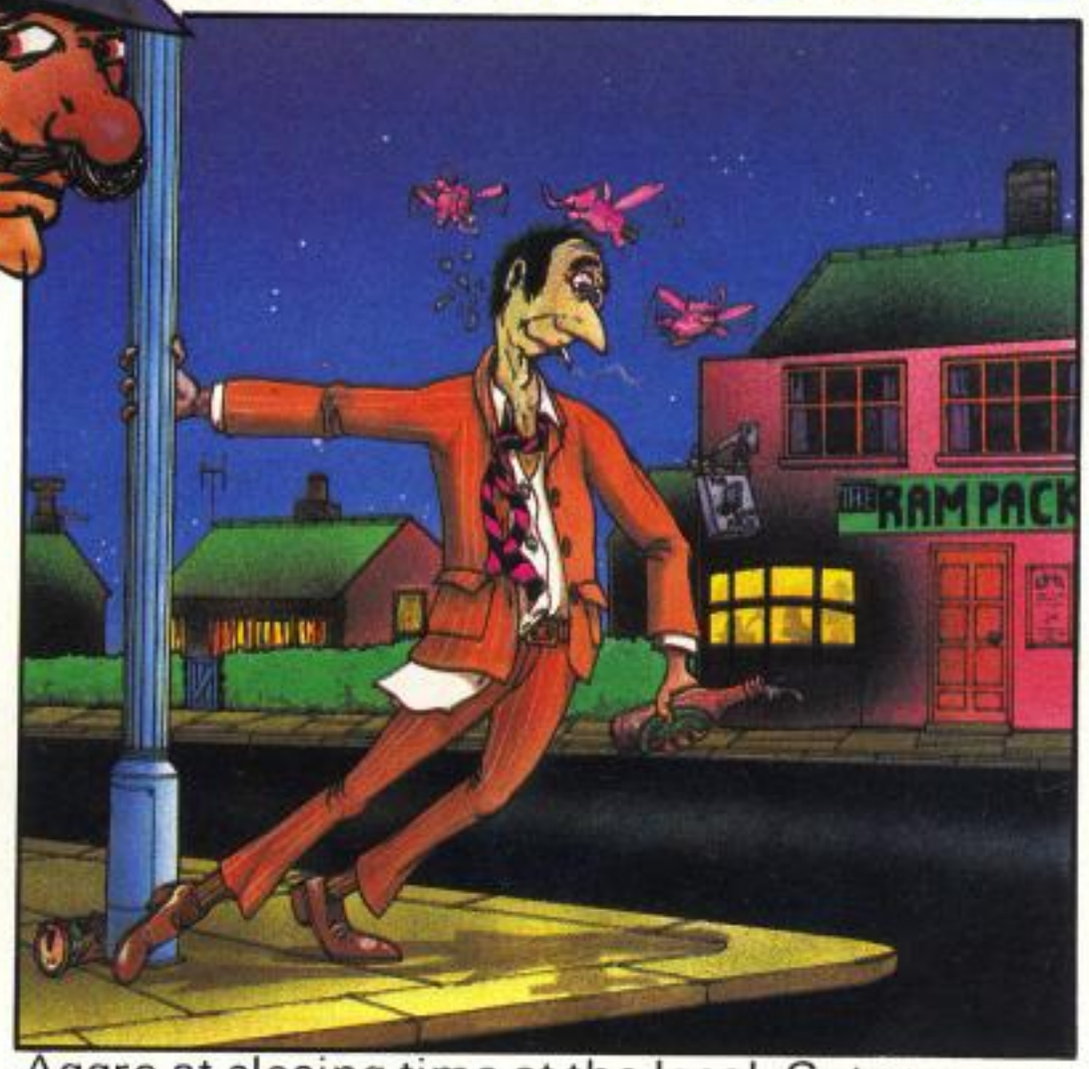
Back to the real world: private business has stormed ahead of nationalised database networks. Meanwhile, B.T. carries on implementing its mysterious 'System X' — changing over exchanges from analogue to digital. Today, your call to the States has a 50% chance of going by satellite.

What next? You can buy your own dish right now from about £5,000 upwards (installed). Or you can buy a chunk of Satstream direct for a mere £50k per annum and rent bits to your pals. Failing that, you'll just have to wait for Andy Green's upcoming monster epic, 'Build a Receiving Dish from Cornflake Boxes'.

ANIROG

NEW TURBO 64 GAMES

P.C. FUZZ



Aggro at closing time at the local. Getaway car screeches to a halt outside a bank. Ingenious methods employed by the Mafia to literally spirit away the loot from the High Street. Never fear - P.C. Fuzz is on patrol.

COMMODORE 64 £7.95

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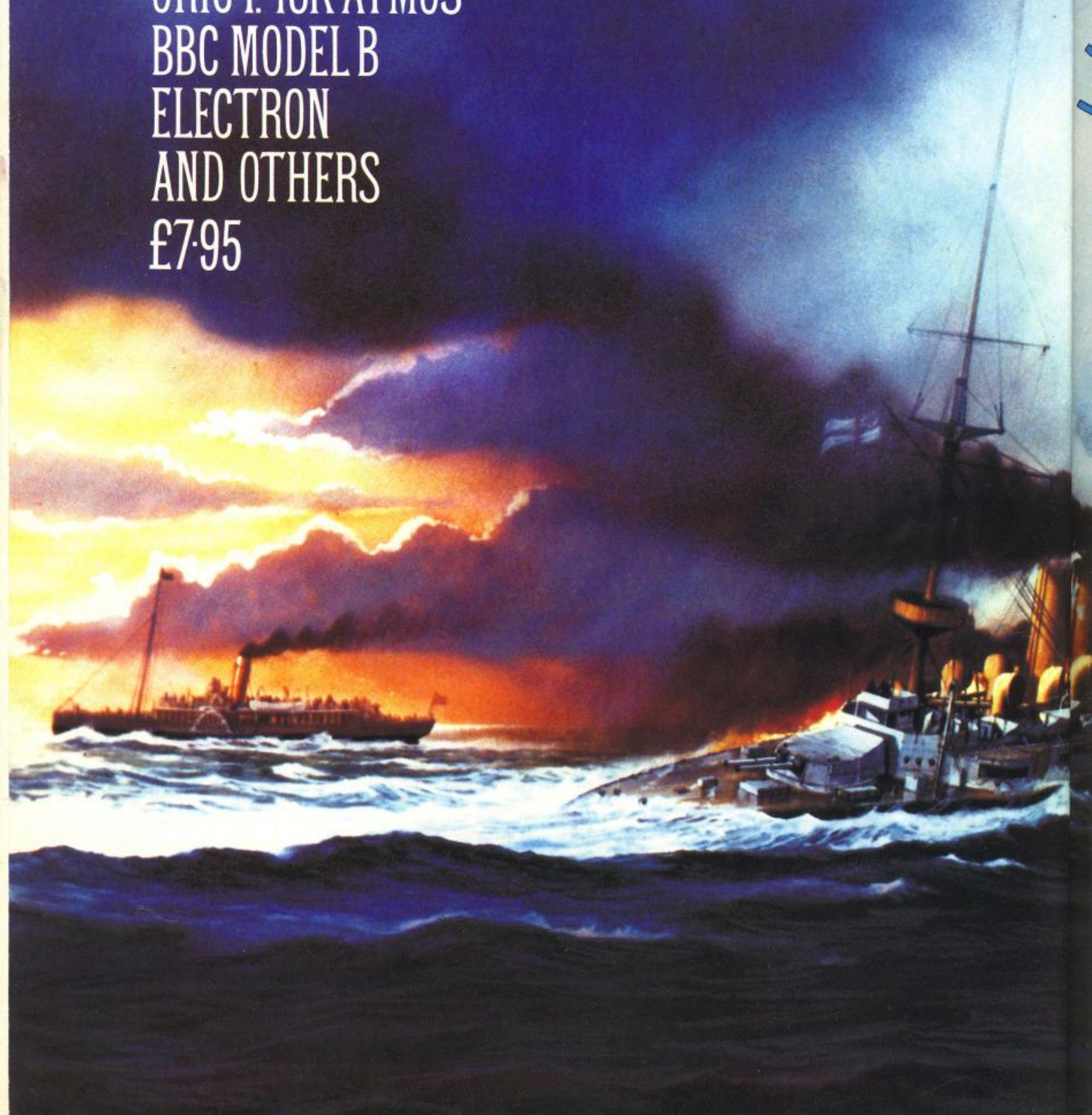
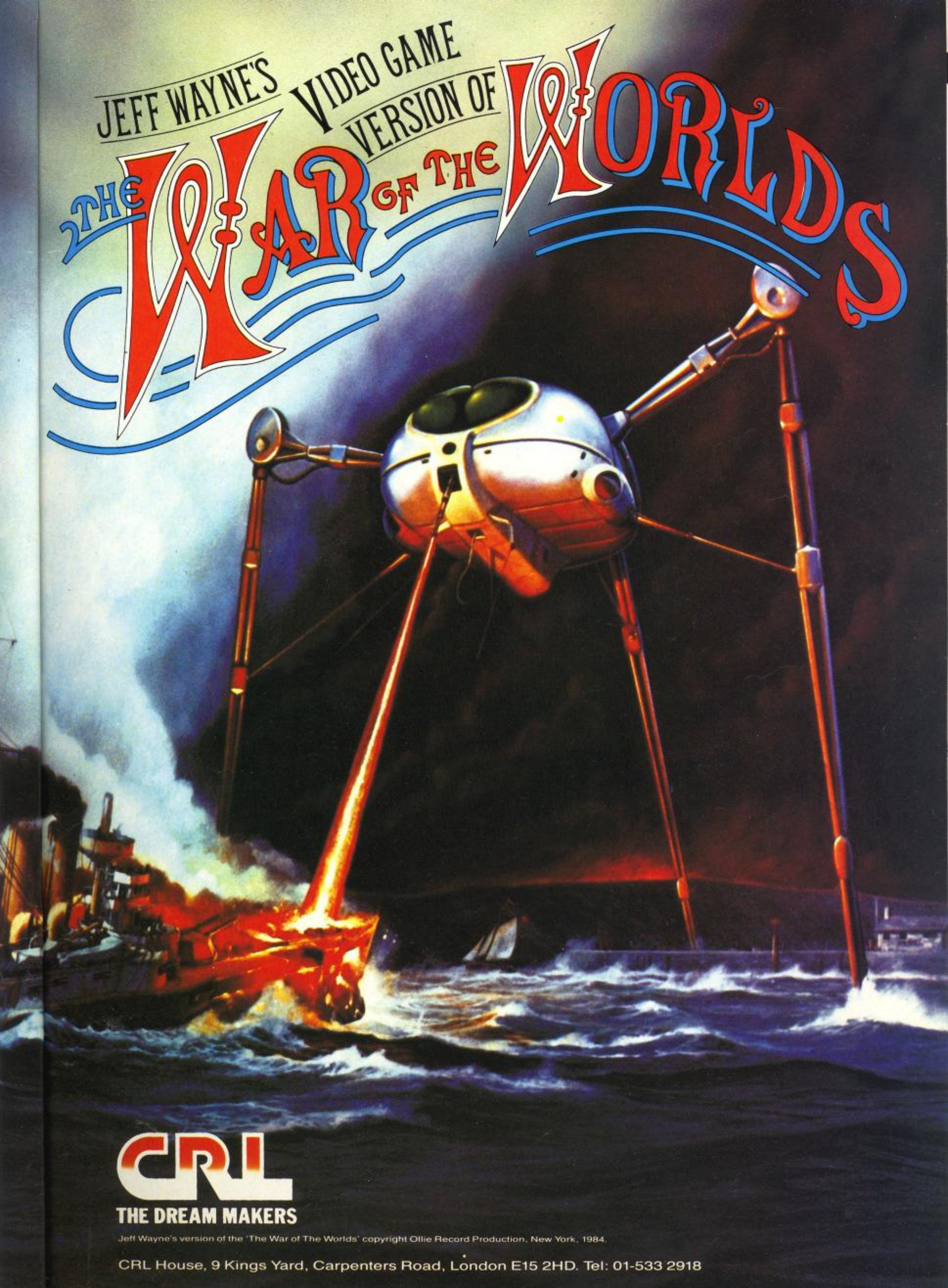


JEFF WAYNE'S VIDEO GAME VERSION OF

THE WAR OF THE WORLDS



CRL

THE DREAM MAKERS

Jeff Wayne's version of the 'The War of The Worlds' copyright Ollie Record Production, New York, 1984.

CRL House, 9 Kings Yard, Carpenters Road, London E15 2HD. Tel: 01-533 2918

START

SABRE WULF

Lake Hut Temple Location of Sabre Wulf Possible Amulet Site Flower

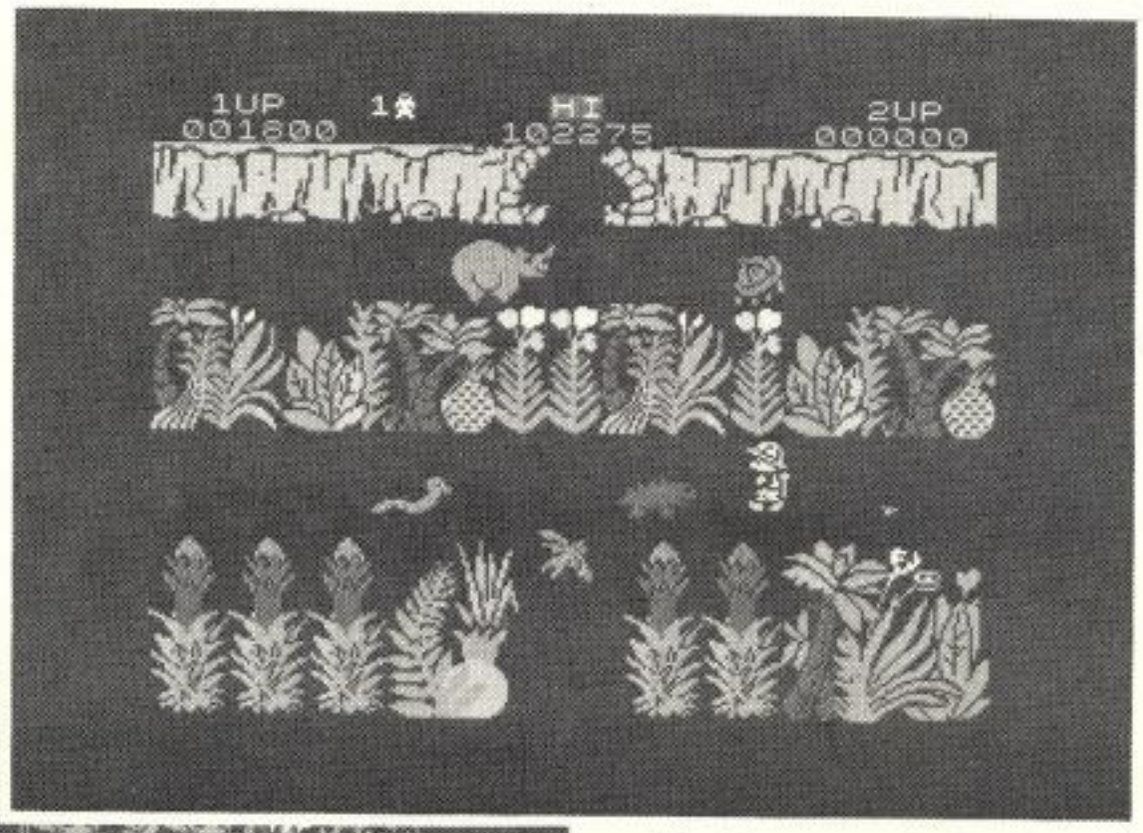
PICK OF THE MONTH

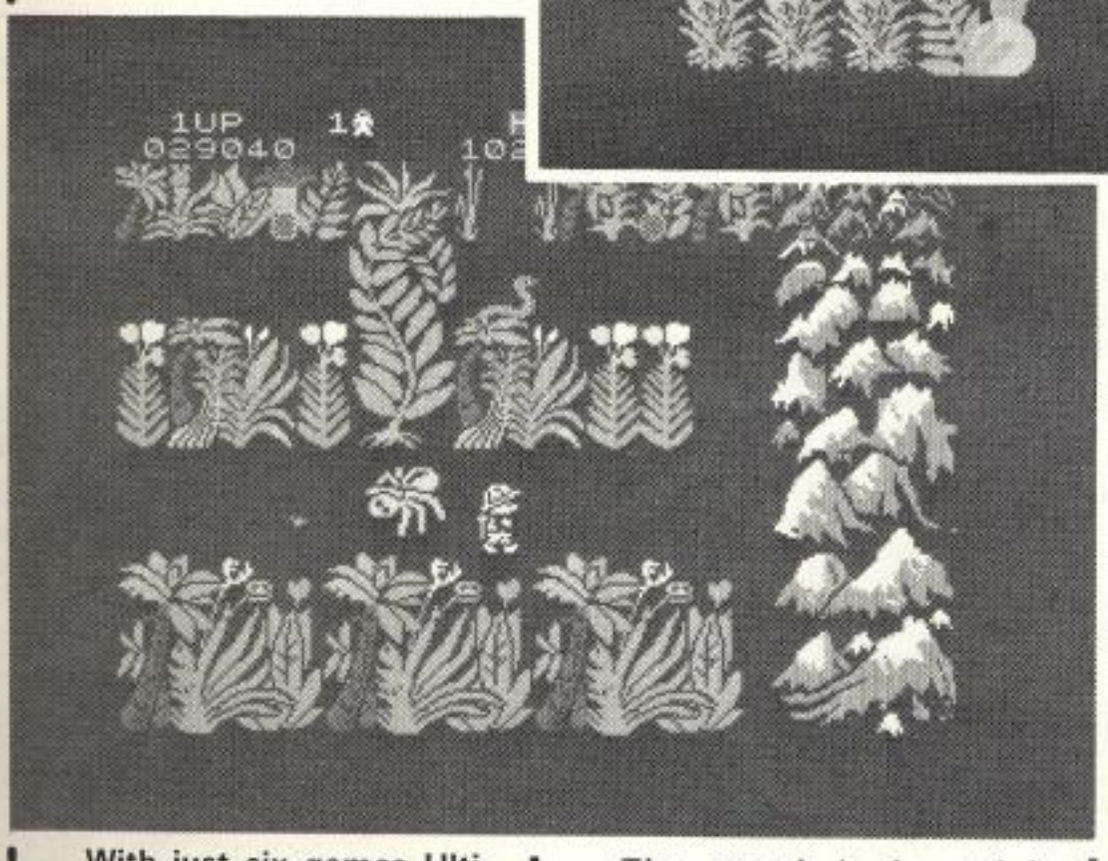
WATCH YOUR STEP

it's a real jungle out there!

Ultimate Play-the-Game's newest and lushest hit to date is *Sabre Wulf*, a mean, fast, brilliantly coloured jungle frenzy with all the puzzles and super-smooth coding now expected from its authors. Or is it nothing more than an over-priced retread of *Atic Atac?* RICHARD BURTON plays the game . . .

"In the jungle, the mighty jungle,
the lion sleeps tonight . . ."
So sang Tight Fit in 1982 (and so did Karl Denver, for those of us with longer memories). In a strange way the song seems more than appropriate to Ultimate's newest offering, *Sabre Wulf*, because the lion is about the only beast that does sleep — every other creature in this jungle is nauseatingly active and out to make life hell for you!





You have control of a tiny, sword-wielding (?) explorer in search of four parts of an amulet. Obstacles are constantly appearing in his path in the form of snakes, bugs, lizards, wart hogs, gorillas, hippos, rhinos, etc. There's a list of 14 of the critters in the instructions. A quick thrust with the sword will finish off most of these or, in the case of the larger beasts, at least scare them off. Also the local plant life can aid or endanger any of your three lives.

Many items appear in your path which can be picked up simply by crossing them. Unfortunately, *Sabre Wulf* doesn't feature *Atic Atac's* on-screen display of what you're carrying. Again, it's up to you to find out what these items are and how they can benefit you.

Sabre Wulf is a safari of discovery, a Big Game hunt where you are the prey. It's the nearest yet that Ultimate have come to an adventure game (note the *Hobbit*-style 'percentage complete' indicator) and is sure to fuel the letters pages of the computer press for some time.

It's another high quality Ultimate product and value for money (just about), even at £9.95, a figure that Ultimate claim reflects "higher development and packaging costs".

Luckily it's not the sort of game that will lose its appeal quickly.

With just six games Ultimate have carved themselves out a heavy rep with the games punters to the extent that each new release is as eagerly anticipated as the next Michael Jackson Album. So far they have only once gone back to a previous game theme for a new release. *Lunar Jetman* was a souped-up version of *Jet-Pac*. With *Sabre Wulf* they have returned, justifiably, to many of the arcade-adventure elements that made *Atic Atac* such a chart success.

The word 'enigmatic' almost sums up the game. It comes in a plain black box with simple title stickers front and back. Inside a six-page fold-out leaflet contains cryptic comments in purple prose that are little or no help. Basically, you're on your own in discovering exactly what this game holds.

The scenario, as said, is a vast jungle maze, glossily rendered in colourful hi-res graphics. (See map opposite for crib.)

HOW WE GOT OUR SABRE WULF MAP

Sabre Wulf had been out a couple of weeks when BIG K's office phone range. "Would you like to see a complete map of *Sabre Wulf*?" asked a voice. We gulped an amazed "Sure" and the caller rang off. No more than two minutes later the phone rang again. "Interested in a map of *Sabre Wulf*?" said another voice. An even more surprised affirmative from our end and, a few days later, two brilliant maps were in our hands. They were both so good that we decided to combine them into one — the one you see here. So take a bow *Alex Crabtree of Newcastle* and *John Cheal of Reigate — Sabre Wulf* Champions both.

Got any tips about *Sabre Wulf*? Found out any sneaky tricks to beat the jungle? Send them to Letterbase. We'll use the best and bin the rest!

TAIL END CHARLIE

Star Raiders circa World War II. Despite the army fatigues this is pretty standard shoot-'em-up fare, in which enemy fighter planes whirl and tease your straining gunsight. You've four difficulty levels and thirty missions to complete, which vary between high-level bombing sorties and low-level rocket attacks (phew!). It must be said that considerable effort has been made to turn this into an authentic flight simulation/arcade hybrid. Rather cleverly height and movement all have relative effects upon the action and the flight deck details any damage done to the ship.

You also receive messages from the pilot during the mission — nothing inspires confidence like being rubbished over the airways! But despite this fine realisation I found the game a little lacklustre. All the careful embellishments tend to slow down the onscreen action.

I also disliked having to negotiate the Softlock security code every time I donned my flying goggles. Like *Jet Set Willy* the game comes with an numerical grid which must be consulted prior to entering your Lancaster. At least this version isn't colour coded and so doesn't alienate those colour blind/black 'n' white TV owners. Small mercies eh?—**S.K.**

Prog: NIGHT GUNNER
Maker: DIGITAL INTEGRATION
Machine: SPECTRUM 48K
Format: cassette
Price: £7.95
Graphics: KK
Playability: KK
Addictiveness: K
Overall: KK

THIS YO-YO NO NO-NO

I sit here with a new game in my hand. A small, rather unimpressive gold package, with what looks like a kangaroo on the front. On the back is inscribed the immortal legend, "probably the finest graphics ever programmed into a game on the BBC". Oh yeah? And how many times have we heard that before? Hang about . . . HANG ABOUT. These really *are* the finest graphics ever seen in a BBC game! Traditional block characters make a hasty departure via the window, enter stage right a new generation of cartoon type characters, with an almost filmic quality about them. The secret is Mode 1 hi-res graphics — more detail than the usual Mode 2 rubbish.

Mind you the author's a nutter. Trogs with yo-yos signals white coats time for me.

The trog is the central character. He runs up and down ladders and jumps onto platforms, Donkey Kong-style, avoiding balls and daggers thrown by an unseen hand.

It's really something to see. The trog is Disney-like in character. He scuttles around the screen with his hands clasped behind his back to disguise his secret weapon — a . . er . . . yo-yo? — which he uses to great effect against his attackers.

This could set a new standard in BBC graphics. If you see it, buy it. — **K.A.**

Prog: FRAK
Maker: AARDVARK
Machine: BBC
Format: cassette
Price: £6.95 (approx.)
Graphics: KKK
Playability: KKK
Addictiveness: KKK
Overall: KKK

3-TIME LOSER

Three games for the price of one. This is too good to be true—or is it? How, one asks, do these people manage to supply three games for the price of one? Easy, they fish around in other people's dustbins.

All three games are for two players (one of them can be the computer). First there's *West World*, a Wild West shoot-out. Each player controls a cowboy who walks like a dog. Next is *Space Race*. Rather like a primitive *Rocket Raid*, the idea is to race the opposing spaceship through a tunnel and into a docking slot. There has been a great deal of speculation over the shape of the spaceship of the future but an ace of diamonds must be pretty low on the list.

Finally we are given *Kamikaze*. 'A suicidal onslaught'. The name of the company wreaking this havoc is Terminal Software. — **K.A.**

Prog: TRIPLE TOURNAMENT
Maker: TERMINAL
Machine: COMMODORE 64
Format: cassette
Price: £7.95
Graphics: nix
Playability: uh-huh
Addictiveness: pass
Overall: Deep 6

TWANG!

Not exactly hip but certainly hot! After a couple of notable duffers (*Eskimo Eddie, Pogo*) Ocean return to form with *Cavelon* — a quite superb maze game.

Christian Urquart, author of the best selling *Kong* and *Hunchback* for the Spectrum has excelled himself here with this infuriating but compulsive medieval quest.

As a portly knight you must gird your loins and waddle bravely through the portals of the dread castle Blah in order to rescue the incarcerated princess Guinevere. There are six levels to traverse all of which boast considerable peril. (She had better be worth it.) To move between the floors you need to collect the portions of door which have been scattered about the maze. These portions are guarded by a host of trigger-happy archers who'll do their level best to deflate your ardour. Only the mystical aura of the legendary Excalibur can protect you and even then only in bursts.

Upon completing each level a little graphic routine depicts your triumph. Although there's a comprehensive joystick option I opted for the more definite feel of the keyboard. Well, if you're gonna spend days on a game you might as well get comfortable, eh—**S.K.**

Prog: CAVELON
Maker: OCEAN
Machine: SPECTRUM 48K, COMMODORE 64
Format: cassette
Price: £5.90
Graphics: KKK
Playability: KKK
Addictiveness: KK
Overall: KKK

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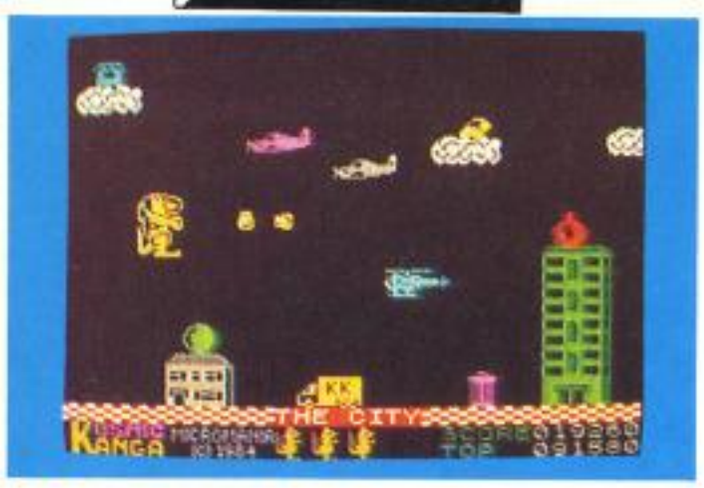

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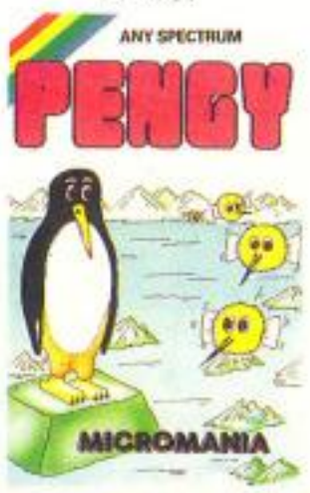

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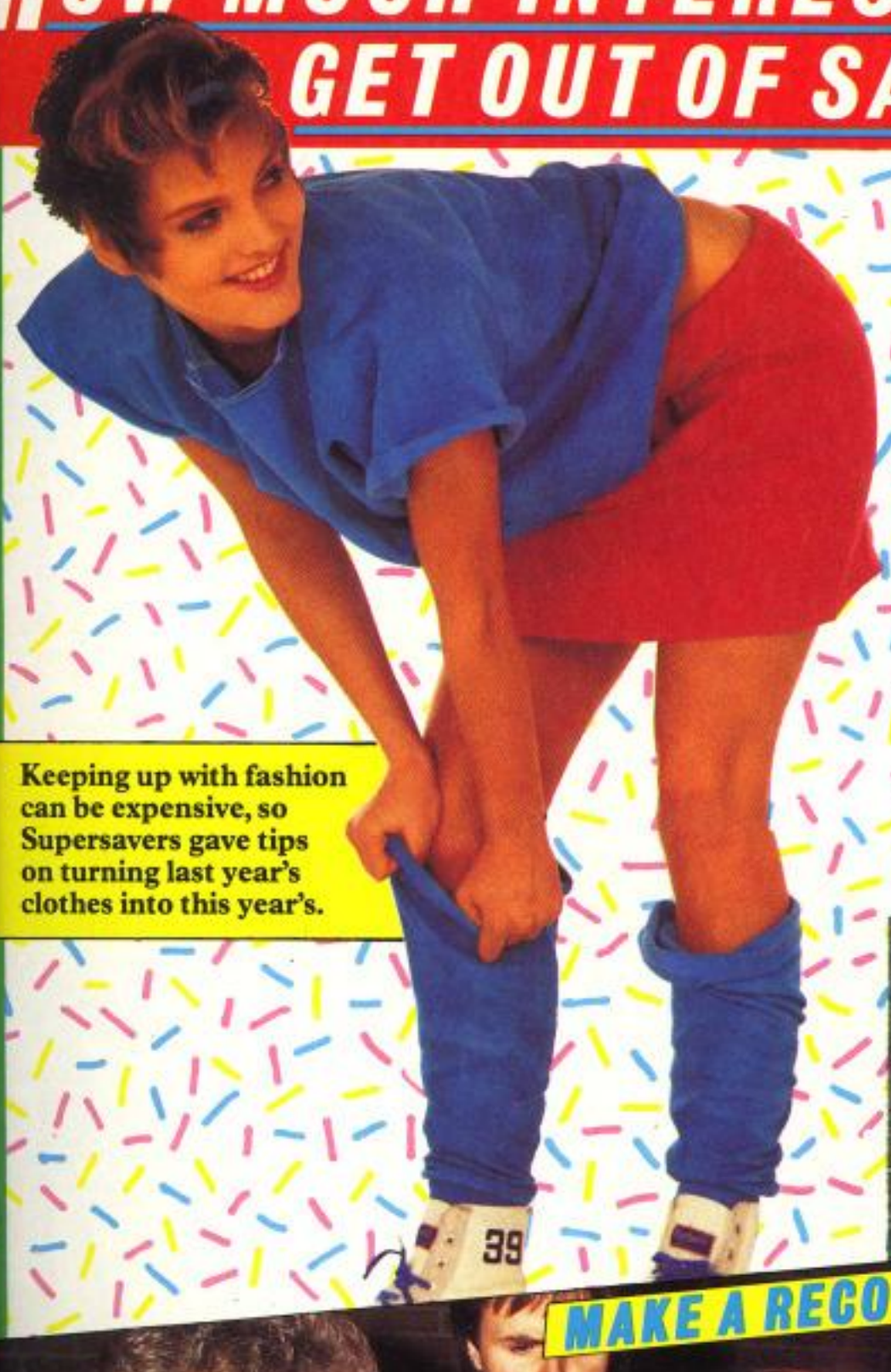

Keeping up with fashion can be expensive, so Supersavers gave tips on turning last year's clothes into this year's.

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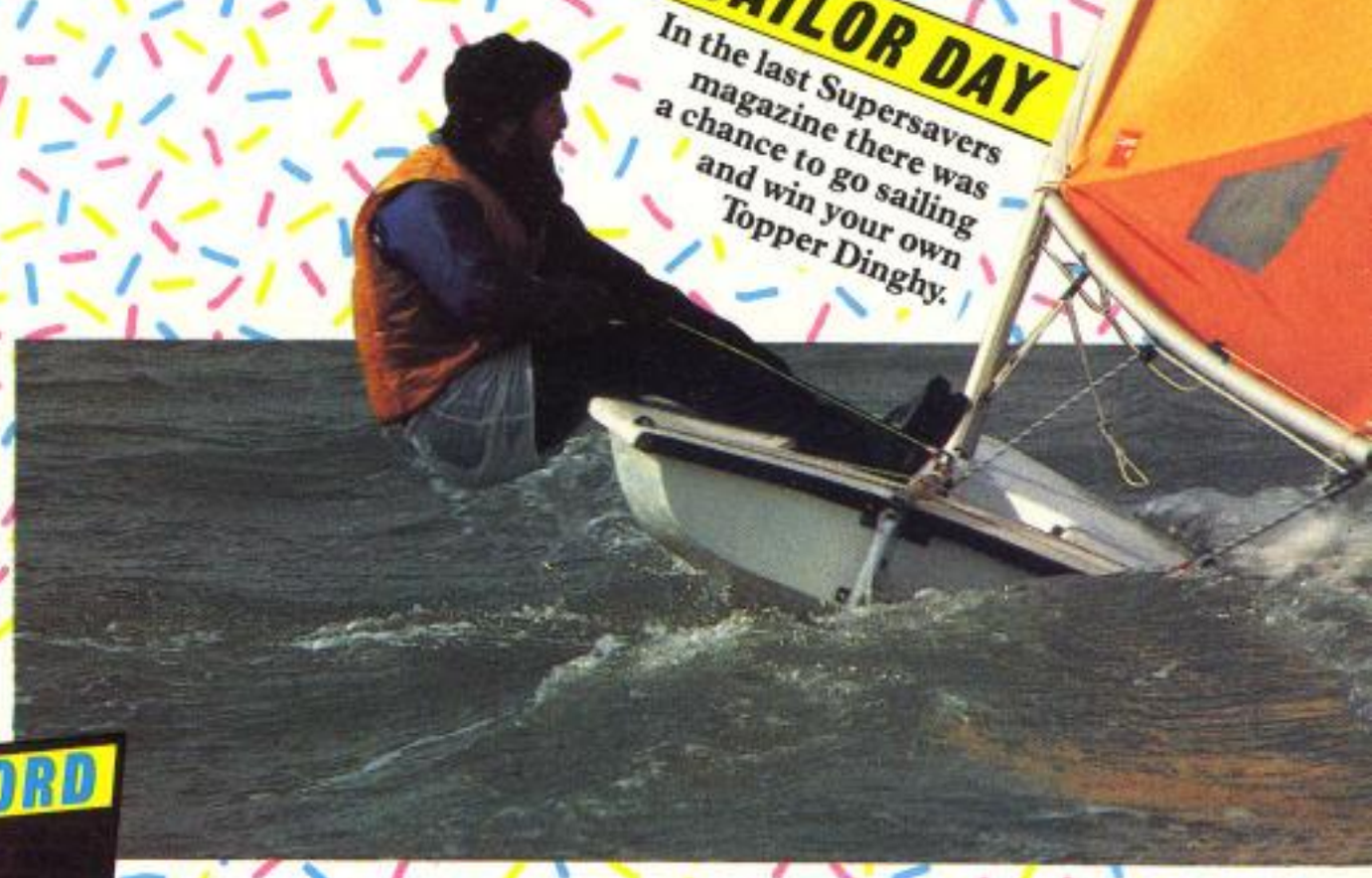

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Lynn Hoole, winner of our songwriting competition, not only had her song recorded in a top London studio. She also flew to New York to see her record being pressed.

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THE GLORY OF THE RAJ

RAJ SINGH got the break millions only dream of — a part in *Indiana Jones and the Temple of Doom*, mega-adventure and long-awaited sequel to Steven Spielberg's *Raiders of the Lost Ark*. In the movie, he plays the sinister Little Maharaja of Pankot.

Indiana Jones (Harrison Ford) is entertained in the Palace of Pankot by said little Maharaja (Raj Singh) — bejewelled, primped and lacquered in his fabulous costume. Raj holds court with impeccable hospitality and charm. That's until Indy stumbles across him at work one evening, participating in the revival of an ancient and evil sect, in which the Goddess Kali demands human sacrifice . . .

The satin-clad Satanist is now back at school (in Ealing!) and the only beastly thing about him is his Dragon 32, bought with movie earnings.

He prefers adventure games, and drinks Coke, not blood.

"Steven Spielberg, Le Huy Quan (Short Round) and I played the arcade machines at Elstree studios together during the breaks in filming. Steven liked *Pole Position* and *Dig Dug*. He was very, very good. He fixed the machines so that we didn't have to pay to play.

"Being an actor is not my real ambition. I'm really interested in computing and want to work on the business side. Acting would be my major hobby.

"Making the film was lots of fun and a real experience. The set for the actual Temple of Doom was so vast and extravagant I could hardly believe it. I was nervous at first when it came to my part, but Steven was so nice that I soon forgot about that."

THE GREEDY DWARF/ Goldstar/BBC 'B'

In this text-only adventure, King Arganda — the Indomitable — has had his crown jewels nicked by a dwarf — the Greedy and Loathsome. The adventurer who risks all to recover the missing rocks will be rewarded with fame and glory.

"The Greedy Dwarf is the most intellectually satisfying of all the games I played. The text reads as well as a good novel — and that makes a change. This is really important because you very quickly begin to build up a picture of the king's castle in your mind's eye. All the same, for myself, it's a case of 'what good is a book without pictures?' I enjoy graphical adventures most of all."

QUETZALCOATL/ *Virgin*/ 48k SPECTRUM

QUETZALCOATL *is a real Indiana Jones-style adventure. Raj looked a bit peeved with the prospect of another maze game, but once he got started rapidly became involved. Instead of the usual bird's eye view, our guest found himself inside the scrolling 3D tunnels of the maze. As in the Temple of Doom, directional dyslexics stand to lose not only their way but their lives!*

"Did I like *Raiders of the Lost Ark*? You bet! My sister and I saw it about seven times! Getting chosen for the sequel was a dream come true, and I certainly like this adventure. The display is classy and exciting and you get right into the adventure first. The text's entertaining too. Especially when you try to pronounce 'Huitzilopotchli'."

THE PRIZE/ Arcade/ 48k SPECTRUM

THE PRIZE is your actual maze game. The quest here involves putting the three types of Guardian under heavy manners and collecting the vital 'code pods' in the correct order in order to progress through the levels. Getting to the central maze chamber might give you even more than a gloat — Arcade are offering £5,000 cash money for a snapshot of the final screen. Could this be the final winkling of the walnut of life? Raj didn't think so.

"I think it's a real cheat. For starters it's too much like Berserk, and the graphics are poor and gaudy to the point of naff. It may have a few more screens, but it's basically a shoot 'em up, not what I'd call an adventure. The money is just a gimmick to entice you into playing what is basically an uninventive game. Even money won't make you play a dull game. I think it's boring."

VALHALLA/ Legend/ CMB 64

VALHALLA *has been variously described by resident square-eyed adventure hacks as "state of the art", "the best adventure game in existence" and "a real pain". Raj tuned into the epic and watched the 36 independent characters come and go, eat, drink and die. Valhalla plays on alone — like a movie.*

"You'd obviously need a really long time to even start to play this game properly. The graphics have a lot of character and the locations have atmosphere. But there are just so many characters to learn about. You'd have to become an expert in their individual natures in order to progress. It doesn't help that you have no time to think before you move, as the game will go on its own way without you, and you have to make snap decisions. It's a very clever game indeed — in fact I think it's a bit too clever, and I don't really like it."

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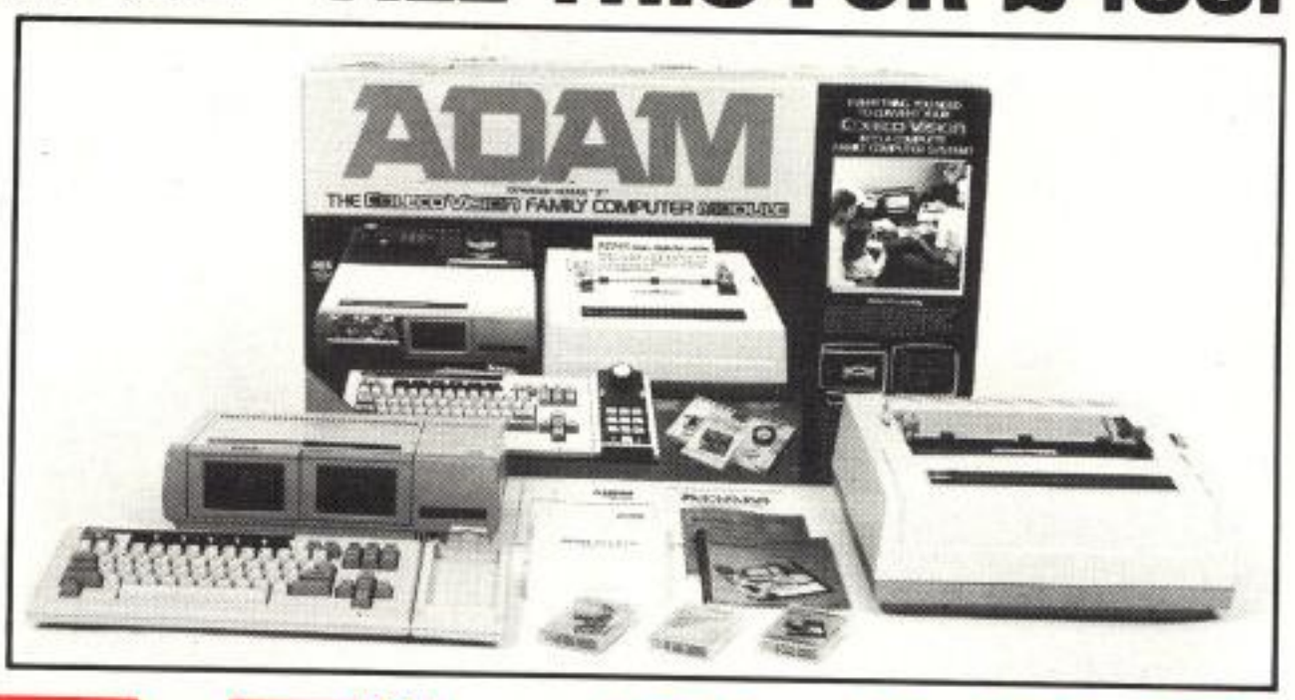

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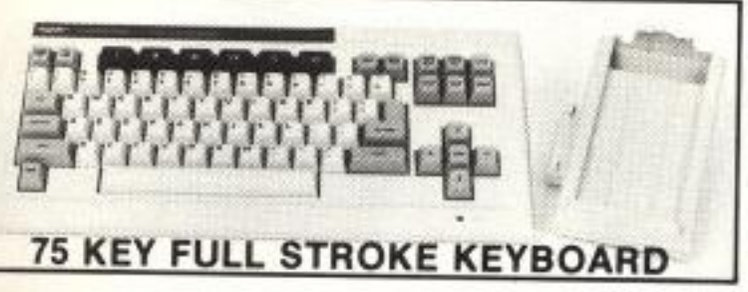
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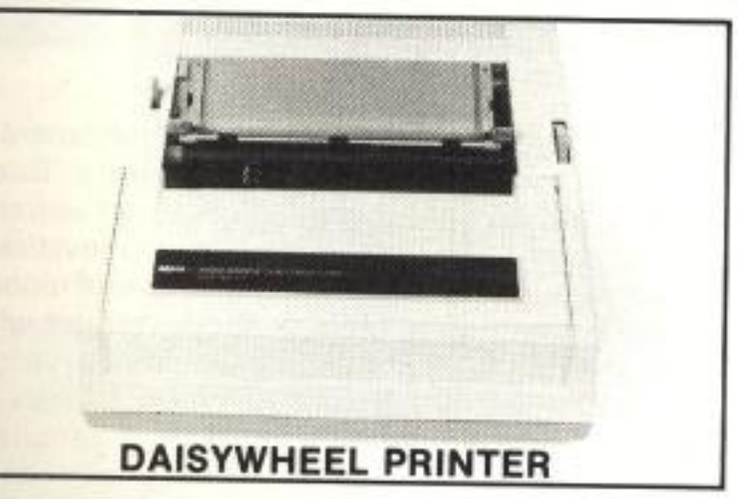
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If you're looking for real value in a computer system, one which can handle anything from serious Word Processing to enhanced Colecovision style video games such as Buck Rogers, look no further. The Coleco Adam is here with a package which will make you wonder if you're dreaming when we tell you about it. A price breakthrough in computer systems, Adam is comprised of an 80K RAM memory console with a built-in 256K digital data drive; a professional quality, stepped and sculptured 75 key full-stroke keyboard; a letter quality daisywheel printer and a full word processing program built into the Console. Two additional pieces of software, Smart BASIC and also 'Buck Rogers - Planet of Zoom' (the ultimate in advanced video games), are included as well as a blank digital data pack. Adam can be used with any domestic colour Television set.*

MEMORY CONSOLE/DATA DRIVE: *The heart of the Adam system is the 40K ROM and 64K RAM memory console which combines with the 32K ROM and 16K RAM in Colecovision to give you a total of 72K ROM (including 24K cartridge ROM) and 80K RAM (expandable to 144K). Built into the memory console is a digital data drive which accepts Adam's digital data packs, a fast and reliable mass storage medium that is capable of storing 256K of information, that's about 250 pages of double spaced text! The console is also designed to accomodate a second optional digital data drive.

FULL STROKE KEYBOARD: The Adam keyboard has been designed as a professional quality keyboard that combines ease of use with an impressive array of features. It is stepped and sculptured for maximum efficiency and has 75 full stroke keys which include 6 colour coded Smart Keys which are redefined for each new application; 10 command keys which are dedicated to the word processing function, and 5 cursor control keys for easy positioning of the cursor at any point on the screen. You can attach a Colecovision controller to the keyboard to function as a numeric keypad for easy data entry. It can also be held like a calculator, a feature which makes working with numbers particularly easy. The joystick part of the hand controller can be used in the same way as the cursor control keys, to move the cursor around the screen.

LETTER QUALITY PRINTER: The Smart Writer letter quality daisywheel printer is a bi-directional 80 column printer which prints at a rate of 120 words per minute. It uses standard interchangeable daisywheels, so a variety of typestyles are available. The printer has a 9.5 inch wide carriage for either single sheets or continuous fan fold paper and uses standard carbon ribbons. It is comparable to many printers which cost as much as the total Adam package. The printer can be used either with the Adam's Smart Writer word processing program or as a stand alone electronic typewriter.

BUILT-IN WORD PROCESSOR: Adam comes with Smart Writer word processing built-in. This program is so easy to use that you only have to turn the power on and the word processor is on line and ready to go. Detailed instruction books are not necessary as the Computer guides you step by step, working from a series of Menu commands. It enables you to type in text, then completely edit or revise it with the touch of a few keys. Changes are readily made and a series of queries from the computer confirm your intentions, so that you can continuously double check your work as you type.

COMPATIBILITY WITH COLECOVISION: By using high speed interactive microprocessors in each of the modules, the Coleco Adam is designed to take additional advantage of both the 32K ROM and 16K RAM memory capability in the Colecovision. If you do not already own a Colecovision Console (£99 inc VAT), then you will need to purchase this when you initially purchase your Adam Computer package (£499 inc VAT), making a total purchase price of (£598 inc VAT).

WHAT IS COLECOVISION: Colecovision is one of the worlds most powerful video game systems, capable of displaying arcade quality colour graphics of incredible quality on a standard Colour TV set. The console (see picture bottom left) accepts 24K ROM cartridges such as Turbo and Zaxxon and is supplied with the popular Donkey Kong cartridge and a pair of joystick controllers. Colecovision has a range of licenced arcade hits available such as: Gorf, Carnival, Cosmic Avenger, Mouse Trap, Ladybug, Venture, Smurf, Pepper II, Space Panic, Looping, Space Fury, Mr Do, Time Pilot, Wizard of Wor and many others. So there you have it, Adam plus Colecovision the unbeatable combination. Send the coupon below for your FREE copy of our 12 page Colour brochure giving details on the complete Adam system.

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STICKS MAY BREAK...

... Or do their bearings in, but nothing fazes JOHN CONQUEST. He's got plenty more to fall back on

LOOK THROUGH the computer mag ads and you'll see that there are a lot of people trying to sell you custom joysticks, all convinced that theirs is the real McCoy. "Arcade action", "instant response", "high quality", "professional" — writing joysticks ads looks like a doddle, but what we're concerned with here is the rather more difficult business of actually buying one.

Obviously the first consideration is compatibility, whether or not the widget will fit your machine. Virtually all the joysticks currently available are designed to fit Atari video & computer systems and Commodores, though they'll also work on CBS's Colecovision videos (you'll still need a standard controller in the second port to make the games run). Wico supply adaptor leads for Apple and Radio Shack marchines and, like Suncom, for Texas Instruments TI 99/4As. A rare exception is Suncom's *Stike Commander* (£16.95), made specifically for the BBC or Dragon, though Kempston are also planning a BBC stick.

VEXED

The vexed question of interfaces is one on which you'll need expert, and hopefully disinterested, advice. For Spectrums, the *Kempston* at £11.50, which will accept any stick, has only one drawback, a single port. For BBc's the *Wizard* at £14.95 is recommended. The basic rules are not to get joysticks with plugs jury-rigged to fit machines they weren't designed for (they don't work too well) and to avoid anything that needs a program to make it run.

A less obvious but vital consideration is the size of your hand. Believe me, that's important. Many of the sticks I tried simply weren't comfortable, but might well suit someone with smaller, or indeed larger, hands and this applies especially to shaped grips.

Unfortunately a lot of shops stock a very limited range, usually Quickshot IIs or Point Masters, so for this and many other reasons it's well worth while going to one of the big computer shops and trying your hand at their range. Lion House in London's Tottenham Court Road, for instance, has 17 models ready to be hooked up for demonstration, and the Silica shop in Sidcup reckons to have at least 15 of a possible 26 in stock at any given time. Even if you just try them for feel, you'll notice the differences.

Ask yourself realistically how much you're going to use a stick. Price differences are almost entirely down to quality of construction and the cheap ones simply aren't up to a lot of punishment. If you're heavily into 'Decathalon', to take an extreme example, a cheap joystick is going to be a waste of money. With joysticks you get what you pay for with a vengeance, and Atari owners at least should calculate whether they're really improving on the standard issue sticks.

OBVIOUS

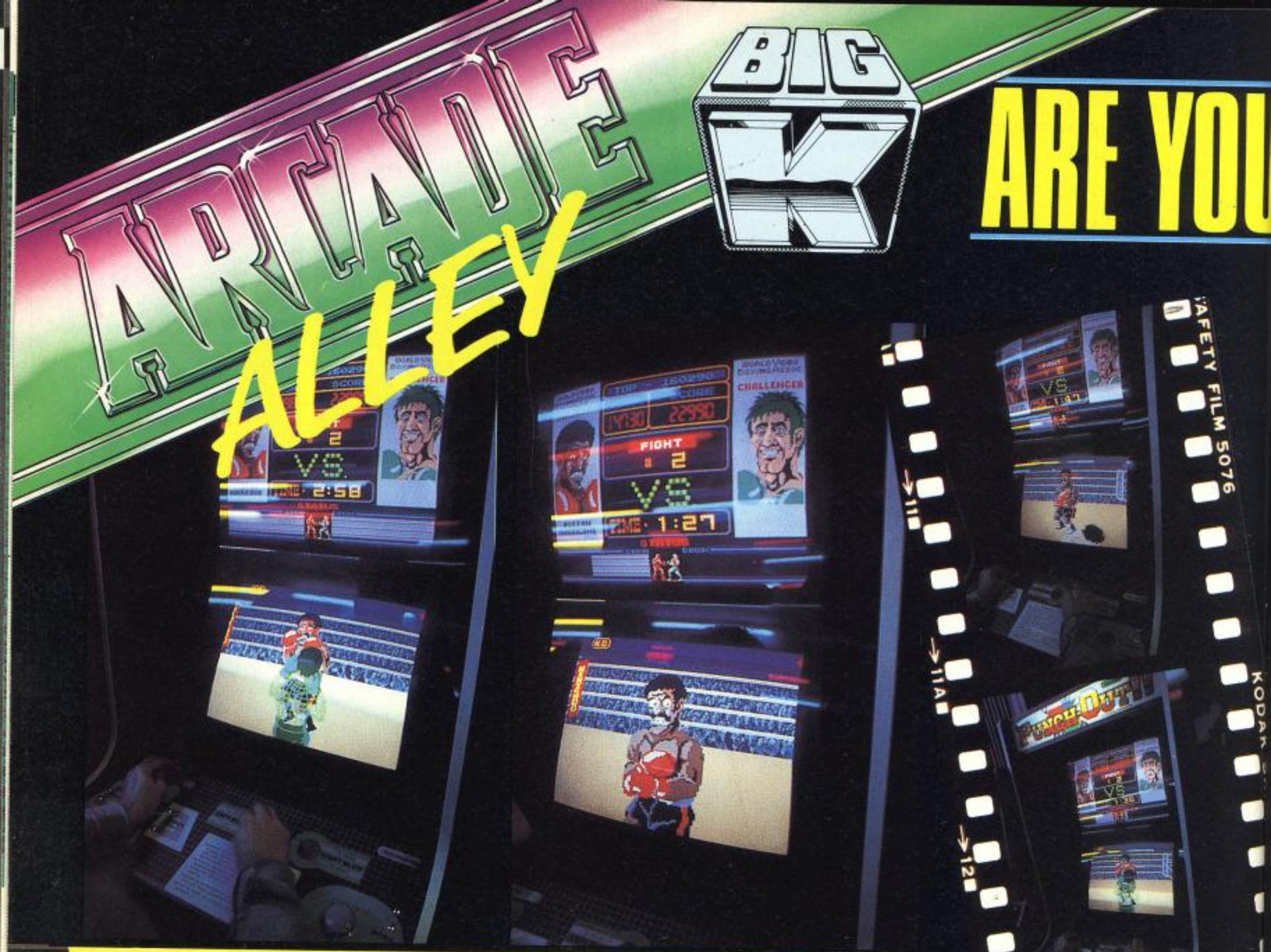
The most obvious differences between cheap and not so cheap sticks are whether or not they have steel shafts, the grade of plastics (high impact or extruded) used and the general solidity of construction. What you don't see is the guts, which is what really sorts them out. Very few sticks have microswitches (though Kempston are rumoured to be using them in all future models), but the leaf switches found in most vary considerably in quality and the cheap ones have very limited lives. Also

```
1010 A$="...RED ALERT...CITY UNDER ATTAC
K...USE CURSOR TO AIM...SPA
CE TO FIRE"
1020 PLAY1,0,4,500:MUSIC1,3,1,0
1030 DOKE£26B,£010A
1040 CLS
1050 FORZ=1TO102
1060 PLOT0,11,LEFT$(A$,38)
1070 PLOT0,12,LEFT$(A$,38)
1080 A$=MID$(A$,2)+LEFT$(A$,1)
1090 WAIT8:NEXTZ
1100 PLAY0,0,0,0
1110 RETURN
1500 FORZ=1TOLEN(A$)
1510 CHARASC(MID$(A$,Z,1)),0,1
1520 CURMOV6,0,0:NEXTZ
1530 RETURN
2000 ZX=46080
2010 FORV=1TO6
2020 READC:D=8*C
2030 FORQ=0TO7:READF
2040 POKEZX+D+Q,F:NEXT
2050 NEXT
2060 RETURN
3000 DATA111,255,255,255,255,255,255,255
,255
3010 DATA112,0,3,3,3,3,7,7,7
3020 DATA113,96,96,96,96,96,255,255,255
3030 DATA114,0,0,0,0,0,255,255,255
3040 DATA115,96,96,96,96,99,99,99,255
3050 DATA116,8,8,8,8,28,8,20,20
```

ARCADE ALLEY

BIG K

ARE YOU



IF YOU, like me, have trouble fighting for air in most arcades then Nintendo's *Punch Out* could be the work-out you're looking for.

Set in the grime and gore of the boxing ring, *Punch Out* brings you a blow-by-blow encounter with a series of ugly-mug pugilists — all of whom are intent on stopping you as you K.O. your way to the Heavy-weight throne. At each level the going gets harder, as the fights get longer and the fighters get stronger (and bigger and faster and meaner . . !)

The games graphics are ruggedly simplistic with little more than the ropes, the ref and the canvas on show (though the latter is the last thing you want to see!) The atmosphere is heavy and the vox-box grim as it shouts 'Let's keep it clean . . . Now come out BOXING!' Visually you're represented by the ingenious bare-bones (literally) of a 3-D fighter who reacts with the speed of light to your every whim. Capable of nearly every move in the book (bar head-jobs of course) you use a combination of buttons and joy-stick to defend and attack in the finest Marquis of Queensberry tradition.

The joystick enables you to weave your way through the round whilst keeping your guard up or down as the case may be. The buttons offers you the chance of counter-attack with left/right blows to the head or body. And when the time is right you get the chance to take a decisive K.O. blow with either a thundering uppercut or a murderous hook.

The first opponent is a measly wimp of a man called Glass Joe — but even he poses a threat until the right combination of bobbing and boxing is achieved — a matter of juggling thumb and joystick. Every punch thrown is greeted by cheers from the crowd and orders from your corner — 'body-blow, body-blow, jab, jab, UPPERCUT!!' (it can get pretty heavy when you're being egged on like that . . .) Your success, though, depends on the power-meter and the status-meter. The latter indicates (with alarming speed) your/the champ's respective stamina — a good series of punches and you can be on for a winning blow; a drop of guard, a kick right from the Champ and you're out of stamina and on the deck. The former shows your punching power on a gauge which rises steadily as you attack and flashes 'K.O.' when you've got your man on the ropes — miss it and you're back down the scale and in danger of a quick rally by your foe. The drawback unfortunately on both of these is their positioning — if you've got your chin down and your guard up then it's hard to check your situation.

As in a real fight it's all against the bell, with the rounds lengthening as the fights get harder. If you fail to K.O. your man within the bell then you're out — there's no chance of a points decision in this game! Between rounds your next opponents vital statistics (and we're not talking 38-24-36 here) are flashed up (though far too rapidly for my liking) showing nationality, world ranking, weight, etc. and then it's back into the ring.

For far too long ten-stone weaklings like myself have been knocked senseless by great muscle-bound idiots so it's a relief to find *Punch Out* offers a little hope away from the real fisticuffs. In just five sessions (at thirty pence a throw) I had personally floored such brutes as Glass Joe (rated ninth in the world — but just a sucker for my glove) Piston Hurricane and Bald Bull. And I was hardly sweating. Charles Atlas? Rocky? Forget it . . . I was a contender!

OUREADY FOR THE BIG K.O.?

'Cos if you're not, stay well clear of Nintendo's *Punch-Out*. DAVID DORRELL sags to the canvas with a streaming nose and a ruptured gut, while a smirking DAVID CORRIER snaps busily away from the comfort of his ringside seat.

PUNCH-OUT's HEAVYWEIGHT HIERARCHY
(in ascending order of pugilistic prowess)

GLASS JOE — French, weedy and rated ninth in the world.

PISTON HURRICANE — Cuban, hard and a bit of a heel, rated eighth in the world.

BALD BULL — as mean as Mr. T and twice as fast, rated seventh.

KID KWIK — American and faster than a McDonalds at getting you down.

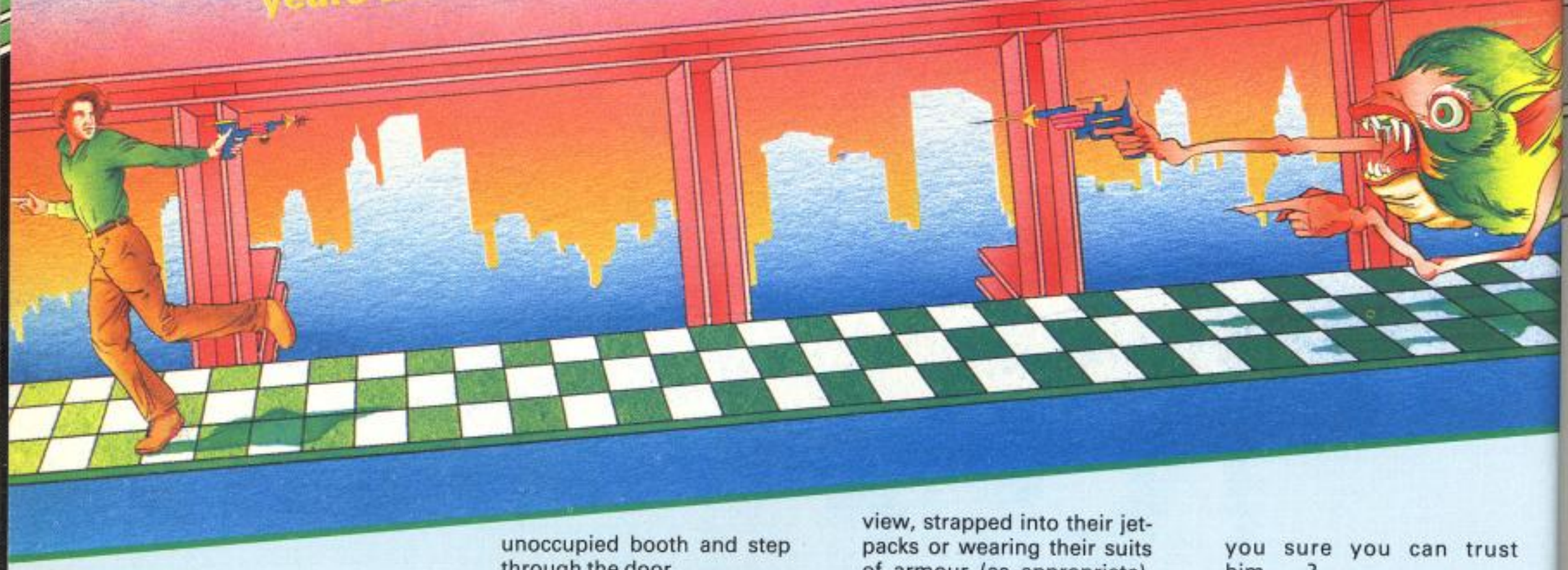
PETER PASTA — Italian and smarmy with it — a walking Mafia man.

MR. SAND MAN — World champ, American and guaranteed to put you to sleep but fast.

ARCADE ALLEY

ARCADE of the FUTURE?

In the USA they're saying that Arcades are deadsville, Dad. Yet at the same time the technology has never seemed more promising. Assuming the genre survives, what will a typical arcade look like in ten years time? TREVOR MENDHAM speculates . . .



EVER SINCE the arrival of the first *Space Invaders* machines just a few short years ago, the quality and realism of arcade games has been improving at an exponential rate. The games we play now would have been inconceivable in those early days. And yet despite this rapid advance I believe that we have not yet come anywhere near the form's ultimate potential. The video game of tomorrow will be as far removed from that of today as *Dragon's Lair* is from, well, *Space Invaders*. For this reason I'd like to speculate on the shape that this ultimate game of tomorrow might take.

In the arcade of tomorrow, you are unlikely actually to see anybody playing a game! Rather, there will be groups of half a dozen or so enclosed 'booths' clustered together, each just large enough to contain one player. Above each set of booths, a master screen will show a sample of the game, along with instructions, details of price and the names of the high scorers.

On finding a game that takes your fancy, you place your money (probably a five pound coin) in the slot of an unoccupied booth and step through the door.

The booth is circular, with the controls mounted on a stick set in the floor which can be adjusted to suit your height. In the more uptown arcades, there may even be a chair for you to sit on during the game — though true video experts are likely to reject this as a distraction. You close the door and press the start button. The booth goes dark, and you enter into another world . . .

Reality

The canvas on which the action takes place is not just a small, flat TV screen, but instead consists of the whole of the wall in front of you! With full 180 degree projection you really feel *part* of the game, rather than just an outside observer. What is more, the pictures are not just computer graphics, but are generated by laser disc technology and are based on real photographic material. When combined with quadrophonic sound, it becomes extremely difficult to remember that it is not real but merely an electronic fantasy.

The scene set — be it a view into deep space or an ancient castle — the game begins as your opponents come into view, strapped into their jetpacks or wearing their suits of armour (as appropriate). Now the reasons for the clusters of booths becomes apparent, for whilst some of the enemy are controlled by the computer, the rest of your opponents are your fellow players! And you have no way of determining which is which! Until, that is, you get close enough to make out their faces. For the 'men' in this game are not just anonymous graphic blobs, but all have faces and features. Those belonging to the computer will have those chosen randomly from a stock of photographs, whilst those controlled by players will use photographs generated by the camera hidden in the wall which is constantly observing you. And of course, just as you can see the faces of the others, so they can see you — and, if you are close enough in game terms, the microphone in your booth will allow you to talk to each other!

Friend or Foe

Of course, if you have recognised one of your opponents as a friend you must then decide whether to work together or whether to kill him for the points. And if you decide on an alliance, are you sure you can trust him . . . ?

Does that scenario have you drooling? Well, as any science fiction reader will tell you, that's just the start — there are many more possibilities, leading up eventually to direct mental stimulation and game control. However, I have deliberately limited my speculations for one very good reason.

It Exists

That is that everything I have mentioned above is possible today. The technology already exists, it is simply a case of bringing it together. We have had the ability to produce the hardware for a long time — it is no more advanced than that of a flight simulator. As for the software, well, there are professional, industrial programmers who are more than capable of handling the complex graphics manipulation required, whilst when it comes to the games side there is a vast pool of talent currently cutting their teeth on the home computers. The game I've described could be in the arcades within two years. All it would need would be an entrepreneur with a awful lot of capital — and even more guts!

Midsummer is never a very good time for computer companies, but this July was disastrous for two state-of-the-art operations — America's Atari and Britain's Imagine Software. Deeply in trouble, short of money and beset by the fruits of several bum decisions, both operations all but closed down in their present form six weeks ago. What went wrong, what are the lessons for others, and can anything be salvaged from the wreckage? TONY TYLER assesses . . .

AFTER THE CRASH

REQUIEM AT SUNNYVALE

Six weeks ago an American businessman named Jack Tramiel put 185 million dollars on the table under the noses of Mr Warner and his Brothers and a few minutes later was walking out of there with a company called Atari metaphorically under his arm. Tramiel had also guaranteed to pick up Atari's debts — valued at three times the cash price-tag. All the same it was a chickenfeed purchase. By selling off the lion's share of Atari, Warners had put a stop to a miserable five years of steady losses and marketplace disappointment. What went wrong?

The answers must be, in no particular order: terrible management decisions; the existence of CBS-Coleco and the existence of Commodore International.

Atari is the company who, more than any other — certainly in the United States — began it all. It has been losing money almost ever since, certainly since founder Nolan Bushnell sold off his Sunnyvale operation to Warner and the Brothers more than five years ago for a multi-million sum. Despite an excellent early hardware design lead, high manufacturing standards, and a second-to-none reputation as a games concern — not to mention a peerless coin-op division that has always been a pioneer (and indeed which Warners have hung on to) — the company's men-in-charge then became confused over and over again. The way in which the US market at first shaped up nicely for the switch from games machines to computers, then changed its mind — then partly changed it back again and got interested in proper computers after all — led Atari's management to make a series of ghastly wrong decisions, blunders that unfortunately cost the company money and credibility at a time when the lead due to the Bushnell years was evaporating rapidly.

ATARISOFT STUFF: a move along the right lines, but it came too late.

In hardware, the company had got off to a good second leg (the VCS being its first) with the 400/800 series, 6502 machines ahead of their time in many ways, with sprites, 256 colours, RAM up to 48K and already-available disc drives and other peripherals. Plus a vast, quality library of software in ROM form (not all of them were VCS upgrades). This range established a good user base in the USA; and as it was considerably better than anything up to Apple II status, dominated the lower-price market. Commodore's elderly PET and low-RAM VIC-20 paled alongside the Atari models. At the same time the company were committed to produce full-time for the seemingly everlasting VCS.

The ball was first fumbled 15 months ago, when Apple upgraded the II to the IIe, Commodore introduced the "Vic-64", and at the same time it was becoming clear that Atari would soon have to choose between the videogame and computer camps. There is little doubt that there were voices in the company raised at this time arguing for an all-out computer strategy. Unfortunately there still were (and are) all those VCS owners out there. The company decided to continue pursuing both at the same time. It must have seemed a sane enough strategy then; though in retrospect it seems clear that it served only to over-expand the company and spread its resources still more thinly, at a time when research projects were already promising to take Atari further and further into more exciting and expensive areas than low-

grade domestic computer manufacture. AtariTel — a grandoise networking plan — was hatched (and lingers yet). Widgets like AtariLab, and the usual controller additions — trackball, graphics pad, and so on — proceeded more or less to plan. All these had to take up a share of the overall company resource. And Atari's prices made punters grumble.

The next wave of hardware (Spring, 1983) was dis-

THE 2600 VCS. It made Atari . . .

astrous: the 5200 game system in tandem with the 1200XL computer. The 5200 was a re-boxed 400 computer with a widely-disliked joystick (it was never on sale in the UK), distinguished also for near-total incompatibility between it and the 2600VCS, for whose owners' sake the whole project had been laid on in the first place.

The 1200XL was a computer, another machine featuring 100% incompatibility with any other Atari product. In retrospect it emerges as an early prototype for the XL range and should never have been marketed at all. The 1200XL was ditched shortly after launch but the 5200 turkeys on. Now, of course, it has been joined by yet *another* game system, the PRO 7800, compatible (at least) with the VCS. So *that* mistake has, at last, and much too late, been put right. And Atari finally has a product with which to make one last, despairing counterattack against Coleco.

It was when Atari was first reeling away from the initial Coleco thrust into its traditional turf that one began to hear odd stories filtering out of Ca. concerning Atari's desperate plight re: unsold VCS ROMs. As legend unkindly had it, the bulk of these were copies of those very Lucas/Spielberg movies — *Raiders of the Lost Ark* and *E.T.*, particularly, as it happens, *E.T.* — for which Atari had allegedly paid such enormous sums. As Parker have also discovered, good films as spin-offs are lousy compared to good arcade rights (though if *these* should *also* be based on films then you have a different story). *Raiders* was actually a thoughtful game which made much use of the VCS's capabilities; its trouble was it was too difficult. So it, and *E.T.*, simply sat on shelves up and down America until storekeepers refused to take any more Atari cartridges unless the company helped them unload the deadbeats. Eventually 450,000 *E.T.*'s were assembled, driven out to the New Mexico desert in a convoy of twenty-tonners, and then buried — with the aid excavators and earth-movers — in a gigantic hole in the ground not far from White Sands nuclear testing site; all under the silvery light of a Western moon. It's a nice story , anyway.

Coupled with news of disasters real and embroidered came the news that the company had bombed out on the Dow Jones for the second year running. The computer switch seemed to be happening after all, just when Atari has lost its edge, and now Commodore, with its 64 model, was making the running. Legal gripes with Texas Instruments and the software houses Activision and Imagic — the first of a whole series of energy-sapping legal battles — distracted the company. At this time the XL models were only just appearing. AtariTel was getting nowhere, other widgets were more or less on time — but overall Atari wasn't getting enough of the new action to do more than slow down its rate of obvious decline. Staff were cut. Whole departments went, budgets were cut to the bone. Most of the manufacture was shifted to Taiwan and South Korea.

Alan Alda was fired.

. . . But the 5200 nearly broke them.

With hindsight it seems that the company was more or less on course and conceiving the right ideas until the need for a 400/800/VCS general upgrade became obvious. Then the company wasted a whole critical year floundering about with the 1200XL and the doomed 5200, while wasting its diminishing strength trying

The 800XL: a good machine and a good range — but again, it didn't make up for lost ground.

to maintain a presence everywhere else on the computer front. In fact, they are still a year behind — a year they don't have.

Inevitably this year's Dow Jones has been as bad as any in the past three years; and for some months before Tramiel the company had been rumoured to be up for sale.

Similarly the company are unlikely to abandon, after all this time, the 20 million VCS owners. (This of course is a partial argument for the 7800 as well.) Therefore they must keep some software development. This seems to mean a computer software division as well, so those jobs are probably safe too. This in turn supports the idea of continuing the hardware . . . and so it goes on.

One area that must be taken care of is serious applications software. Atari machines have been relatively ill-served in the past in this area, and the computers have suffered in the marketplace as a result. The 64 is no better than the Atari as a games machine, and as a small business micro it only shows up well because of its software. Atari has never had this quality of business support; nor sought it, alas.

Above all the company has got to think international (AtariSoft is a good move) with all its heart — and this means bringing its prices heavily down across the board if it is to compete with Tramiel's old company, now emerging as *the* machine for the first-time buyer. Atari have already all but lost the videogame war with Coleco. Now, to survive at all, they must fight back, either there, or against Commodore in the computer market.

SHOWING NO MERSEY

THEY HAD the highest profile of any British software company, games or not; they had some of the ritziest offices in microdom; they had had a series of high-scoring hits and possessed even higher hopes for the future. Despite this (cynics will say, 'Because of this'), last month the mighty Imagine edifice all but crumbled into ruin, the first and (to date) most notable of Great British Software Disasters.

Putting aside for a moment the thought that the men at Imagine were not exactly top of the popularity stakes (the 'they brought it on themselves' theory, though how this works has yet to be convincingly demonstrated), the

The Imagine 'A' Team: now relegated.

virtual demise of this once-towering operation is bad news for everybody.

It's safe to say that Imagine's problems probably began over a year ago, with over-expansion, over-confidence and a few runaway egos wreaking havoc. The easy returns of the previous year (1983) had convinced many — not just Imagine — that this business is replete with easy pickings. Add to that the pronounced showbiz mentality in games software writing, and you have a situation where several seriously wrong decisions can be taken with the utmost of ease.

It now seems clear that the first major problem was an old favourite: overstocking coupled with a need for liquidity. Translated, that means duplicating too many copies of new games (and perennials), basing sales forecasts on a mixture of gung-ho optimism and overconfidence generated by previous, easy, high turnover.

The second major problem grew out of the first. As is now well-known (but was heavily denied at the time), just before last Christmas Imagine were secretly approached by the publishers Marshall Cavendish, famous for their 'part-works'. MC wanted to produce the ultimate how-to computer p/w — you guessed it, to be called INPUT — and as an incentive to buyers, they wanted to attach, to the cover of each issue, a freebie computer game or piece of instructional and entertaining software. Imagine tendered for the job and were given the contract.

What went wrong? There's no doubt that the in-house expertise of the company was, and remains, fully sufficient to the task. It seems (here Unkind Legend once again takes over) that Imagine spent the advance of several hundred thousand pounds (not £5 million as rumoured at the time) on motorbikes and the pop-star-style fast living . . . and woke up one morning to an acute case of deadline-itis. Here overconfidence again took over (it's said), and a load of substandard stuff was churned out very fast, and given to MC.

However by this time MC had a very shrewd idea of the state of the art and what they knew told them that the contracted-for games were simply not up to scratch. They rejected them outright — which left Imagine in the position fo having to repay the advance (around a quarter of a million). And INPUT went on sale without anything attached to the cover at all.

For Imagine, repayment proved so difficult that within a day or so their problems (exacerbated by poor security — see below) had become common knowledge. It now seems clear that an emergency aid package, possibly from a merchant bank, came up with the cash, short-term, but (like the IMF giving money to Mexico) imposed so many swingeing conditions concerning repayment and interest that if anything the company's real position grew actually worse.

The directors — Dave Lawson, Mark Butler, Bruce Everiss and Ian Hetherington (plus one other mystery backer, so far un-named) — appear to have banked all on a recovery plan based on the following three stages.

(1) Raise as much cash as possible on the sale of back-catalogue titles.

(2) Trim the overheads to the bone.

(3) Re-make the catalogue around the vaunted and much-hyped 'megagames' *Psclapse* and *Bandersnatch*.

(4) Take it from there.

(1) was partially implemented, not without major difficulty, later than had been hoped, and for a far lower figure than can have been wished (to a company called Beau Jolly, reportedly for less than £1.00 per copy). Incidentally, it is widely thought that Imagine's half-assed attempt to lower their prices across the board (to £1.95 from £6.95) at this time (shortly afterwards aborted, for reasons that were never very convincing) was an attempt to achieve (1). Alas, a move that, six months before, would certainly have rescued them, came too late . . .

The reduction of overheads was relatively easy, considering the high profile, the six Liverpool offices, the abundance of staff and the high living. In fact, it turns out that not all of the famous and expensive motor cars actually belong to the company and therefore count as capital assets. Many of the cars are leased . . .

Meanwhile, the main Sir Thomas Street office was closed, as were a couple of warehouses. Staff were laid off — especially bad news in Liverpool.

As for (3) the 'megagames', these remain an asset (and are duly being fought over by the survivors). It seems that by a combination of turbo-loading techniques and extra (dongled) hardware, the company were — are — on the verge of a new class of game altogether. Even so, as others are discovering (Hi, Ultimate!) the extra development time demanded by extra-good games costs money . . . cash the comany no longer had.

The can of worms first opened up by the Marshall Cavendish fiasco reached ugly fruition two months ago with a sudden, new crop of rumours concerning the company. It was said that one (or maybee two) of the directors had done a runner to the USA with a bag of money. Fist-fights were hinted at . . . Actually, it now seems as if Dave Lawson, the slight and quietly-spoken founder-figure/chief programmer, and Ian Hetherington, the bulky former finance director of Imagine *were* in California last month: to *raise* money! It also seems as if they weren't too successful, since the rumour's final form now has Lawson and Hetherington forming an entirely new company called FinchSpeed (assets: the megagames; the company cars), while Mark Butler, already immobilsed by a bike crash, has reportedly been relegated to a second-row forward's slot in the new outfit (against his will). Meanwhile Bruce Everiss, former Operations Director, has departed altogether for pastures new . . .

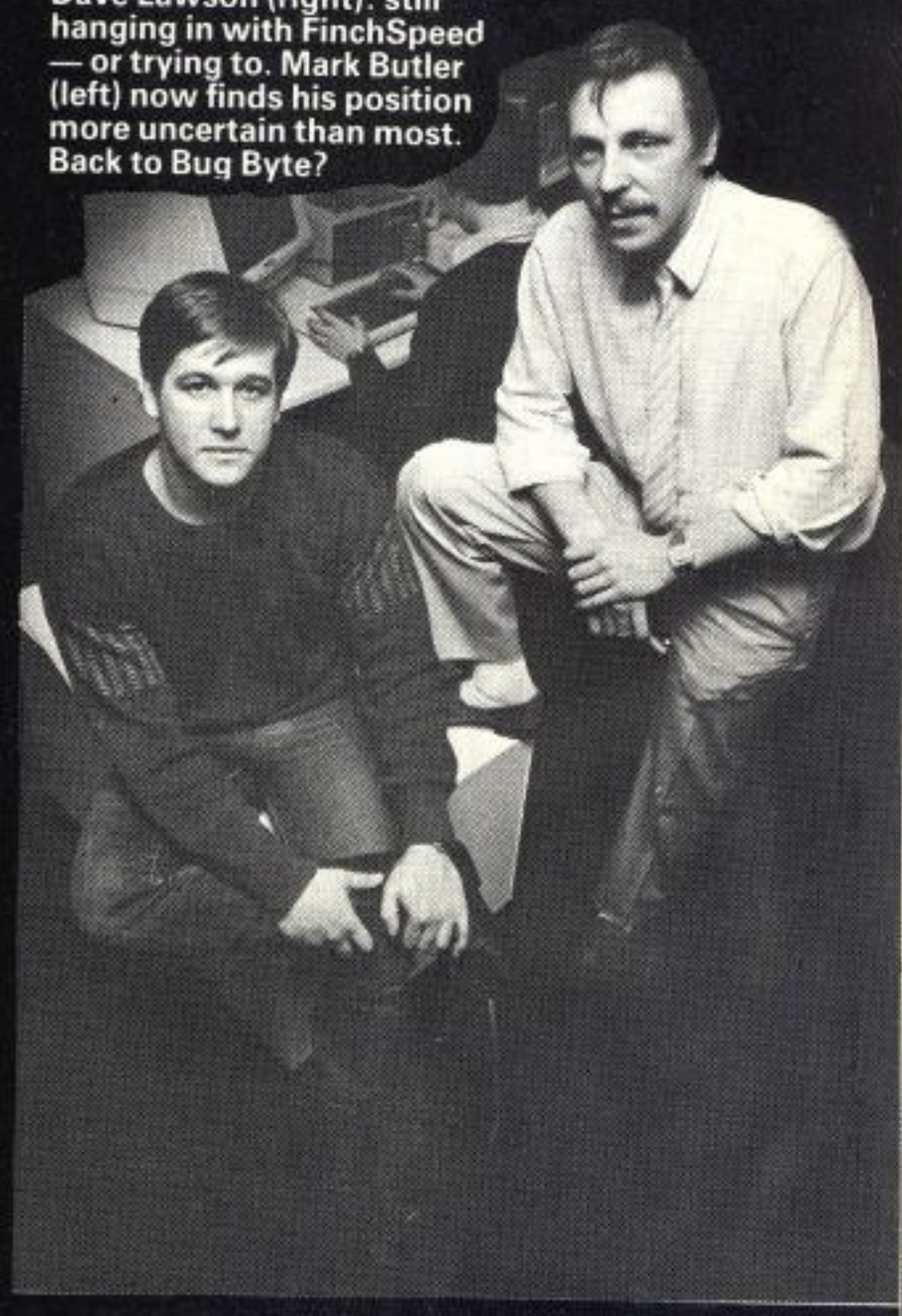
Finally, it was reported a few days before time of writing that the rump of Imagine has recently sold off 111,000 back tapes (presuambly ones that Beau Jolly didn't want) at (wait for it) 30p per copy! And a sinister note has been struck by the reported "interest" (absolutely nothing more as yet) taken by the Merseyside Police in Imagine's affairs, especially involving non-payment to creditors.

The easiest thing to say is that it was all inevitable. The combination of easy money, youthful self-confidence and more than a hint of meglomania, led to the Biblical result: unmitigated disaster. This would be easier to swallow if it invariably happened. It doesn't. A great many pop stars are living, walking proof that ego, too much cash and big-headedness do not necessarily lead to ignominious downfall.

The truth is that Imagine, for all their unfavourable image, were caught out, like others before them, by a combination of one or two bad decisions, a change in market trends and a continual lack of ready cash. They also believed in themselves to a point where it became quite easy to ignore mounting evidence to the contrary . . . So have a snide laugh if you like, but don't laugh too hard, or you may not see something similar creeping up on you. Nobody is immune from failure.

What now? Lawson remains an excellent games, designer, the megagames are probably very good — and that's all one can safely say at this stage. Start Againsville in fact. But perhaps the shock of the whole event may force realism on to the survivors: we may well hear more of FinchSpeed.

Let's hope so. For despite all the hokum the disinformation and the bragging, there was always plenty of talent there.



Dave Lawson (right): still hanging in with FinchSpeed — or trying to. Mark Butler (left) now finds his position more uncertain than most. Back to Bug Byte?

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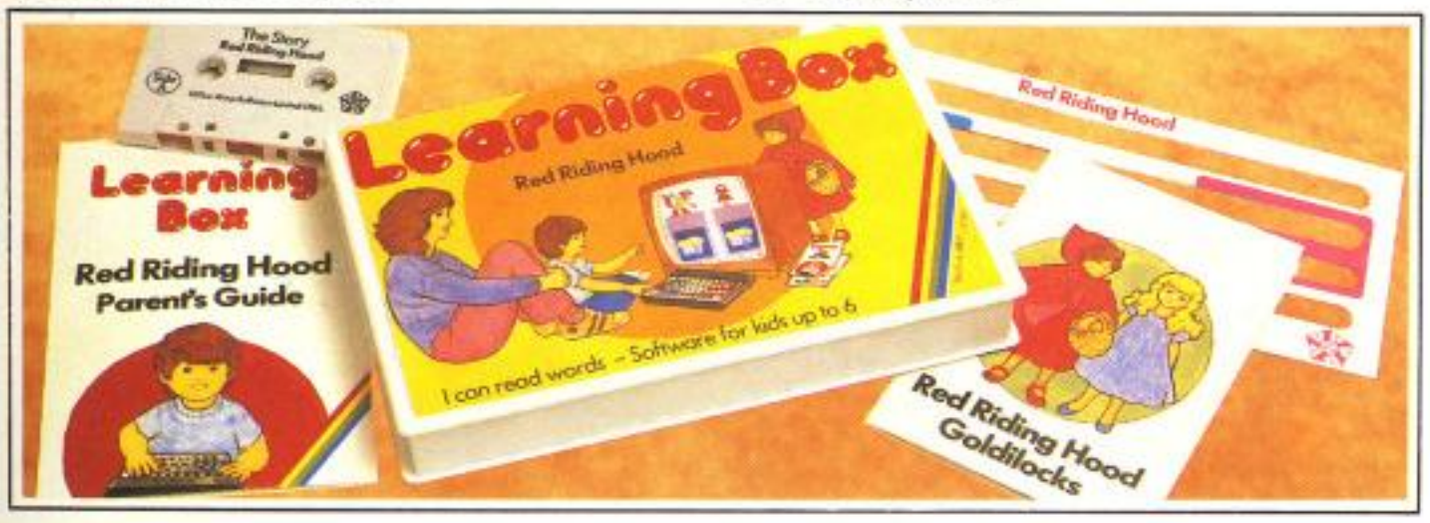

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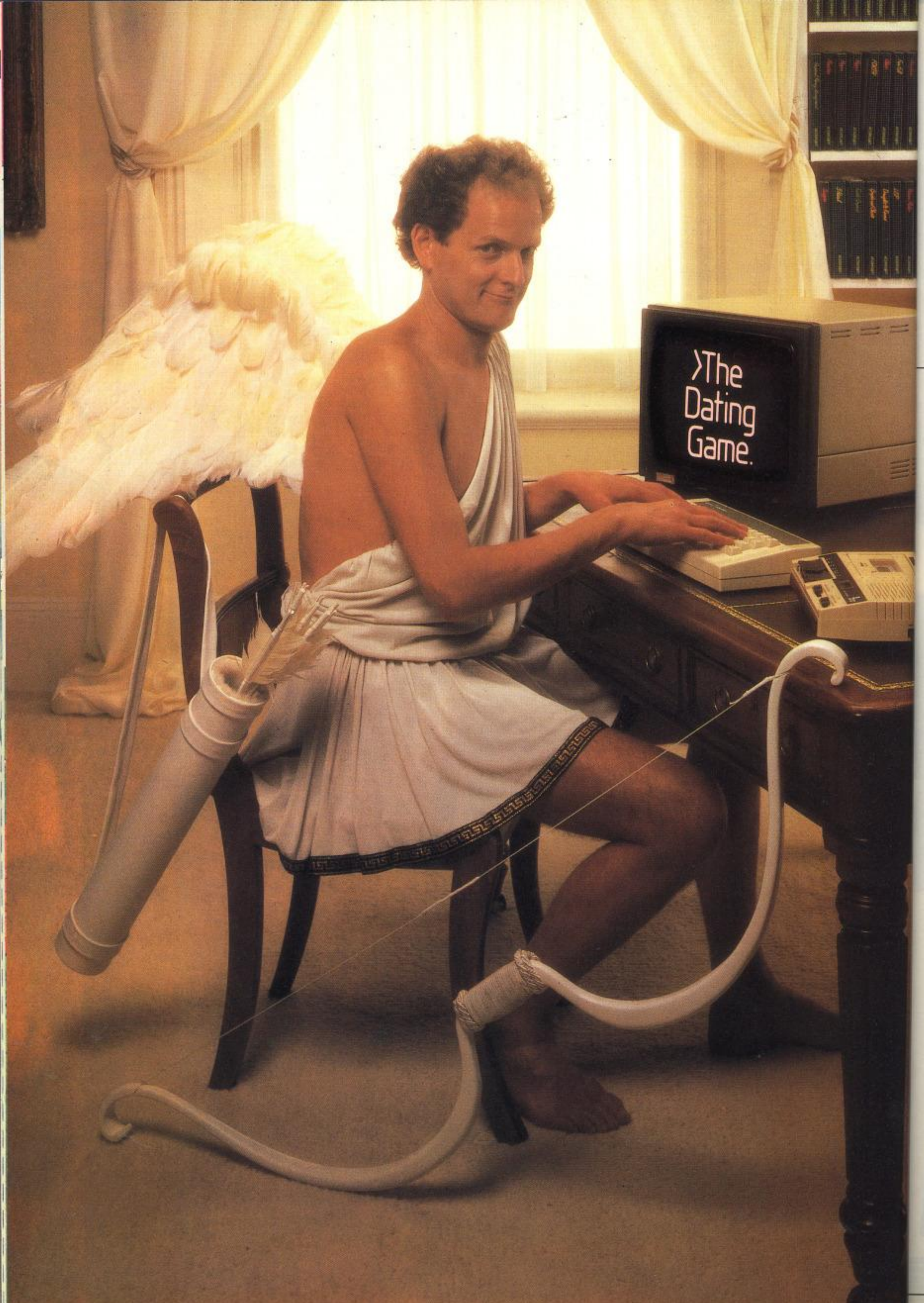
```
10 POKE53280,5:POKE53281,5:PRINT"■" CL=54272
40 Z$=" ":FORI=1TO39:Z$=Z$+" ":NEXT
50 B$="":FORI=1TO40:B$=B$+"▒":NEXT
60 N=0:K=1184:P1=0:A1=0:TR=1
70 DEFFNA(X)=INT(X*RND(1))
80 DEFFNB(X)=INT((8-9*RND(1))/7)
100 PRINT"■"TAB(16)"■* GOLF *■■
110 PRINT"■WELCOME TO THE LINKS! THIS";
115 PRINT" IS AN 18-HOLE COURSE OF PRO";
120 PRINT"FESSIONAL STANDARDS■"
125 PRINT"COURSE RECORD IS 2 UNDER ,"
126 PRINT"SO PLEASE REPLACE DIVOTS AND SHOW"
135 PRINT"COURTESY TO YOUR FELLOW GOLFERS.
145 PRINT"■HAVE A GOOD ROUND SEE YOU AT THE
19TH!" 150 PRINT"■■■WHAT IS YOUR HANDICAP■"
160 INPUTH:IFH>0ANDH<30THEN190
170 PRINT"■PGA RULES HANDICAP 0-30":GOTO150
190 PRINT"■DIFFICULTIES AT GOLF■
200 PRINT"■1.HOOKING
210 PRINT"2.SLICING
220 PRINT"3.POOR DISTANCE
230 PRINT"4.TRAP SHOTS
240 PRINT"5.PUTTING■
250 INPUT"■YOUR WORST";F:F=INT(F)
260 H=INT(H):IFF>0ANDF<6THEN290
270 PRINT"DON'T BE SHY":GOTO 250
290 PRINT"■SELECTION OF CLUBS■■
300 PRINT"YARDAGE          CLUBS          NO.■
310 PRINT"■280-200         1-4 WOODS       1-4
320 PRINT"200-100          1-5 IRONS      11-15
330 PRINT"100- 0           6-9 IRONS      16-19
340 PRINT"■■■TO FADE OR DRAW THE BALL";
350 PRINT"TYPE F OR D WHEN    ASKED"
360 PRINT"■TO HIT STRAIGHT TYPE RETURN
370 PRINT"■■■*** WARNING ***■■
380 PRINT"DON'T HIT IT TOO HARD■
390 GOSUB9000:GOSUB1700:GOSUB9000
400 REM GENERATE HOLE
410 Z=K:G=102:N=N+1:READD,P:PRINT"■■■■
420 FORI=1TO18:PRINTB$;:NEXT
430 PRINT"■■HOLE";N,:S=4:A=0
440 PRINT"■■ISTANCE";D;"YDS ";"■PAR";P
450 T=K+280:E=1:FORI=1TO40:FORJ=1TO5
460 POKET+CL,0:POKET,160:POKET+CL,5:T=T+40*E:
NEXTJ:T=T-40*E  470 U=FNB(1):S=S+U
480 IFS<40RS>8THENS=S-U:GOTO470
490 T=T+1+40*FNB(1):E=-E:NEXTI
500 S=3:T=T+79:FORI=1TO5:FORJ=1TO5
510 O=224:IFI=3ANDJ=2THENO=43:O=T
520 POKET,0:POKET+CL,13:IFO=43THENPOKET+CL,6
525 T=T+40*E:NEXTJ:T=T-40*E
530 U=FNB(1):S=S+U
540 IFS<3THENS=S-U:GOTO530
550 T=T-1+40*FNB(1):E=-E:NEXTI:O=69
555 FORI=1TO8+FNA(8)
560 S=K+O+FNA(9)+40*FNA(15)
570 IFPEEK(S)=160THENPOKES,87:POKES+54272,7
580 NEXT:IFO=69THENO=55:GOTO555
590 POKEK+360,148:POKEK+360+CL,2
600 X=0:Y=19:V=75:W=(Q-K-37)/20:L=1
605 IFD>450ANDD<550THEN1200
610 IFRND(1)>.6THEN1100
620 PRINT"■■■■
```

OPEN

by JON BULL

```
830 IFRND(1)>.3+H/90THEN880
840 Q=(H+30)*(RND(1)+.1)*π/500
850 IFF>2THENU=.5:GOTO870
860 Q=Q*1.5:U=.9:IFF=2THENU=.1
870 IFRND(1)>UTHENQ=-Q
880 IFV=XTHENT=π/2:X=X-SGN(Y-W):GOTO890
885 T=ATN((Y-W)/(V-X))+Q-QQ
890 U=X+SGN(V-X)*INT(M*COS(T)+.5)*TR
900 Y=Y-SGN(V-X)*INT(M*SIN(T)+.5):X=U
905 TR=1
910 IFX>790RY<00RY>35THEN1300
920 S=K+INT(X/2)+40*INT(Y/2):T=PEEK(S):JB1=S:
JB5=PEEK(S+CL) 930 U=126:IF(YANDI)=1THENU=123
940 IF((XANDI)=1ANDCYANDI)=1)THENU=103
950 IF((XANDI)=1ANDCYANDI)=0)THENU=124
960 POKEZ,G:POKEZ+CL,JB5:POKES,U:G=T:JB5=PEEK
(S+CL):Z=S:POKES+CL,0
970 FORI=1TO9:POKES,G:FORJ=1TO99:NEXTJ
980 POKES,U:FORJ=1TO99:NEXTJ:NEXTI
1000 GOSUB2500:IFX=VANDY=WTHEN1600
1010 IFG=224ORG=43THEN6000
1020 IFG=102THENL=2:GOTO7000
1030 IFG=87THEN7500
1040 IFG=193THENL=4:GOTO8000
1050 IFG=174THEN8500
1060 L=1:GOTO640
1100 U=K+103+FNA(11):T=1:FORI=0TO4
1110 JB=PEEK(40*I+U):IFJB=32ANDPEEK(JB+54272)
=5THENU=U+480:T=-1:GOTO1130
1120 NEXT
1130 FORI=1TO12:JB2=U+T*40*FNA(5)-FNA(8):POKE
JB2,65:POKEJB2+54272,9:NEXT:GOTO62
1200 C=K+12+FNA(8):U=1
1210 IFRND(8)<.5THENC=C+13:U=-1
1270 FORI=1TO18
1280 POKEC,174:POKEC+54272,6:IFRND(1)>.4THENC
=C+U 1290 C=C+40:NEXT:GOTO620:REM WATER
1300 IFX>90THEN1360:REM O.O.B
1320 IFX>79 THENX=79
1330 IFY>0ANDY<36THEN1410
1340 IFY>35ANDY<48THENY=35:GOTO1410
1350 IFY<0ANDY>-11THENY=0:GOTO1410
1360 GOSUB2000
1370 PRINT"■TOO MUCH CLUB-LOST BALL"
1380 PRINT"PENALTY■6 STROKES■":A=A+6
1390 GOSUB2500
1400 PRINT"□":GOTO6490
1410 GOSUB2000
1420 PRINT"■OUT OF BOUNDS-DROP BALL"
1430 PRINT"PENALTY ■1 STOKE■":A=A+1
1440 GOTO920
1500 PRINT"FADE OR DRAW?"
1510 INPUT"■■-■■■■";A$
1520 IFA$="F"THENQQ=.15
1530 IFA$="D"THENQQ=-.15
1540 GOTO760
1600 PRINT"□ YOU HOLED OUT !!!!■■"
1610 PRINT" LUCKY!!":GOTO6400
1700 PRINT"□NOTATION USED
1710 PRINT"■■■■
```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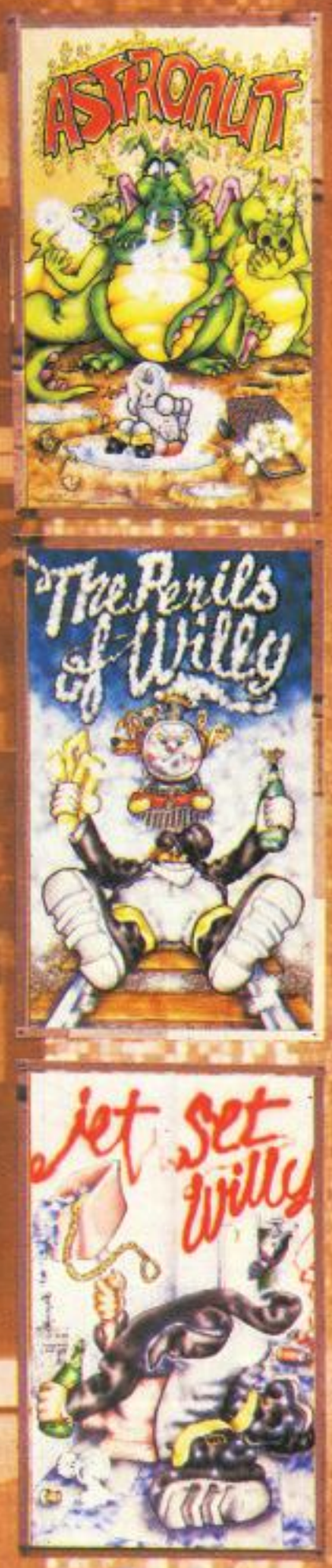

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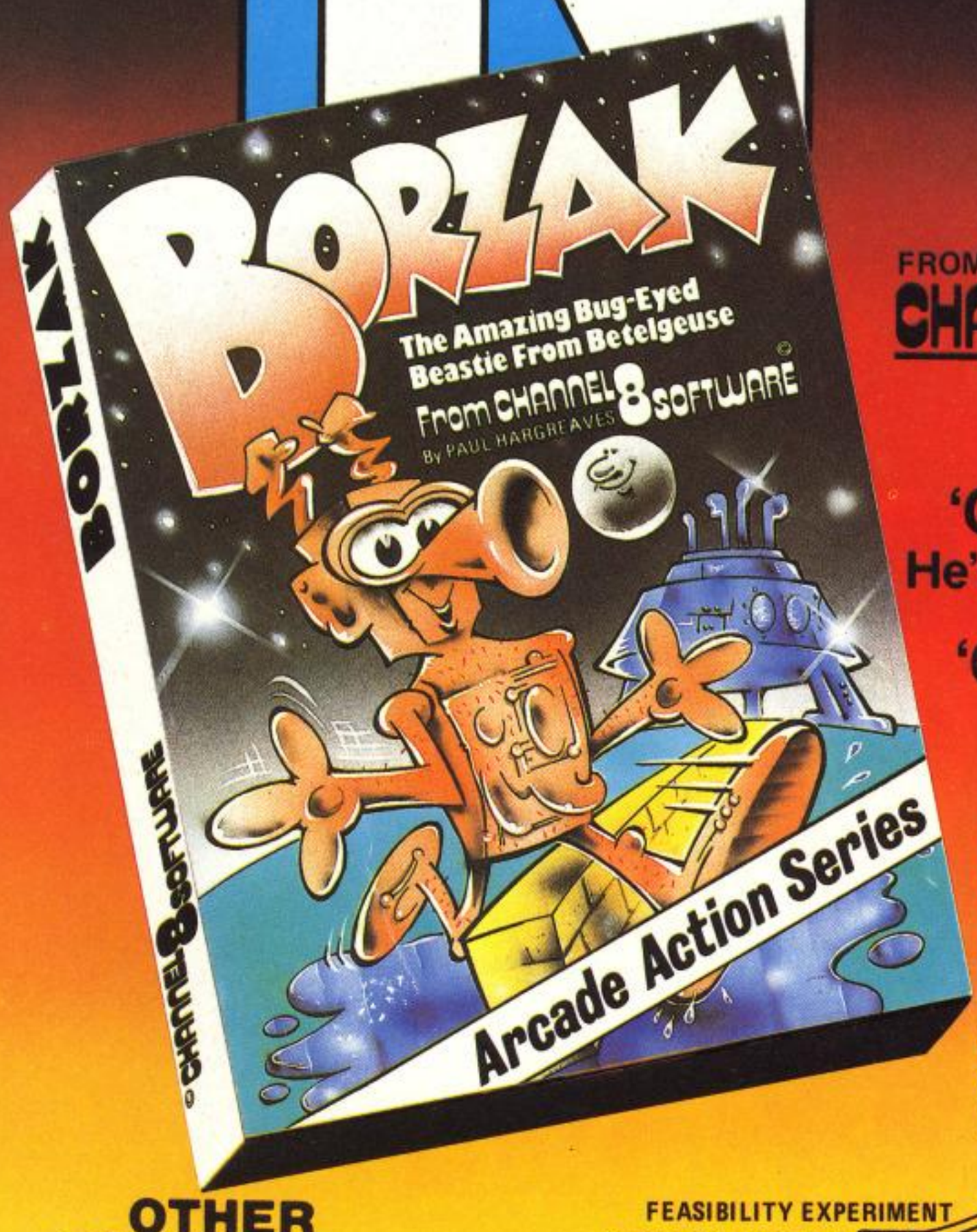

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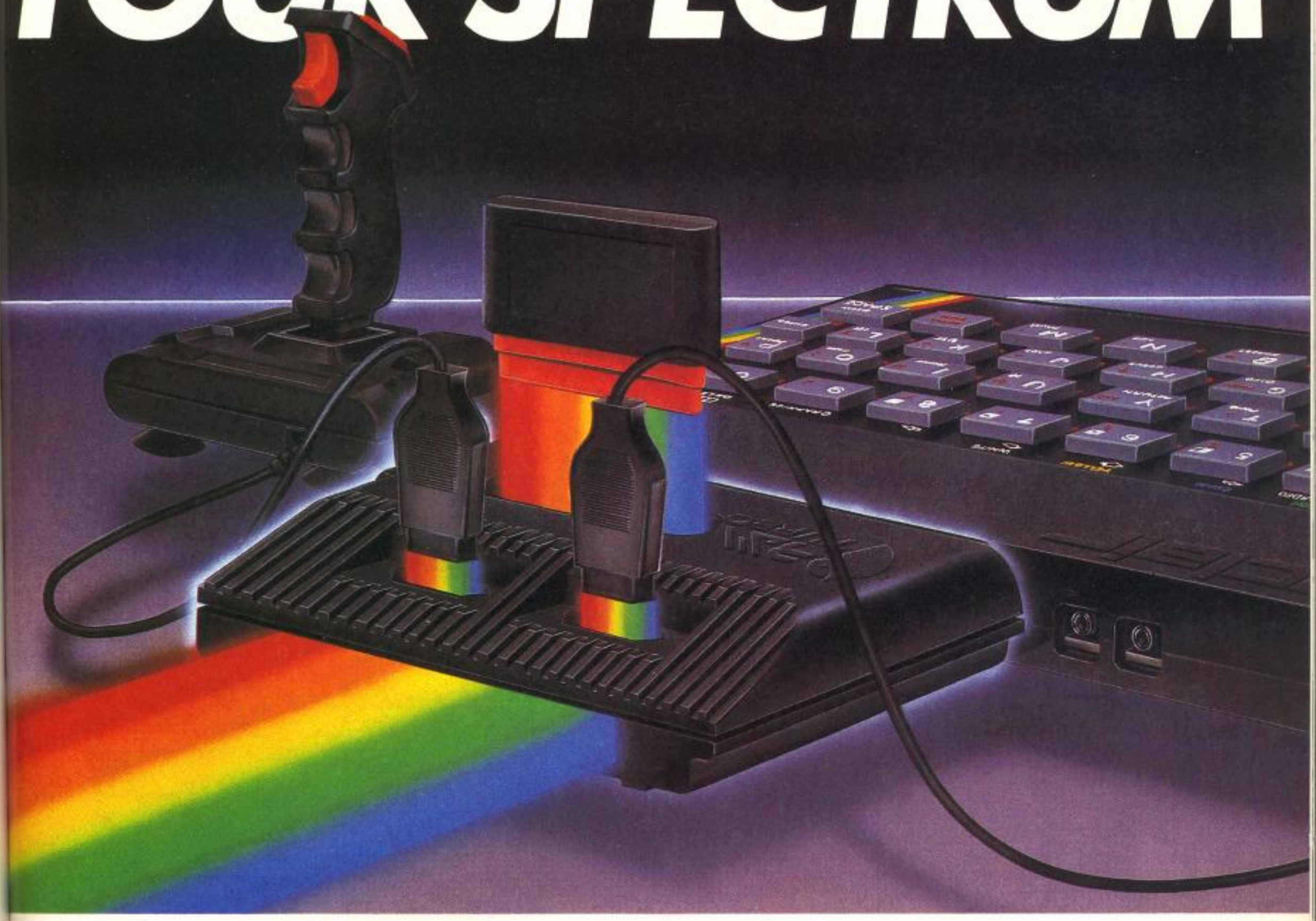

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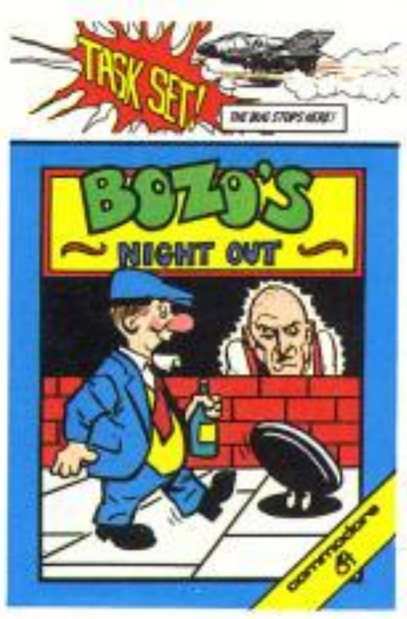

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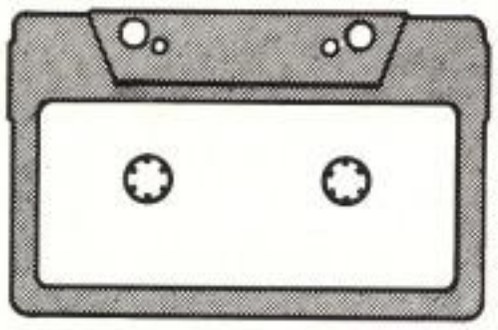

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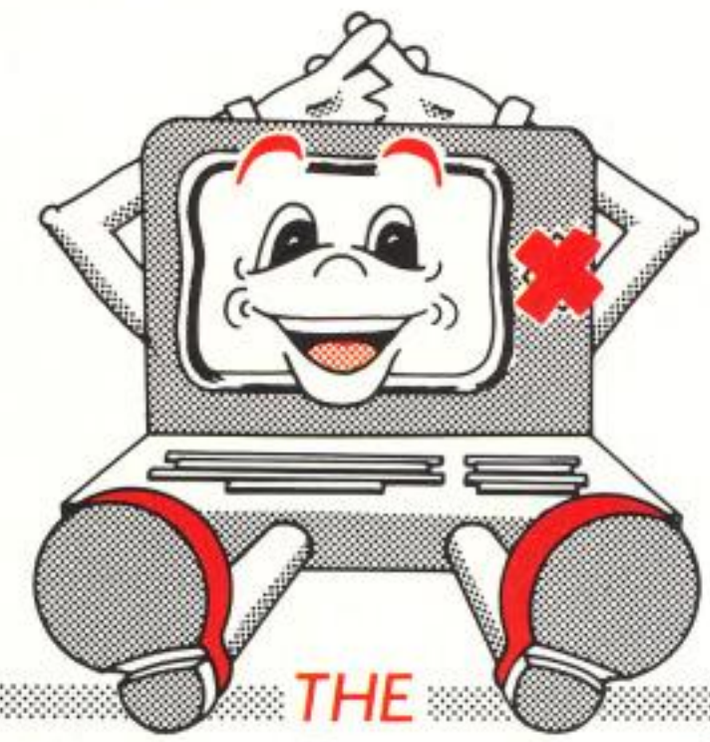

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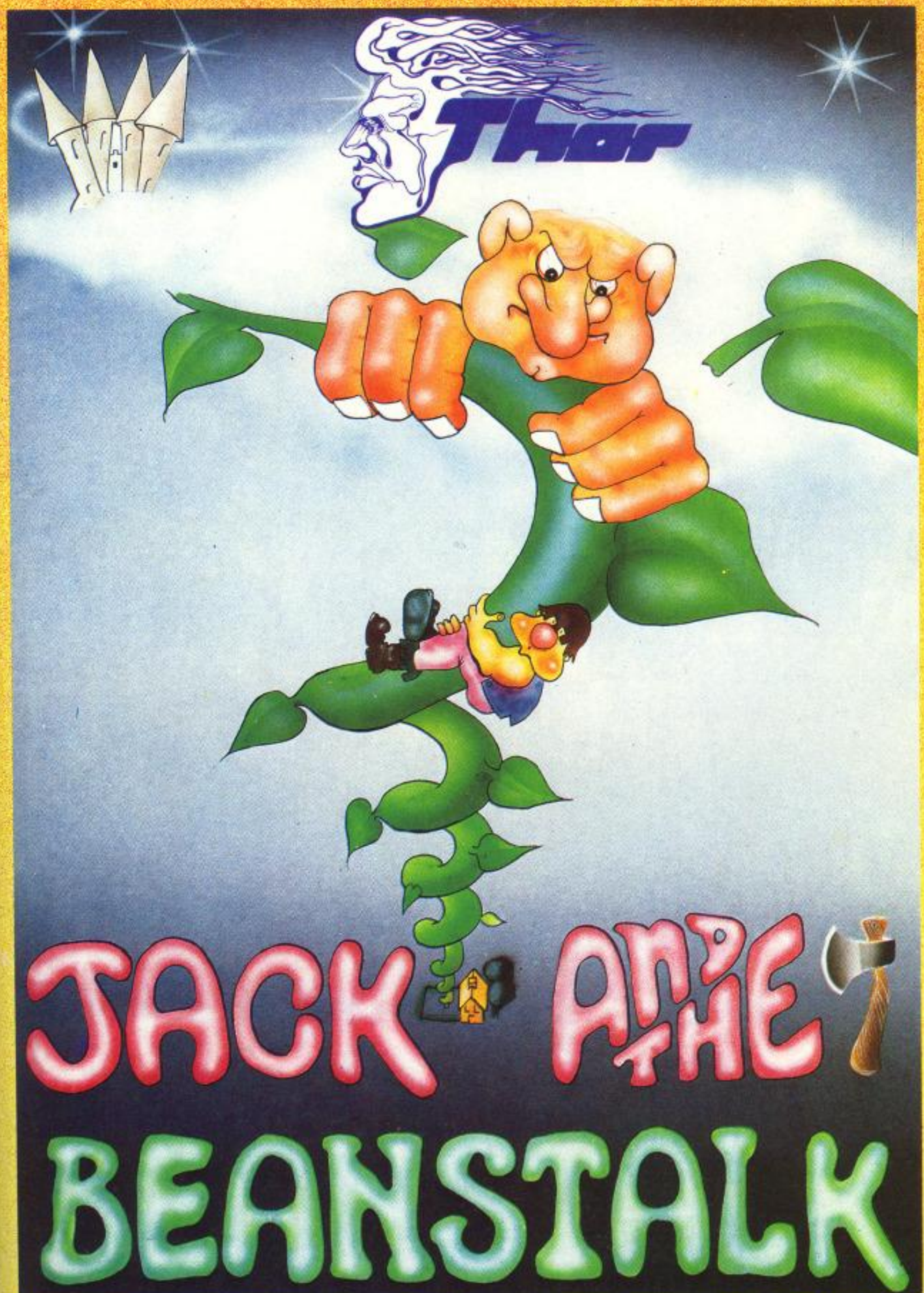

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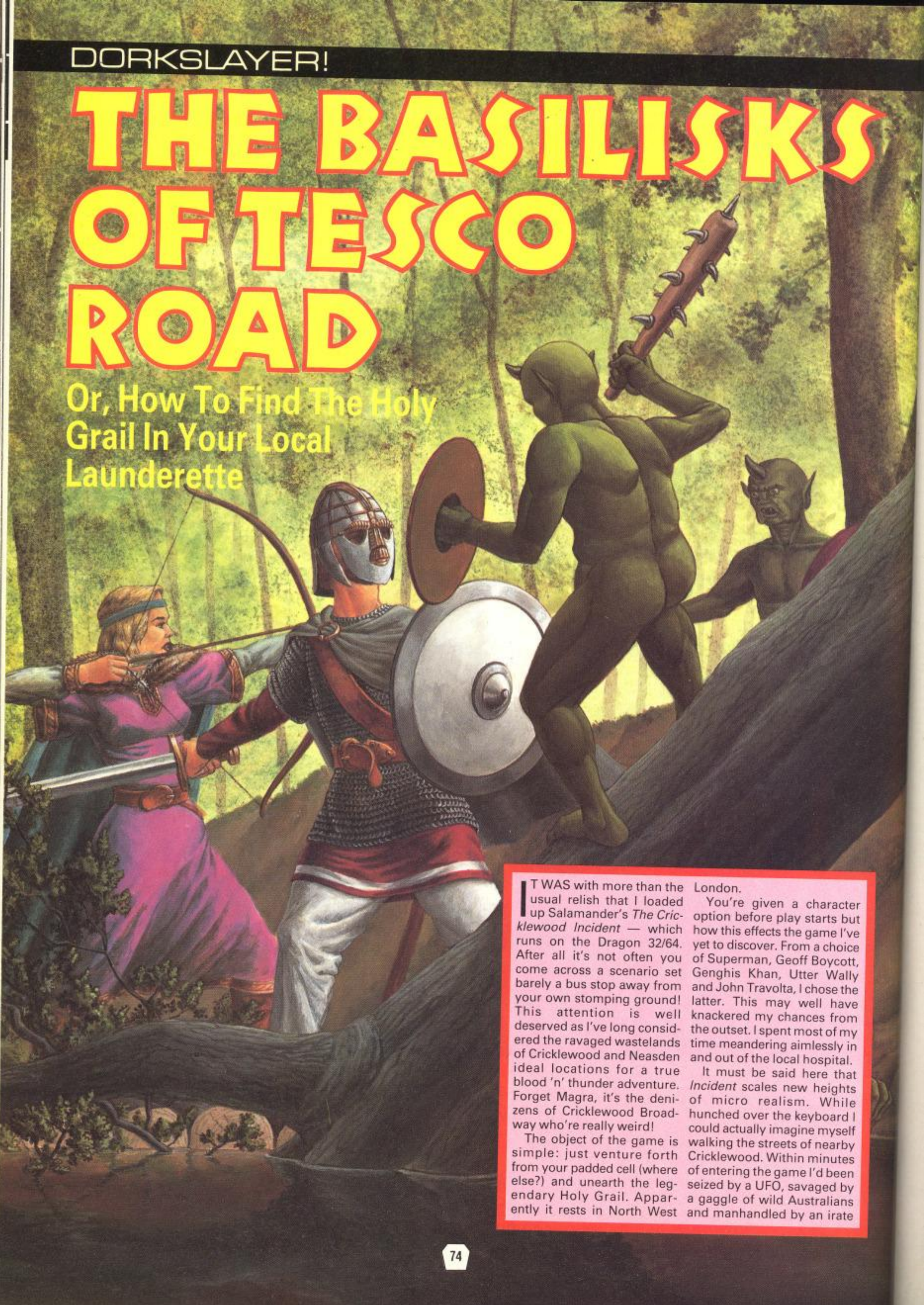


IT WAS with more than the usual relish that I loaded up Salamander's *The Cricklewood Incident* — which runs on the Dragon 32/64. After all it's not often you come across a scenario set barely a bus stop away from your own stomping ground! This attention is well deserved as I've long considered the ravaged wastelands of Cricklewood and Neasden ideal locations for a true blood 'n' thunder adventure. Forget Magra, it's the denizens of Cricklewood Broadway who're really weird!

The object of the game is simple: just venture forth from your padded cell (where else?) and unearth the legendary Holy Grail. Apparently it rests in North West London.

You're given a character option before play starts but how this effects the game I've yet to discover. From a choice of Superman, Geoff Boycott, Genghis Khan, Utter Wally and John Travolta, I chose the latter. This may well have knackered my chances from the outset. I spent most of my time meandering aimlessly in and out of the local hospital.

It must be said here that *Incident* scales new heights of micro realism. While hunched over the keyboard I could actually imagine myself walking the streets of nearby Cricklewood. Within minutes of entering the game I'd been seized by a UFO, savaged by a gaggle of wild Australians and manhandled by an irate

Hell's Angel. An accurate simulation indeed!

The Cricklewood Incident used the standard Salamander formatted text display and enjoys reasonable response times. Along with the usual onscreen bumf there's a health tag (I spent most of the time in an advanced state of despair) and a money box. To successfully complete the adventure you're going to need quite a bit of cash, so try and keep those tills ringing. I invariably left the thing penniless.

A GOOD deal less zany is *The Lords Of Midnight*, a heavy duty phantasy from Beyond Software. It's rapidly amassing a huge army of admirers, and with good reason. Superbly designed and marvellously executed, it's definitely one to impress the cat with. But considering the lack of traditional input procedures, can it truly be classed as an adventure?

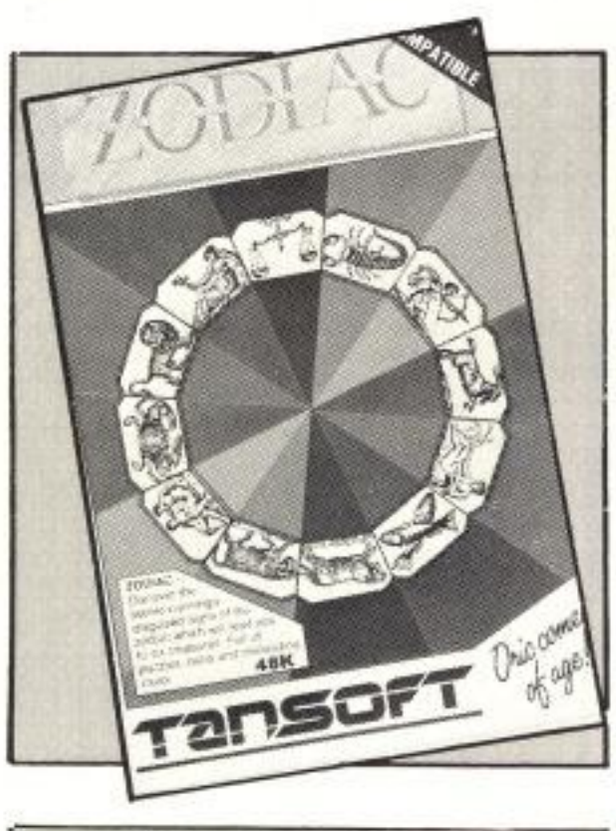
Well yes, I think it can. Having entered the realms of Midnight you can't help but feel a sense of awe and puzzlement. Moving within the game is truly an exploration of the unknown. All are archetypal symptoms of a good adventure. So the format of the thing is pretty irrelevant in my book.

Although it's early days yet, it's worth noting that Doomdark's foul hordes invariably march through the mountains of Ithril and so into the Plains of Blood, so it's clearly possible to avoid his hellish minions and launch an attack on Ushgarak from the rear! (*Kindly re-phrase that, Keaton — **Ed.***) Should you Doomdark devotees discover anything else of note while exploring the land of Midnight, be sure to drop me a line, OK? This one's set to run and run.

While we're dispensing help (of a sort) I must say that I've been deluged with requests for tips on *Valhalla*. Well, my tip is — don't buy it! As a piece of coding it's a marvel, but as a game . . . it sucks. For the same money you could pick up *Africa Gardens* (from Gilsoft) and *Temple of Vran* (from Incentive) and still have a couple of quid left over for some issues of *2000AD*. Much better value.

Oric Atmos owners are currently rather poorly served in the adventure field, so it's perhaps fortunate that some of the early BASIC offerings for the Oric 1 still run quite happily on the new (sic) machine. The most familiar of these is *Zodiac* (and its follow up *House of Death)* from Tansoft. Although heavily criticised for their relative simplicity, I rather like 'em. Both based around old dark houses and involving a quest for hidden treasure, they share a nice line in humour and some high quality scripting. The quote of locations may be meagre but they're finely drawn. A pity they're shamelessly overpriced.

Tansoft are also set to release *The Kilburn Incident* (currently under wraps but obviously along the lines of Salamander's Dragon hit) sometime soon, and Quicksilva have converted Derek Brewster's smashing *Velnor's Lair*, which we looked at some time ago. Both should go someway to placating your hungry Atoms.



A great adventure is...

"A totally original plot; a wide range of interesting locations; new problems to solve and a variety of other characters available for helping or hindering the player. A good Adventure should be written in at least 32K of memory, as anything less is inadequate for storing the vast amounts of data used in the game. A game which is advertised as having "full screen graphics" or "a graphical representation of each location" is not necessarily better than the original text-only Adventures. Graphical Adventures seem to be the "in thing" at the moment, but it is often found that the programmer will sacrifice memory which could be used to make the game more complex, just for drawing a colourful picture on the screen. For me, an Adventure which has excellent verbal descriptions of all locations is just as good — if not better — than one with multi-coloured graphics and sound."

SIMON BIRCHALL

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CROSS

```
1 REM ***************
2 REM * CROSS FIRE *
3 REM * E.MCRACKEN *
4 REM ***************
10 CLR:PRINT"{CLR}{RED}":SC=0:SH=6:MU=2:
GOSUB 2000
12 G1=7903:G2=7918:V=36878:N=36875:CO=30
720:A1=7926:A2=7939
13 FORG=7922TO7925:POKEG,160:POKEG+CO,0:
NEXT
14 FORG=7940TO7943:POKEG,160:POKEG+CO,0:
NEXT
15 POKEG1,66:POKEG1+CO,0:POKEG2,66:POKEG
2+CO,0
16 X=INT(RND(1)*255)+1:POKE37879,X:POKEV
,15
17 IFMU=1THEN GOTO 20
18 GOSUB 1000
20 PRINT"{HOME}GUN 1='Z'"
21 PRINT"{HOME}{CUR DN}GUN 2='X'"
22 PRINT"{HOME}{CUR RT}{CUR RT}{CUR RT}{
CUR RT}{CUR RT}{CUR RT}{CUR RT}{CUR RT}{
CUR RT}{CUR RT}{CUR RT}SCORE"SC:SH=SH-1
23 PRINT"{HOME}{CUR DN}{CUR RT}{CUR RT}{
CUR RT}{CUR RT}{CUR RT}{CUR RT}{CUR RT}{
CUR RT}{CUR RT}{CUR RT}SHOOTS"SH
:GOSUB 90
24 GETS$:IFS$="Z"THEN M=1
25 IFS$="X"THEN M=2
26 IFSH=0THEN 3000
27 IFM=2THEN POKEN,199:GOTO 40
28 IFM=1THEN POKEN,199:GOTO 30
29 GOTO 24
30 A1=A1+1:POKEA1,64:POKEA1+CO,0:GOTO 50
40 A2=A2-1:POKEA2,64:POKEA2+CO,0
50 IFPEEK(A1+1)=64THENPOKEA1+1,114:GOTO
60
51 IFPEEK(A2-1)=64THENPOKEA2-1,114:GOTO
60
52 POKEN,0:GOTO 24
60 POKEN,0:POKEN+2,190:POKEN,150
61 IFM=2THEN C=A1+23
62 IFM=1THEN C=A2+22
70 POKEC,93:POKEC+CO,2:C=C+22
71 IFPEEK(C)=93THEN C=0:A1=0:A2=0:M=0:GO
TO 1900
```

```
73 IFPEEK(C)=48ORPEEK(C)=49 THEN SC=SC+1
0:A1=0:A2=0:M=0:C=0:GOTO 1950
75 IFPEEK(C)=50 THEN SC=SC+2:A1=0:A2=0:M
=0:C=0:GOTO1950
77 IFPEEK(C)=53 THEN SC=SC+5:A1=0:A2=0:M
=0:C=0:GOTO 1950
79 IFPEEK(C)=51ORPEEK(C)=54THEN SC=SC+36
:A1=0:A2=0:C=0:M=0:GOTO1950
80 GOTO 70
90 F=0:F=INT((4-1)*RND(1))+1
91 ON F GOTO 92,93,94,95
92 PRINT"{CUR DN}{CUR DN}{CUR DN}{CUR DN
}{CUR DN}{CUR DN}{CUR DN}{CUR DN}{CUR DN
}{CUR DN}{CUR DN}{CUR DN}{CUR DN}{CUR DN
}{CUR DN}{CUR DN}{CUR DN}{CUR DN}{CUR DN
}{CUR DN}{CUR RT}{CUR RT}{CUR RT}{CUR RT
}{^-}{^-}5{^-}36{^-}10{^-}10{^-}{^-}{HOM
E}":RETURN
93 PRINT"{CUR DN}{CUR DN}{CUR DN}{CUR DN
}{CUR DN}{CUR DN}{CUR DN}{CUR DN}{CUR DN
}{CUR DN}{CUR DN}{CUR DN}{CUR DN}{CUR DN
}{CUR DN}{CUR DN}{CUR DN}{CUR DN}{CUR DN
}{CUR DN}{CUR RT}{CUR RT}{CUR RT}{CUR RT
}{^-}{^-}36{^-}2{^-}2{^-}5{^-}5{^-}{^-}{
HOME}":RETURN
94 PRINT"{CUR DN}{CUR DN}{CUR DN}{CUR DN
}{CUR DN}{CUR DN}{CUR DN}{CUR DN}{CUR DN
}{CUR DN}{CUR DN}{CUR DN}{CUR DN}{CUR DN
}{CUR DN}{CUR DN}{CUR DN}{CUR DN}{CUR DN
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E}":RETURN
95 PRINT"{CUR DN}{CUR DN}{CUR DN}{CUR DN
}{CUR DN}{CUR DN}{CUR DN}{CUR DN}{CUR DN
}{CUR DN}{CUR DN}{CUR DN}{CUR DN}{CUR DN
}{CUR DN}{CUR DN}{CUR DN}{CUR DN}{CUR DN
}{CUR DN}{CUR RT}{CUR RT}{CUR RT}{CUR RT
}{^-}{^-}10{^-}2{^-}10{^-}36{^-}{^-}{HOM
E}":RETURN
1000 KL=0:PO=0:CM=0:MU=1:FORPO=0TO12:REA
DKL:POKEN,KL:FORCM=1TO100:NEXTCM:NEXTPO
1010 DATA175,183,191,183,191,183,175,183
,191,195,175,175,0
1020 RETURN
1900 POKEN+2,0:FORZX=1TO50:POKEN,170-ZX:
FORE=1TO10:NEXTE:NEXTZX
```

10 5 35 6

SSFIRE

For VIC 20
By E. McRACKEN

It's the old double-gun routine. Shoot from both sides of the screen, where the bullet trails meet a line drops into a high score box. It's a test of skill and reflexes for one or two people.

WARNING: This is a TRANSLATED listing. Instructions in 'wavy' brackets should NOT be typed in but followed, i.e. CUR RT = cursor right.

```
1910 PRINT"{CLR}":GOTO12
1950 POKEN+2,0:FORZX=1TO50:POKEN,120+ZX:
FORE=1TO10:NEXTE:NEXTZX:POKEN,0
1960 PRINT"{CLR}":GOTO 12
2000 PRINT"{HOME}{CUR DN}{CUR DN}{CUR RT
}{CUR RT}{CUR RT}{CUR RT}{CUR RT}{CUR RT
}CROSS FIRE"
2010 PRINT"{CUR RT}{CUR RT}{CUR RT}{CUR RT}{CUR
RT}{CUR RT}{*Y}{*Y}{*Y}{*Y}{*Y}{*Y}{*Y}{*Y}{
*Y}{*Y}{*Y}{*Y}{*Y}"
2020 PRINT"{CUR DN}THE OBJECT OF THE GAM
E";
2030 PRINT" IS TO SCORE AS MANY"
2040 PRINT" POINTS AS YOU CAN BY"
2050 PRINT" SHOOTING AT A TARGET"
2060 PRINT" AT THE BOTTOM OF THE"
2070 PRINT" SCREEN. YOU HAVE TWO"
2080 PRINT" GUNS EACH SIDE OF THE";
2090 PRINT" SCREEN ABOVE THE"
2100 PRINT" TARGET AND YOU MUST"
2110 PRINT" FIRE EACH ONE. WHEN"
2120 PRINT" THE SHOTS MEET THAY"
2130 PRINT" WILL MOVE DOWN THE"
2140 PRINT" SCREEN AND HIT THE"
2150 PRINT" TARGET."
2160 PRINT"{RVS ON}{CUR DN}{CUR RT}{CUR
RT}{CUR RT}{CUR RT}{CUR RT}{CUR RT}HIT A
 KEY"
2170 GETW$:IFW$=""THEN 2170
2180 PRINT"{CLR}":RETURN
3000 PRINT"{CLR}{CUR RT}{CUR RT}{CUR RT}
{CUR RT}{RED}{CUR DN}{CUR DN}{CUR DN}{CU
R DN}YOU SCORED";SC
3010 PRINT"{CUR RT}{CUR RT}{CUR DN}{CUR
DN}{CUR DN}{CUR DN}ANOTHER GO?(Y/N)"
3020 GETRS$
3030 IFRS$="Y"THEN GOTO 10
3040 IFRS$="N"THEN PRINT"{CUR DN}{CUR DN
}{CUR RT}THANKS FOR PLAYING.":NEW
3050 GOTO 3020
```

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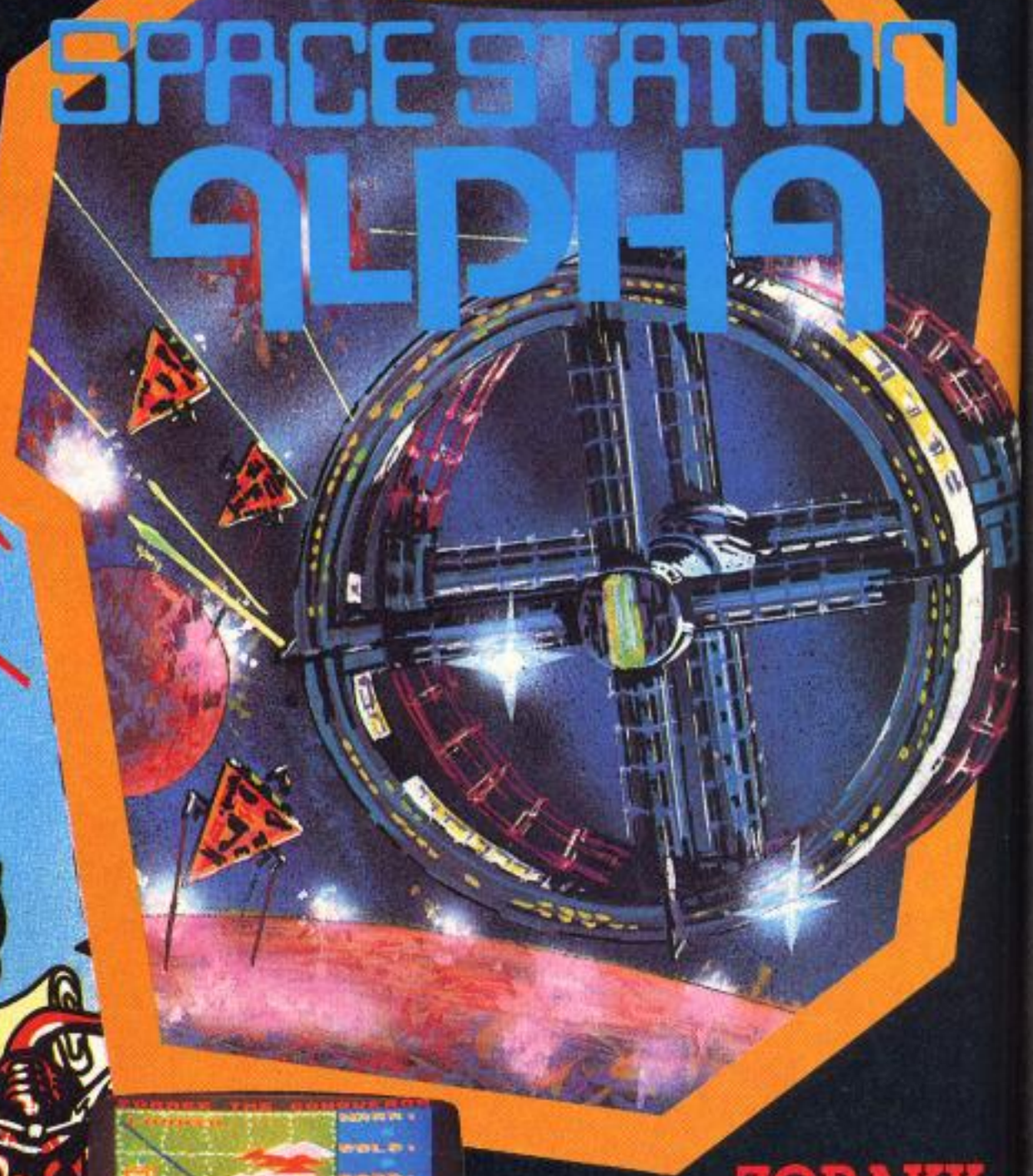

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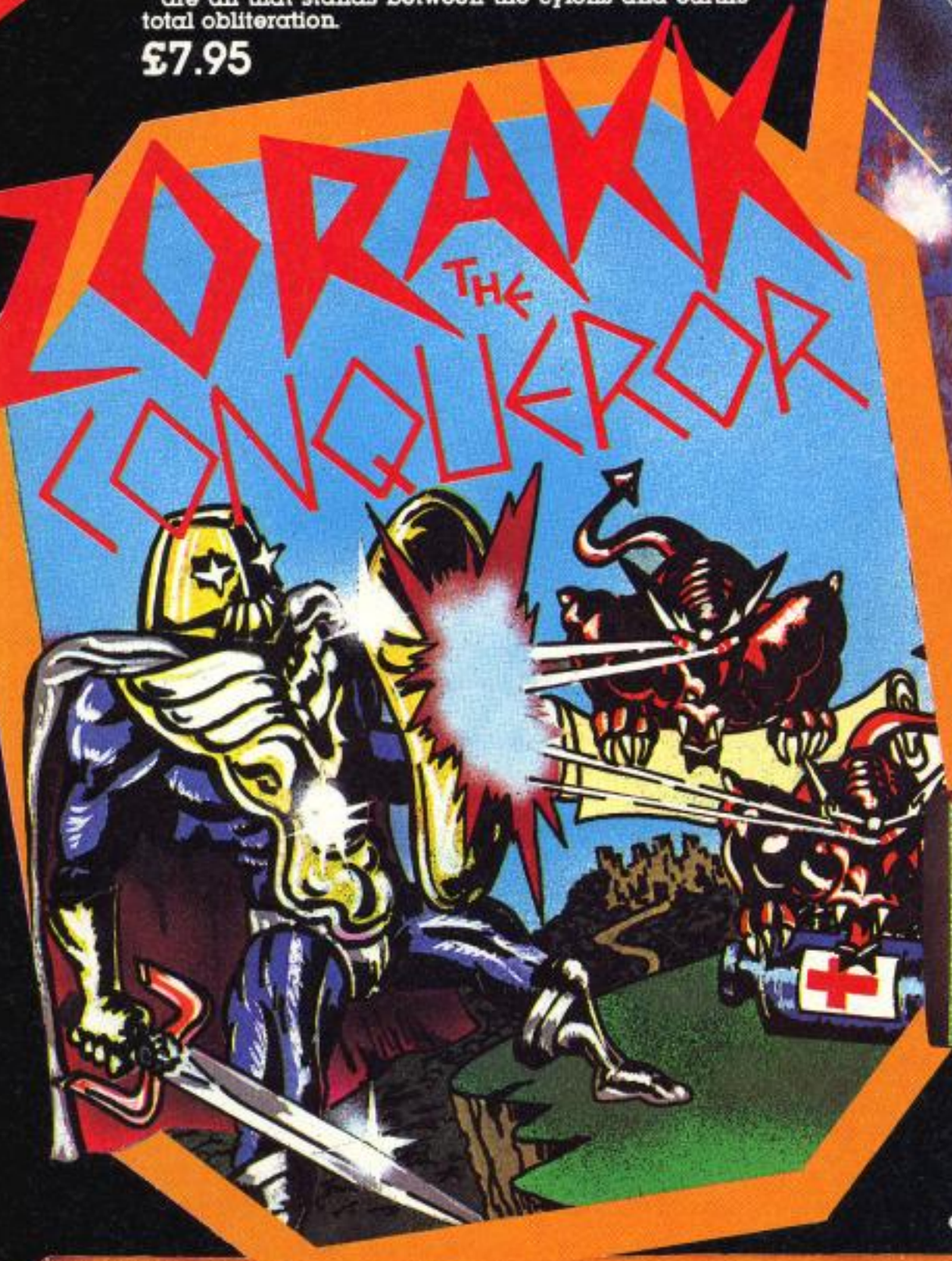

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ARTIFICIAL INTELLIGENCE IS COMING TO GET YOU

In five (or ten, or maybe twenty) years the significance of Artificial Intelligence (or Fifth Generation) will have become a lot clearer than it is today. In the meantime, it's nice to ditch the bugs, bytes and sprites for a moment and enjoy a good old speculative waffle about what it MIGHT mean. Your cue, 'Q' ...

IS your micro being nasty to you? Do parking meters feel hungry when they're not fed?

Humans like to animize the inanimate. Perhaps this is one of the reasons that Artificial Intelligence holds such a fascination.

How often do you swear at your micro? Really curse the thing? Recently arcade games have been hooked up with hidden microphones to record the ways in which people "relate" to them. Many folk that would otherwise be considered legally sane often talk to machines. Humans become emotionally involved with their own personal technology by giving things names and by talking about (and to) machinery.

We all *really* know the reason the prog just crashed again has little to do with the way your micro feels about you . . . yet nearly all humans animize machines to a greater or lesser extent.

This techno-kinship can have very positive effects — many people given the choice of communicating with a machine or a person, will often prefer the machine, (cash dispensers have queues of people when banks are empty). Recently psychological "Expert" programs (more 'bout them later) have acted as "listeners" to patients' problems. Many of the users found this preferable to talking to humans and a considerable number felt that they responded more honestly to a Interactive Expert Program when answering personal questions about themselves.

Before positively defining what Artificial Intelligence is we have to define intelligence and in particular human intelligence. If a machine is to mimic human behaviour must be analysed in order to structure and devise software and hardware that mimics it. For some tasks this is now relatively easy — but for others it reaches into the realms of paradox, psychology and philosophy 'cos we dunno very much about the way our brains work, end of story. Nevertheless one part of A.I. research is devoted to finding out.

The definition of A.I. is not constant. Once a business program replaces a payroll clerk the definition of A.I. tends to go up (or is it sideways?). Machines and their software systems are the result of human ideas and actions, the transference oif thought into "physical reality"; but often, because they are built by teams, they represent a combination of ideas and these creations lead in an almost truly evolutionary way to more complex machines just as organisms evolved from amino acides (go fetch that biology book). Tracing the evolution of computers is a good case in point. In order to begin to understand human intelligence one has to understand the development of the brain and its friend, pal, or chum, the mind.

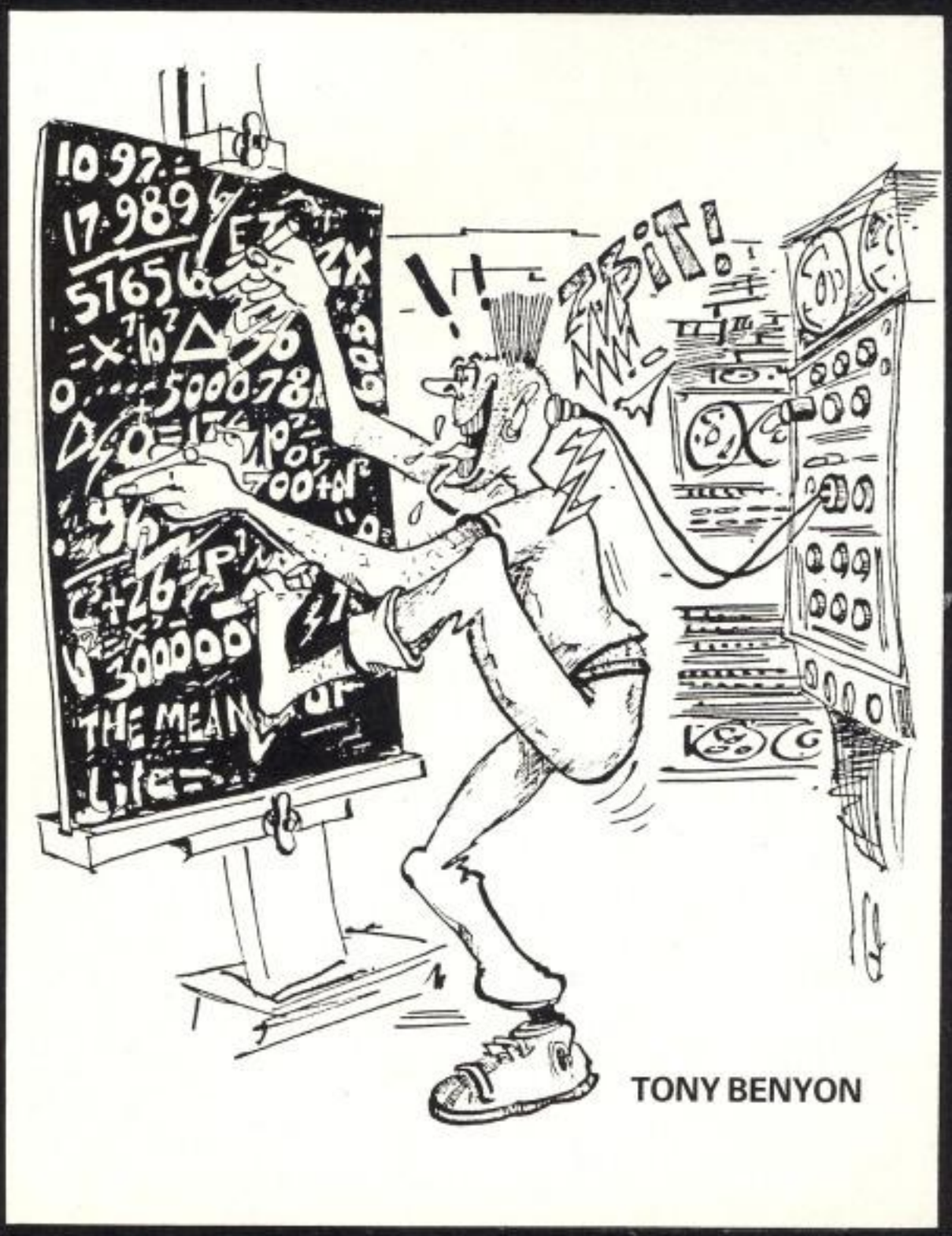
Some experts maintain that it will never be possible to construct machines to think like humans because they must be able to "relate" to themselves in the real world, i.e. they would have to possess bodies similar to humans in order to "think" like humans. ("Be" humans?)

What now does seem technically feasible is that the new "intimate technology" will increase the human love affair with machines and that for specific tasks many people will react to machines and their software systems as though they were human and that by studying this phenomenon more will be learnt about the man-machine interface.

The practical application of A.I. is in the realm of the next generation of more user friendly intimate technology and one way that this is progressing is through the use of Expert Programs.

The whole area of Expert Programs is still in its infancy. These programs interrogate the expert e.g. a hearing specialist, in a particular field and then (provided this has been done with sufficient programming skill) the resultant program and database can be interactive. Most of these Expert Programs have an update facility (sometimes allowing the "nature" of the program to re-program itself) and thus such a system can be used in place of a human expert for certain tasks.

Right now A.I. ideas are being used in inter-active video disc systems which can be used in the training of skills and the merchandising of products which require explanation. Research is also taking place in speech recognition and of course into the whole area of language itself, for words only acquire meaning in a relationship with each other. How the brain extracts "meaning" from words and sentences is still very unclear. This is the area where A.I. research meets paradox in a world that seems bizarre and unreal, the world of philosophy and "quantum reality" where arguments rage about what is "real" and what is not.



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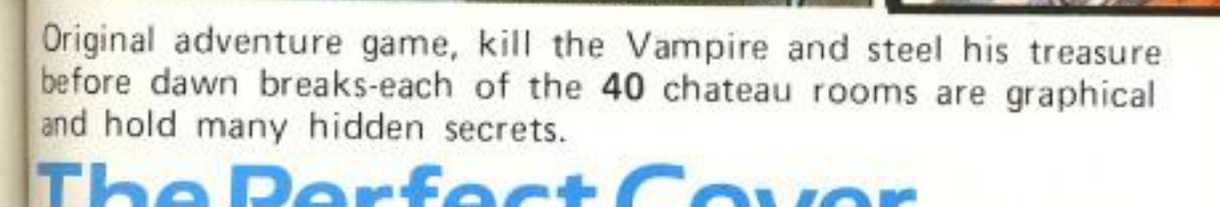

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BACK IN THE

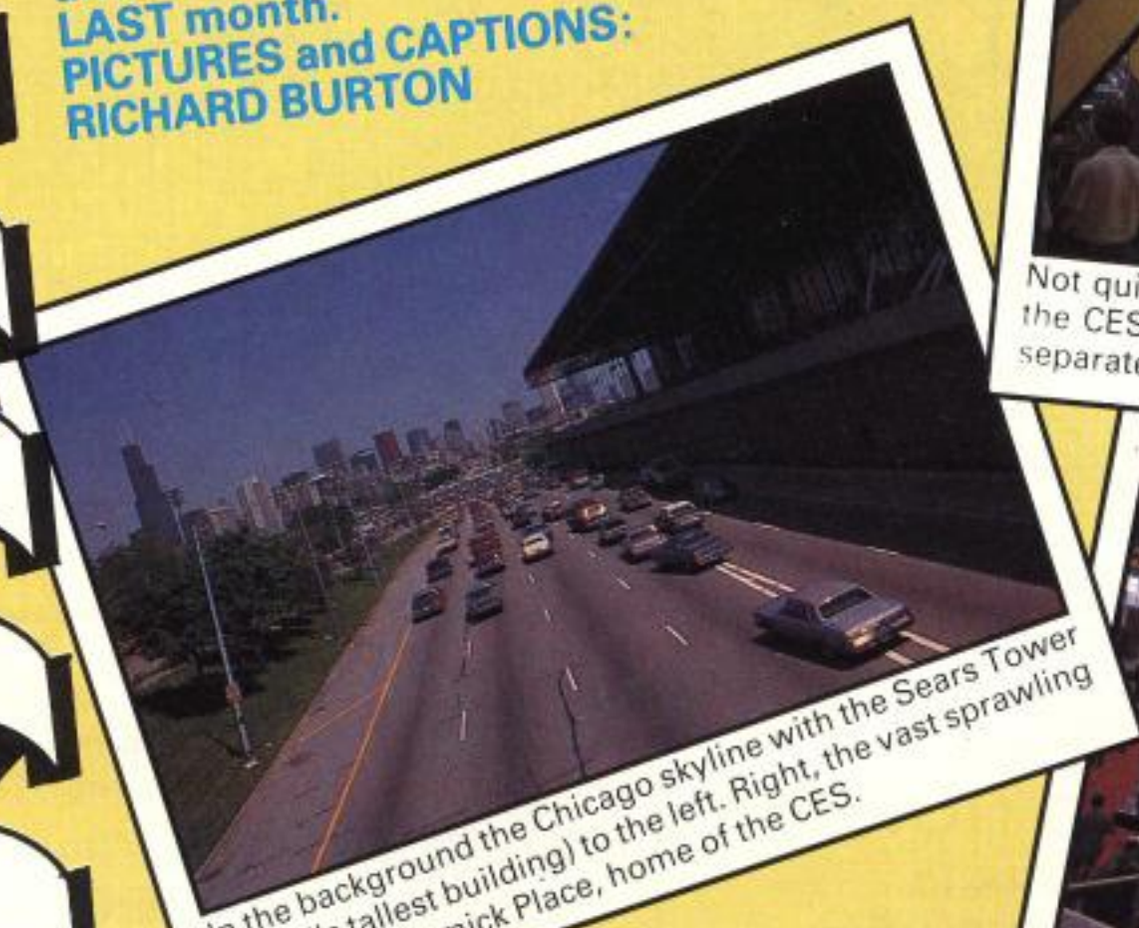
For a whole mess of reasons America remains the hub of the computer galaxy. What happens there today may well happen here tomorrow. For this reason we've devoted a few pages to an in-depth look at the U.S. scene: pictures you haven't seen of products you may never see; American computer-games magazines under the microscope; and what must surely be the state of SOME art or other, a comic designed and printed entirely on Apple's amazing MacIntosh micro. So get some pumpkin pie outta the icebox, suck on a Dr Pepper, and get your head down. 'Cos this month BIG K is . . .

THE VIEW FROM McCORMICK WEST

Last month we reported in haste from the Consumer Electronics Show in Chicago. This month we give you . . . some of the shots and stories we didn't have room (or time) for LAST month.

PICTURES and CAPTIONS:
RICHARD BURTON

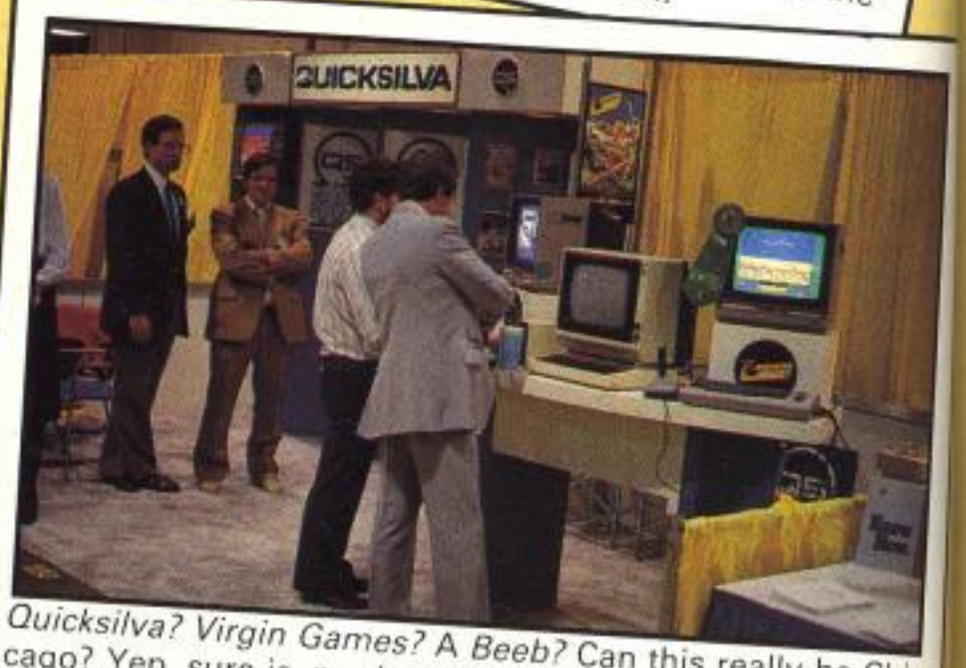
Not quite a MacDonalds Golden Arch, just the entrance to the CES main exhibition hall. The whole show filled three separate buildings.



In the background the Chicago skyline with the Sears Tower (world's tallest building) to the left. Right, the vast sprawling bulk of McCormick Place, home of the CES.

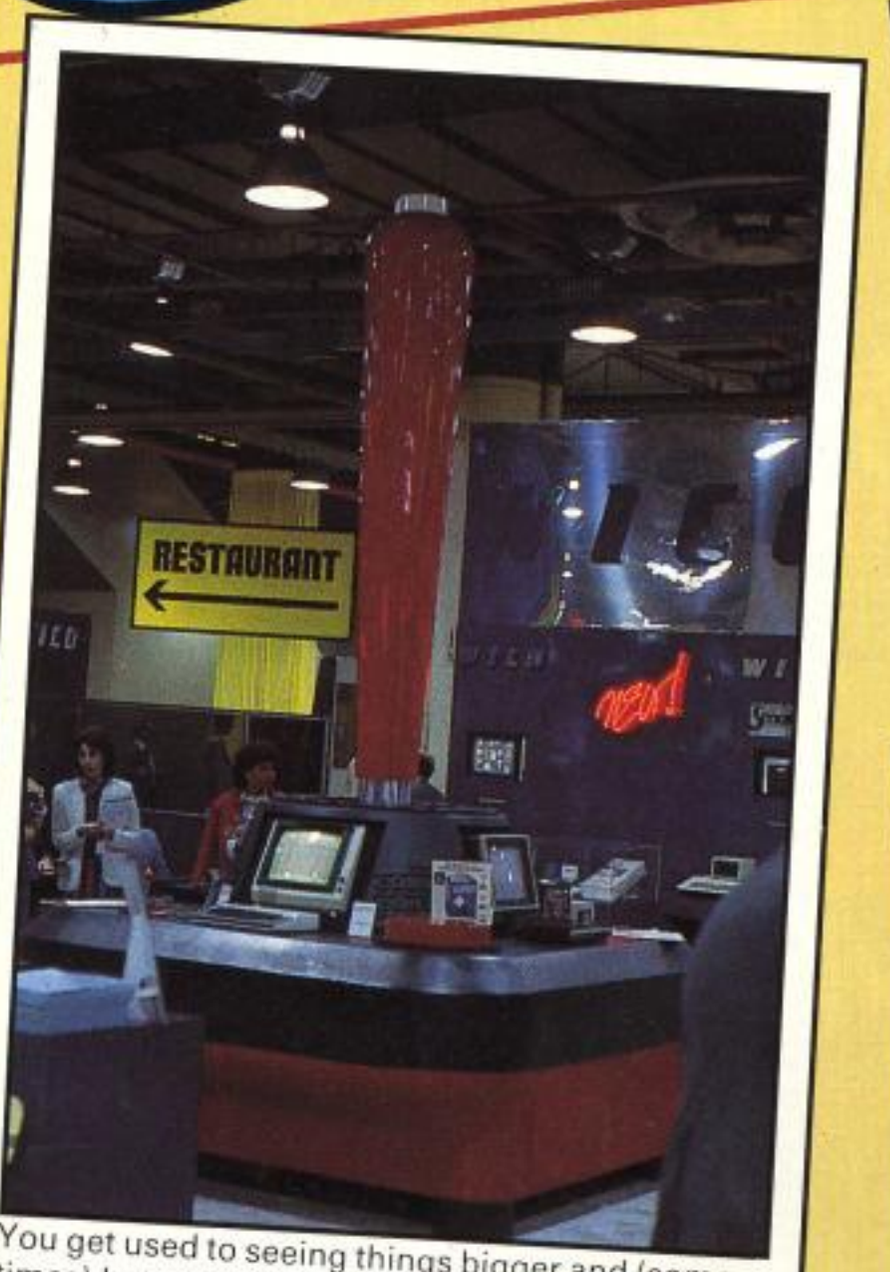
The CES is not just about computers and this shot of the main floor should give you some idea of the size of the show. Somewhere amongst this lot lurks *Atari*.

Atari have a lot of games and a lot of computers — most of them on the their stand. Imagine this little set-up in your bedroom!



Quicksilva? Virgin Games? A *Beeb?* Can this really be Chicago? Yep, sure is, pard, and this here's where them Brits try to teach as about video games. Dang nerve!

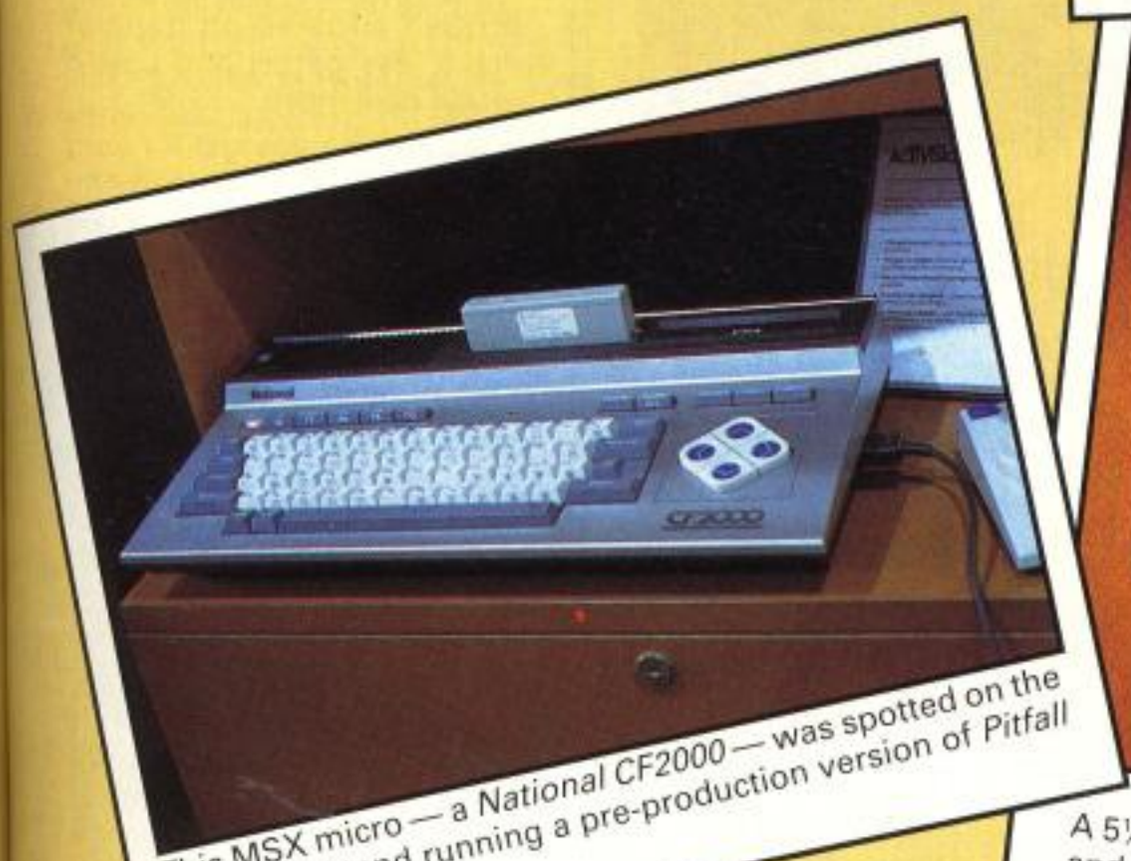
U.S.A.



You get used to seeing things bigger and (sometimes) better in America, including a giant *Wico* joystick. All suggestions for games that can be played with this joystick to BIG K.

MSX was at the CES but you really had to look for it. This *Sony Hit Bit* (still with its Japanese/English keyboard) was sighted on the *Wico* stand.

A genuine ROM-based MSX game — Konami's *Child Park*, a typically oriental game owing more than a little to Activision's *Pitfall* in places.



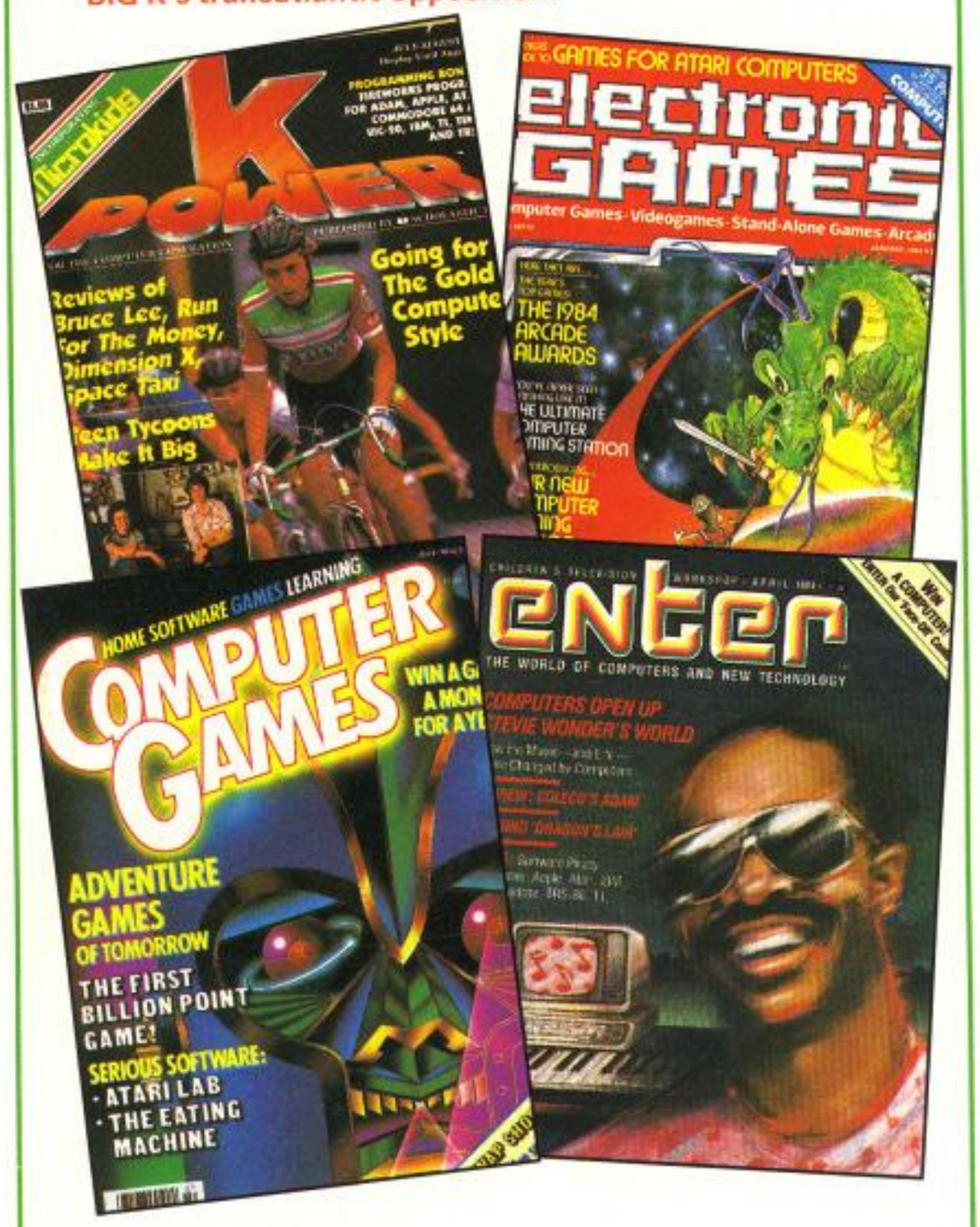
This MSX micro — a *National CF2000* — was spotted on the Activision stand running a pre-production version of *Pitfall II*.

Seen for the first time, new add-ons for Coleco's *Adam* computer: A 5¼" disc drive, a second *Digital Data Drive*, a 64K *Memory Expander*, and more. Coleco are heavily backing their much-criticised computer system. Will it work?

BACK IN THE U.S.A....

CAN 20 MILLION VCS OWNERS BE WRONG?

Not on your life, matey, to judge by the profusion of U.S. computer-game magazines — most of them really video-game mags at heart . . . TONY TYLER peruses a sample of BIG K's transatlantic opposition.



A QUICK glance at the American computer press tells you a lot about the origins of our own version. Like microprocessor technology itself microcomputer magazines originated over There and subsequently appeared over Here, already having acquired a form of recognised identity.

That the model has been US-defined becomes apparent by a quick glance at, say, *Byte*. *Byte*'s obvious editorial aim is to rule the world (which they all but do already, to judge by the thickness of their issues). Their chosen slant is the Authoritative shtick. Clinical, clearly laid-out and above all voluminous, *Byte* sails placidly along on a sea of immense knowledgeability, prestige, and considerable advertising revenue. It is the very model of a modern micro magazine.

Also with a good reputation among magazine buyers in the UK are *Compute!* and *Creative Computing*, both of which take a more relaxed editorial line, aiming generally to the "left" of *Byte* in their (equally calculated) unstuffiness, cheerful layouts, and air of calm, knowing, expert, fair minded, hippie self-confidence.

Although with a few minor exceptions these three are the US computer magazines most highly rated in the UK in fact there are a very great number of other, not too different magazines, many of which never get distributed here. But to say many of them are unlike anything you've seen before would be to overstate matters. There are: business machine magazines; general computing magazines; hand-held personal computer magazines; soft magazines; dedicated-machine magazines; educational titles, and game magazines.

There are a *lot* of game magazines, actually.

As we all have our definition of games magazines let me say I mean magazines who deal with "recreational computing"; any use of a computer or computer-like object to do anything spectacular and involving, *not* already defined as either Business or Educational. Leaving it at that (for now) in the UK, what do we find in the US? Proportionally nearly three times as many games magazines. And for this you can blame the Atari VCS and other videogame machines.

The fact is that, for Americans, the Age of the Computer began with the Atari VCS — later on with the Intellivision, the Odyssey, the Sega and of course the Coleco as well. As a result they underwent an entirely separate stage — the great VCS Diversion. By committing millions of potential one-time buyers to games consoles, the salesmen ensured that the real computer revolution in America would come, for the average American family, at least a year late as a result.

Videogame culture — as a genuine and recognised precursor to full-blown computer culture — began with Atari, lives on — still — with ColecoVision, and in its two years of unchallenged monopoly has spawned several videogame magazines. Examples are *Electronic Games*, *Electronic Fun*, *Joystick* (since defunct), and *Vidiot* (ditto) to name just a few better-known.

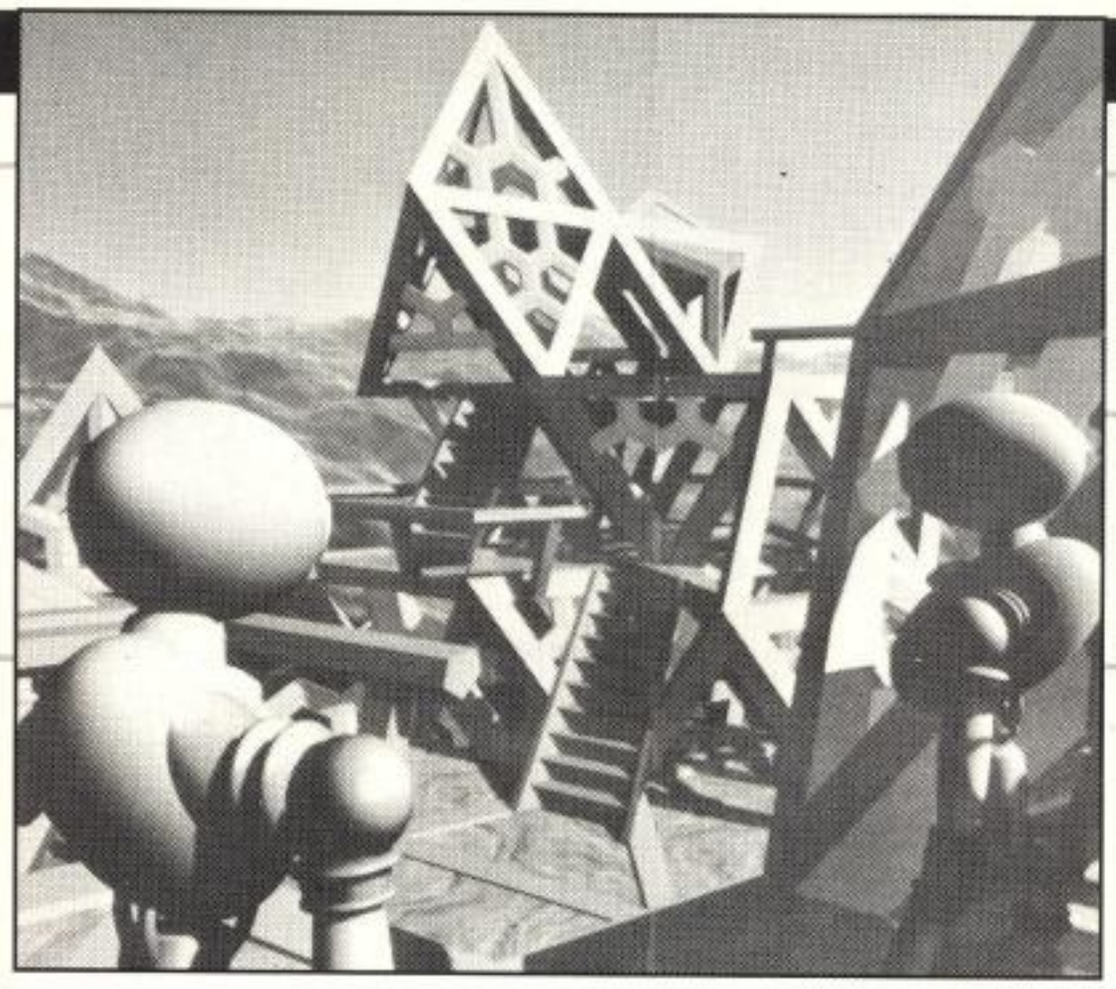
The arrival (willy-nilly) of the US computer revolution has meant that survivors have had to consider becoming keyboard conscious, in mid-stream as it were. *Electronic Games* has for some time now printed short utility programs for the US-favoured computers. But chiefly because they daren't abandon the huge US videogame ownership, even "Junior Computer" mags continue to review and support videogame stuff wholeheartedly. Apart from that a list of their contents would sound familiar enough to British ears: general features; software reviews; some hardware; standalones (big business in the US), and arcades. To this add occasional very short utility programs for the half-dozen most popular computers; equally short games listings; and movie/TV reviews where appropriate. It all sounds recognisable enough stuff. On paper.

But there are differences. American games mags carry far less advertising than their British cousins, in general have less pages and cost a good deal more.

One thing you get for your money is full colour throughout; and I guess they need the money since they all have staffs about three times the size of British magazines. Artwork in these magazines is often (though not always) superb. Above all the flavour is American.

ELECTRONIC GAMES
Monthly; $2.95

The doyen, fatter than ever now since the demise of its chief rival. Original launch diet (videogames, arcades, standalones) still predominates, though computer features have been increased over the last year or so. Specialises in imaginative reviewing — every feature in



EG is almost certain to be a review of some sort — often using artwork to romanticise the limitations of the writing (a little too Gee Whiz in places, gang!) Averages 132 pages per issue, of which (in our sample) 44 were advertisements.

Verdict: The definitive videogamer's magazine. Will take the Pro 7800 seriously.

COMPUTER GAMES Monthly; $3.00

Like *EG*, *CG* aims squarely at VCS country. ("We're talking about those ten-year-olds", a company rep recently told our man in Chicago). Half the number of pages of its rival and correspondingly less advertisements. Nevertheless paper quality is excellent and of course full colour predominates. Layout is cheerful and uneconomical by British standards. Like *EG*, uses The Review as all-purpose feature device. No computer programs whatever — wholly a software buyer's magazine. Good writing; especially good letters.

Verdict: smart, a bit padded, good print job, may find life tough if videogame market continues to go down the tube as predicted.

K POWER Monthly; $1.95

Our American namealike, one of the slimmest of our sample at 64 pages, nonetheless takes the same definite step up the evolutionary ladder (so to speak) as *EG* by featuring type-in programs for major US computers and also "support" features . . . all of this, albeit, on a very modest scale. Otherwise . . . the mixture as before.

Verdict: half-hearted; bland; untidy.

VIDEO GAMES Monthly; $2.00

The mixture pretty much as before — *VG* (can *you* think of any unused 'G's'?) majors by a whisker on arcades, with ROM- and disc-based game reviews (in the usual various guises) predominating. Nothing for tappers at all — nothing remotely technical, in fact. Average issue 80-odd pages, the usual full colour and airy layouts. Our sample, interestingly, features a respectful interview with Nolan Bushnell and a tough, gritty, knowledgeable and utterly ruthless demolition job on the Timex-Sinclair 2068 (the US-packaged Super-Spectrum). Screen shots and nice artwork round it off.

Verdict: As Computer Games.

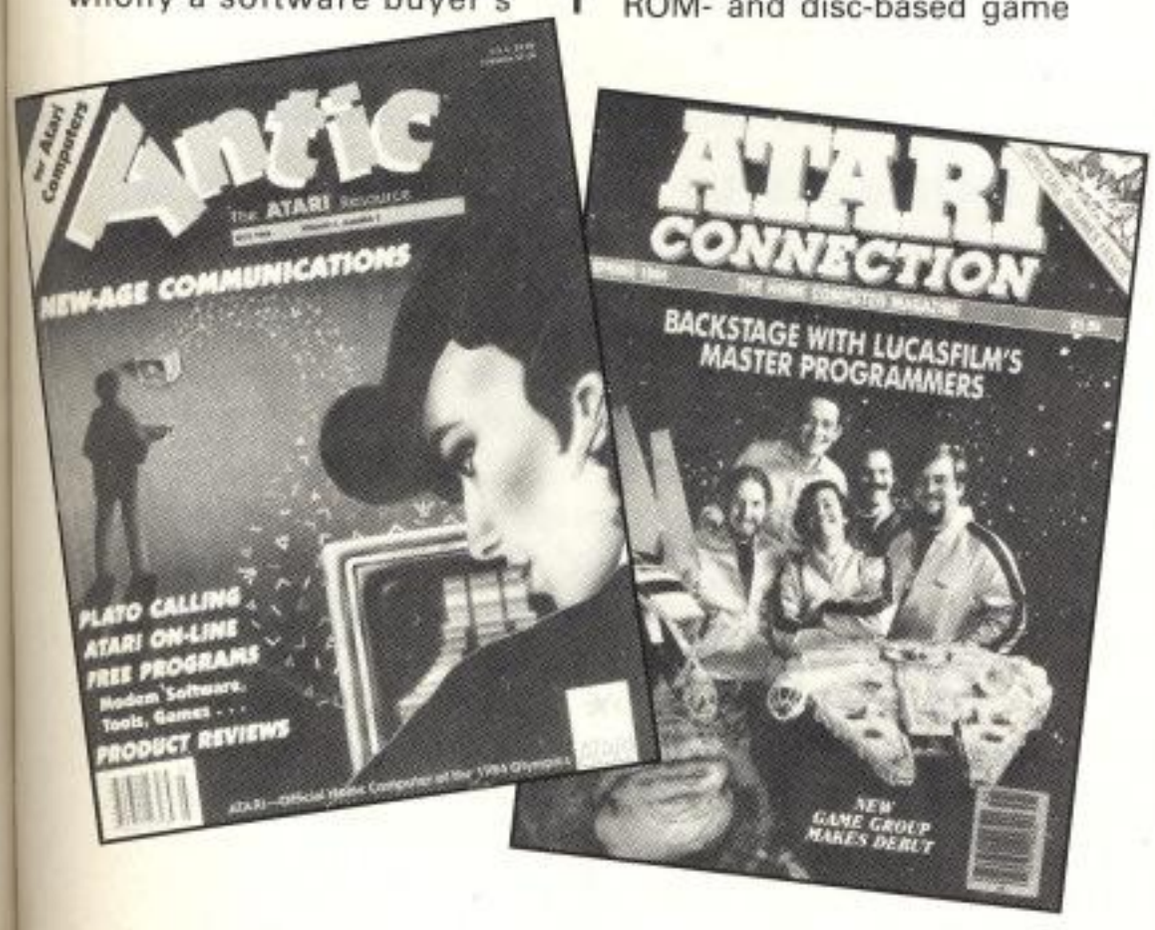
The above list represent the bottom rung (as it were) of our sample (in 'seriousness' terms). Next tier up finds us, as it does in the UK, among the dedicated-user magazines. These naturally exist, in great profusion, for all major machines, and many of them reach our shores to compete directly for sales with the home-grown product.

However not all of them do go on sale here. For example, Atari have magazine support in Britain, only not from American magazines. Two more Atarimags in our overall sample are *Antic*, which subdescribes itself as *The Atari Resource*(resourceful of them); and *Atari Connection* (perhaps the most uninspiring name of the whole bunch). Both are pricey at three bucks, actually well-presented and balanced, and aimed clearly at the novice (or relative novice, computer user. You expect, and get, quite long and easy programs, both games and utilities, in Atari Basic — but articles on, say, 6502, Assembler or Adventure Parsing would be wildly over the top of their mission profile. Both magazines also feature general articles, often of a 'speculative' and 'thoughtful' nature (i.e. padding).

As always it is all in four colours and on good, thick paper with a decent bit of a gloss to it. *Antic* is 100 pages, *Atari Connection* a little smaller at 80.

The single most irritating thing about all of these magazines (and there are many others we haven't even mentioned) is that as far as they and their huge readerships are concerned the words Spectrum or Acorn, Ultimate, Minter and Smith, don't mean a thing. In Britain the videogame machine was relatively slow to arrive — Sinclair's ZX80 was hard on its heels. As a result dedicated videogames never took massive root here, as they did in the States — they never had time to. Would-be computer types skipped that stage altogether and went straight into small, cheap micros, cassettes and started programming right away. It is doubtful if a purely videogame magazine could even have survived in Britain.

American computer game magazines are all intensely respectable, and for an American market, well-designed. And yet in Britain no equivalent readership is said to exist. There must be something significant in this, if I could only work out what it is.



ALAS, NO LONGER WITH US . . .

Not all of the vast range of US computer-game mags have stayed the course. One of the first, *Electronic Fun (incorporating Computer and Video Games)* transformed itself into *Computer Fun* a few months ago . . . but lasted a mere two issues. *Mikrokids* (pic), more or less the US equivalent (in content if not style) of our own dear departed *Load Runner*, merged recently with *K-Power* (see main text). It suffered, as *Load Runner* suffered, from a jovial, patronising, educational tone and was — in a word — just too juvenile for words. So down the tube it went.

Then there was *Joystick* — in this writer's view, probably the best of the originals in both in looks and style (even if it was as videogame-dedicated as its opposition). For two years it gave *EG* and *EF* a run and half for their money, but in circulation wars there are seldom winners, only losers, *Joystick* lost.

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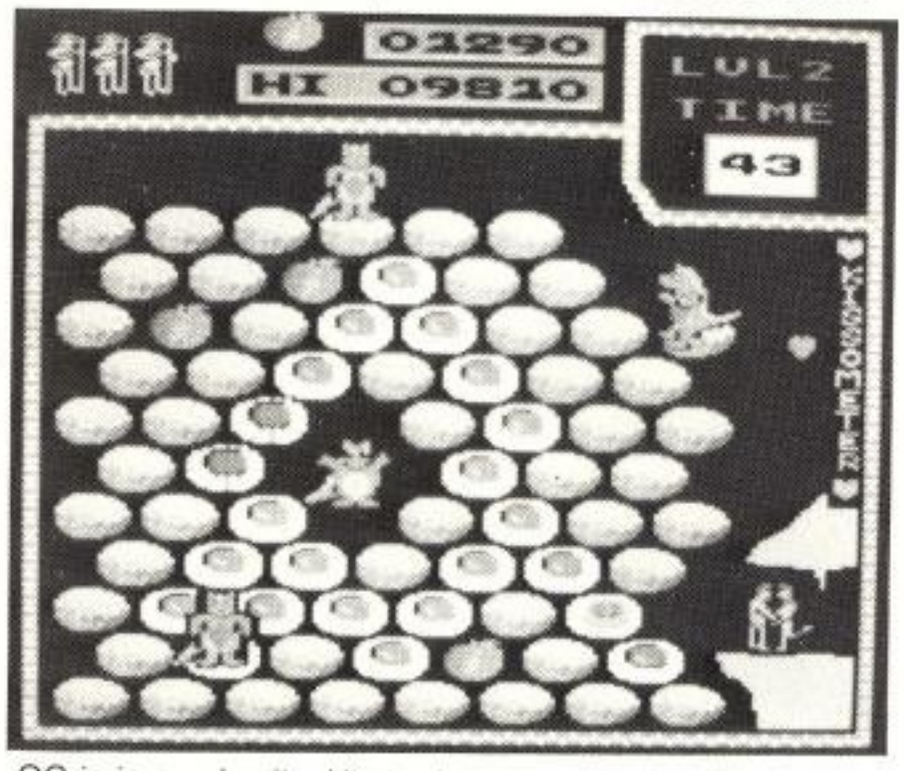

OG is in a calamity. His territory has been taken over by dinosaurs that lay eggs at a really hectic rate. Og must crush the brood before they hatch by jumping on to each and every egg. Og's problems are compounded by a pack of slavering dinosaurs hungry for his blood — and on higher levels by grand old Ma dinosaur herself. Og can use his magic staff to set a trap, but time is precious as Og knows all too well. Big bonuses can be scored for jumping on fruit, and an even bigger bonus for snatching a kiss from his waiting cavewife.

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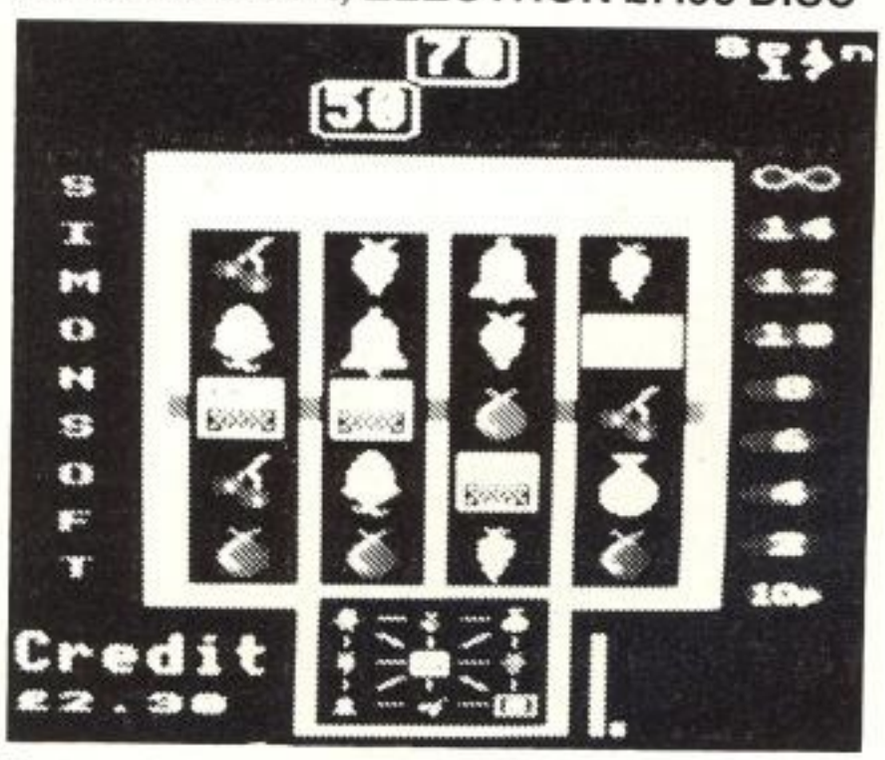

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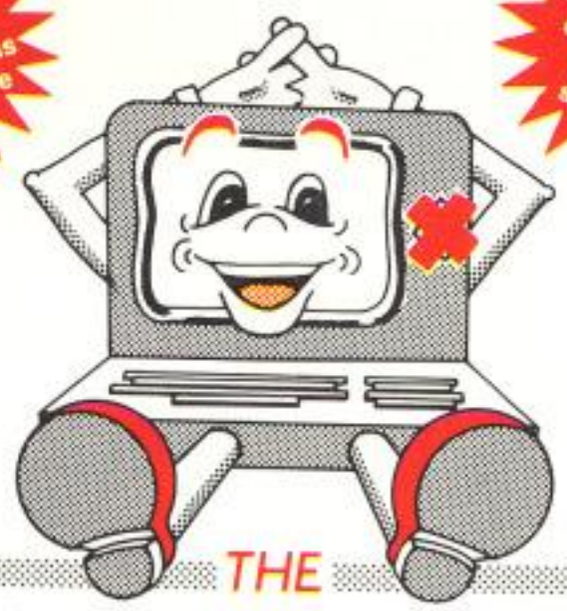

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LISTING 1

```
 10 REM   Extension to Hi-res
 20 REM    Printing  Routine
 30 REM   By  Richard Taylor
 40 REM
 50 CLEAR 64716
 60 LET a=64717
 70 FOR l=1 TO 7
 80 LET t=0: READ v,a$
 90 IF LEN a$/2<>INT (LEN a$/2)
THEN GO TO 200
100 FOR c=1 TO LEN a$ STEP 2
110 LET x=CODE a$(c)-48-7*(a$(c
)>="A")
120 LET y=CODE a$(c+1)-48-7*(a$
(c+1)>="A")
130 POKE a,16*x+y
140 LET t=t+16*x+y
150 LET a=a+1
160 NEXT c
170 IF v<>t THEN GO TO 200
180 NEXT l
190 PRINT "Data OK - Now load P
rinting9       Routine & Save": STO
P
200 PRINT "ERROR in line ";990+
l*10
210 STOP
1000 DATA 6067,"3E03CD01162A515C
110400193E50BE2802CF122A515C11F0
FC7923722100002258FEC9FE20303BFE
063835FE18303111FDFC6F26002919 5E
2356EBE9D0FD2DFD"
1010 DATA 8782,"96FDA4FDB2FDC2FD
2DFD8FFD2DFD2DFD09FE09FE09FE09FE
09FEECFD1FFE1FFE3E3FFDCB57462036
FEA53805D6A5C3100CFE803806FE9030
023E20325EFE2A58"
1020 DATA 8841,"FE225CFECD5FFE2A
58FE7DC6086F300A7CC60867FEB03802
CF042258FEC9F53E20325EFE2A5AFE22
5CFEFB76CD5FFE2A58FE225CFEF1325E
FECD5FFEFDCB5786"
1030 DATA 6939,"18C52A58FE2E0018
C72A58FE7DA720013C3D6F2258FEC92A
58FE7D3C20023EFF6F2258FEC92A58FE
7C3CFEB038023EAF672258FEC92A58FE
7CA720013C3D6722"
1040 DATA 8446,"58FEC92A58FE7D3C
200C7CC60867FEB03E003802CF046FE6
7F20EB2258FEC911F2FDC3800A11F0FC
CD800AFDCB5786A7C8FDCB57C62A58FE
225AFEC91112FE32"
1050 DATA 6218,"0E5CC3800A11F0FC
CD800A573A0E5CC311221128FE320E5C
C3800A1131FE320F5CC3800A11F0FCCD
800A4F3A0E5CFE16280A3A59FE473A0F
5C4F1803FD46D578"
1060 DATA 1545,"FEB03802CF04ED43
58FEC900000000"
```

MORE HI-RES PRINTING

...In which RICHARD TAYLOR continues his arcane and fearfully knowledgeable series on Hi-res programming tools for Sinclair Spectrum

LAST MONTH I presented a high resolution printing program. This time I'm going to continue (why not?) by listing an addition to the old routine which improves it so that it can be used directly with PRINT statements — in stark contrast to having to use unwieldy pokes and machine code USR calls.

The augmentation to the original program will also give it same some new features, such as actually being able to define the colour the output is printed in, a routine to help make the flicker eminent in the first version a thing of the past and to allow you to Hi-Res print whole strings of characters in one fell swoop.

As with the last program, this also is written in machine code. If, like the majority of the computerised population, you've got an instinctive fear of MC, then don't worry; the program comes nicely packaged in a BASIC format — listing 1 for 48K hackers or the second listing for relatively impoverished hackers of the 16K variety. The loader prog also incorporates a checksum routine, which should prevent any crashing machine code or hex hassles.

Before I continue, I feel I should warn you that you'll need to muster a copy of last month's prog from somewhere. If you didn't type it in, or the version you did possess was mislaid/erased/savaged by a mad dog then you'll need to either nick or cadge a copy. Failing that, you'll need last month's mag and some finger power. Once you've sorted that out, you're ready to type in this month's listing. After you have RUN the program (and waited a couple of minutes), you'll get one of two messages; either one instructing you to load the Hi-res printing program from last month and then save or, for the less fortunate, a message informing you that there is an error in a certain DATA statement. If you do get the latter message then I'm afraid that you'll have to find the error in the offending line and correct it before trying your luck at re-running. Once you're successful you can load the code from last month's program with 'LOAD "" "CODE' and then make a couple of copies of the new program

No. 5: EASTERN FRONT, 1941 (Atari)

EASTWARD HO!

Operation Barbarossa, 1941, was the code-name for the German invasion of Soviet Russia. The invasion itself came badly unstuck, millions of lives were lost and untold damage caused. The only good result was one of the best ROM computer games ever made. JOHN CONQUEST appraises . . .

NOW THIS is what I call a real computer game, one that uses the Atari as a thinking machine not just a big fast storage bin for jumped-up video games. You play the Germans, the Atari (any model) plays the Russians and, as your team were the real-time losers, it takes mucho brain strain to reverse the result of the german invasion of Russia. Even if ther was a loony at head office, the Hums had some very bright boys on the job — you have to do better than they did.

Open the £19.95 box and you get a ROM cartridge, a very useful operational map of the game area — Poland to the Urals, Finland to the Caucasus — and possibly the worst instructions ever.

MAP

Plug in the cartridge and a joy stick, switch on and you get a small portion (about $^1/_{32}$th) of the map on screen which you scroll round to get the other installments. There are 1840 'squares' on the map but most of the action will be in the western half. Take a long hard look at that patch of dark green Vs in the left middle. That's the dreaded Pripet Marshes and they are very bad news.

Select offers you Learner, Beginner, Intermediate, Advanced, Expert 1941 and Expert 1942. With Learner you get a single Panzer corps while Uncle Joe had a milita army standing pat on Moscow. The 'object' is to take Moscow but the real idea is to run the unit through the various kinds of terrain to see what happens. (It slows down drastically when it hits marshes, forests and rivers, that's what happens.) so the first lesson you learn is to keep 'em in the open.

Place the cursor on any unit, fire, and its name and current status will appear at the bottom of the screen. Status is in two parts, muster and combat strengths. The latter is the business end but at advanced levels you have to keep a sharp eye on the balance in case panic sets in. While firing, a Maltakreuz (Maltese cross) appears over German units; move the stick in the direction you want the squareheads to go and the cross moves accordingly. You can enter up to eight orders at a time, changing direction as often as you like, and little green arrows flash along the route with the cross at the terminus.

Panzers moving unchallenged across open country can, in practice, only manage seven orders a turn and that kind of breakout stuff comes much later, after you cross the Dnieper, so what with terrain effect and the commies the chances of all your orders being carried out are pretty remote.

When you've run out of ideas, get the vital sector on screen, press Start and the computer will execute as much and as many of your orders as it thinks reasonable. At the same time it'll move the Russians, usually to the same places, curse it. Anything to mess you about. All this happens to the sound of muted heavy guns.

Beginner gives you 17 Germans while the computer, no fool, gives itself 32 Russians. The sole object of this limited (northern sector only) exercise is to take Moscow. At all levels a turn is a week and Learner, Beginner and Intermediate run from June 22 to September 28 1941. Beginner is best used to practice co-ordination. It's essential not to create traffic jams, blocking units in behind each other, especially Panzers which need plenty of elbow room.

This is where you learn about the Pripet Marshes. Try sending units through them and see where it gets you. Even at this level there are inevitable, savage and crucial battles round Minsk, Kiev and Smolensk.

On to Intermediate and you now have to take Moscow, Lenigrad and Stalingrad with 30 crops, the godless Reds fielding 66 armies. The front Stretches from top to bottom of the map and it's a lot more work. Even so it's not really difficult yet and solid methodical slugging should see you right.

Advanced is something else again. You have 42 corps, with reinforcements trickling in through Poland, Rumania and Hungary, a flashing asterisk indicating availability, plus two Finns waiting for you to take Lenigrad. But the Russians have 96 armies and their two best generals, Autumn and Winter, the guys who saw off Napoleon when he tried this game. Mud sets in on October 5 and everything freezes over, the screen going a ghastly white, on November 2, only easing up slightly just before the end of the game, March 29 1942. To add to the fun you also have to get to Gorky, Kuibishev, Kazan and Krasnodar, way out east.

Expert 1941 also runs from June 1941 to March 1942, with 47 Fritzes 1941 also runs from June 1941 to March 1942, with 47 Fritzes facing up to 119 Ivans, and there are three new wrinkles: a massive negative starting score, four useful but delicate Fliegerkorps and you have to put units into specific modes. The Fliegerkorps are Stuka units whose strength can be added to attacks, but their bases have to be kept near the front but well away from any Russians. The modes are standard (do anything), assault, forced march and entrenchment, all of which have pros and cons.

Expert 1942 is identical except that the campaign runs from May 1942 to March 1943, with appropriate set-up. I must admit that I don't know whether these levels are actually winnable — Heinz Guderian I ain't — but the Save routine is vital. You gotta sleep sometime!

It always pays to combine forward planning with simple opportunitism. As you can only see part of the battlefield at a time, it's useful to think of the units in a given area as a Group and have some idea of what each Group is trying to do. Exploit gaps, sure, but don't get carried away or the Panzers will be cut off and massacred.

The best way to wipe Bolshy units out is to bracket them between your own and this trick can be pulled off on quite a large scale if your Panzers are doing their job. Of course the Russians can, and do, play this game as well.

Eastern Front is the work of designer Chris Crawford who also did the conceptually excellent but functionally rather primitive *Legionnaire* (Avalon Hill). A great strength of his designs is that apart from using the space bat to cancel orders and the Start button to execute them, they're completely joystick operated which makes them far more playable than, for instance, Strategic Simulations' horrendously complex all-keyboard *Battle for Normandy*.

Like all the present generation of wargames, *Eastern Front (1941)* is very obviously based on a board game, avalon Hill's classic *Stlingrad*. But as a computer game it's in a class of its own, the state of the art of electonic kriegspiels.

INTERACTIVE BREAKTHROUGH- OR LOGISTIC PAIN?

RICHARD BURTON checks out *Empires*.

LET ME tell you, this Galactic Domination lark is real hard graft. There are fleets to build and dispatch, mining operations to set up, battles to be fought and alliances to be formed. If that wasn't enough there's the constant threat of that awesome pangalactic entity known as the Post Office to contend with. Heavy stuff.

You're confused? I can dig it. But what we have here is one of the more unusual offerings in the field of computer games — Imperial Software's *Empires*. More than a game really, since Imperial refer to it as a "... Fully interactive strategy game". Interactive it certainly is with room for up to six people (plus one umpire) to play — none of whom need ever meet any of the others. Such a unique, untypical games situation comes about by each player only having his or her own part of the game to contend with and communicating with the others through the umpire.

Let me explain. The basic *Empires* kit comes in a cardboard box looking not unlike a traditional board game. Only a flash containing the words "For 48K Spectrum" gives away the true nature of the game. Inside a styrofoam tray contains four program cassettes, 3 for the players and one for the umpire, individual player rulebooks plus a larger Umpire's manual, four cardboard Galactic Maps and a large wodge of small record cards to keep track of individual movements once the game really gets into its stride. An Expansion Kit (the first of several that are promised) contains 3 more cassettes to bring the player roster up to six plus fresh supplies of Galactic Maps, record cards, etc.

When you're a long way from home you can never have too many Galactic Maps.

Once the basic kit has been acquired three aspiring, power-hungry tyrants, each with access to a 48K Spectrum, are chosen at random and supplied with one of the player cassettes plus rulebook and all the trimmings. A fourth individual, who knows where the true power lies, takes the umpire's cassette and rulebook and all four depart to their corners (homes?) to prepare to intergalactic conflict.

NUMBERS

Depending on numbers players find themselves as either a human of the Federation of Earth, a reptillian Warlord of Tyr or a mechanical Robozon of Tyr. Each has a home star system, a population to protect and a budget. However, regardless of race, creed or date of manufacture, the subsequent gameplay is the same.

First the program is loaded and a name and security code chosen which will stay with the player throughout the game. The Main File gives three main options: Military, Strategic and Mining.

Military is to do with building ships (battlecruisers and scout ships) and assigning officers to them from a roster supplied.

Strategic Command handles all military and civilian movement. Solar systems can be scanned for information before committing forces to them. The on-screen map matches the card Galactic Maps supplied with the game so that constant checks on deployment of forces can be kept.

Once all the data has been fed in the player's first move is complete. The data is SAVEd onto a blank cassette and given (sent?) to the umpire. Depending on how widely scattered the players are, this is where the awesome cosmic power of the Post Office could come in, by sending important data into the nearest black hole. A serious flaw in the system, we think.

Assuming that all the players' moves arrive safely and before interest flags the umpire, using his own special program, evaluates the total situation. He has the power to resolve the outcome of battles, communicate with players individually, even (sneaky devil) send false data or garbled messages.

Once battles have been decided, claims staked, etc., the updated blanks are returned to the players ready to begin the second move.

As the game progresses alliances can be formed between players, secret messages exchanged, etc. Be warned that *Empires* could go on for a very long time — games of months in duration are not expected to be uncommon.

The objective is simply to trash every other race in the universe and become the Supreme Ruler. There are only three ways to lose: If a player's population drops below a danger point (not very likely); total bankruptcy; or an enemy race destroying a home planet's defences (most likely).

Without doubt Imperial Software have an extremely impressive product in *Empires*. It's state-of-the-art in computer strategy games. Their approach is thoroughly professional. Screen graphics are very good with fast, menu-driven commands. *Empires* is complex and stimulating enough to keep a player's attention for a long time (it will need to) and has the potential for expansion (already started). But — it has to be said — who will buy it?

ALL PRESENT AND CORRECT

...Snaps BERNARD TURNER, dashing of a crisp salute as he sums up his epic 3-porter on the 68000 Wonder Chip

How Hardware Influences programming

THE MOTOROLA 68000 chip on its own, unattached to anything, would be as much use as a dog's dinner. To make it useful you have to attach memory (normally in the form of RAM, ROM and EPROMs) and I/O devices (often known as 'Ports').

The chip is connected to these by what is commonly known as a 'Bus', in actual fact by three distinct busses, 'Control', 'Data' and 'Address'.

The function of Address Bus is to select the correct 'slot' or location. The function of the Data Bus is to carry data form/to the selected (by the address bus) location. Finally the Control Bus governs and monitors the state of the micro hardware, especially the interaction between memory and the 68000.

Each Bus is a collection of electrical lines. Generally speaking these lines can be on or off (i.e., set or clear), thus conveying binary information. In the case of the Data Bus these number 16 and are numbered from 0 to 15. The Address Bus has 23 lines and they are numbered 1 to 23. The Control Bus has many different functions to perform in its role and each are individually named such as 'DTACK' and 'UDS'.

Those of you who know about address lines may be asking 'what has happened to Address line zero?' — where the hardware starts to affect the software. When there isn't a zero address line then a processor cannot select odd numbered addresses (binary remember) because it cannot switch on or off a non-existent line. This therefore induces the processor to think of the memory as occurring on even boundaries. Because of this, if you try and access odd memory via an Address Register or the Program Counter then an error will occur. This error is called an Address Exception.

There are only 23 Address lines emanating from the 68000 and 68010; the top eight bits of the Program Counter and Address Registers are thus superfluous, and presumably are there only for upward compatibility with future Motorola 68000 based products. Just to confuse matters the 68008 chip (as used in the Sinclair QL) only has 20 Address lines, numbered 0 to 19, available from the chip itself. This means that only one(!) megabyte of memory is directly addressable if you are using the 68008 variety. Sharp-eyed readers among you may notice that there is an A0 address line; this is because the 68008 reads its data in one-byte chunks (there are only 8 Data Bus lines). It still maintains compatibility with the 68000 by forcing you to use even address boundaries.

68000 Architecture

THE MOTOROLA 68000 contains the Data Registers D0 to D7, Address Registers A0 to A7, a program counter and a status register.

Data Registers

Data Registers are general purpose registers. They can operate on byte, word and long word sized data. They can be used as indexes in PC and Address Register Indirect addressing modes. Unfortunately they cannot directly point to memory locations.

Program Counter

In the 68000 the Program Counter is a 32-bits wide Register. It functions as a pointer to a memory address where the next instruction to be executed is contained. Each time the 68000 wants to start a new instruction it consults the Program Counter (PC) as to from where in memory it should fetch the new instruction.

Status Register

The Status Register reflects and influences the MPU as it is processing. It is only 16 bits in size and is distinctly separable between its top and bottom 8 bits. The top byte is known as the System Byte. The bottom byte is known as the User Byte or Condition Code Register.

The Status Register Format

Bit		
0	Flag	
1	Carry	(C)
2	Overflow	(V)
3	Zero	(Z)
4	Negative	(N)
5-7	Extend	(X)
8	Unused	
9	Interrupt mask 0	
10	Interrupt mask 1	
11	Interrupt mask 2	
12	Unused	
13	Unused	
14	Supervisor	(S)
15	Unused	
	Trace	(T)

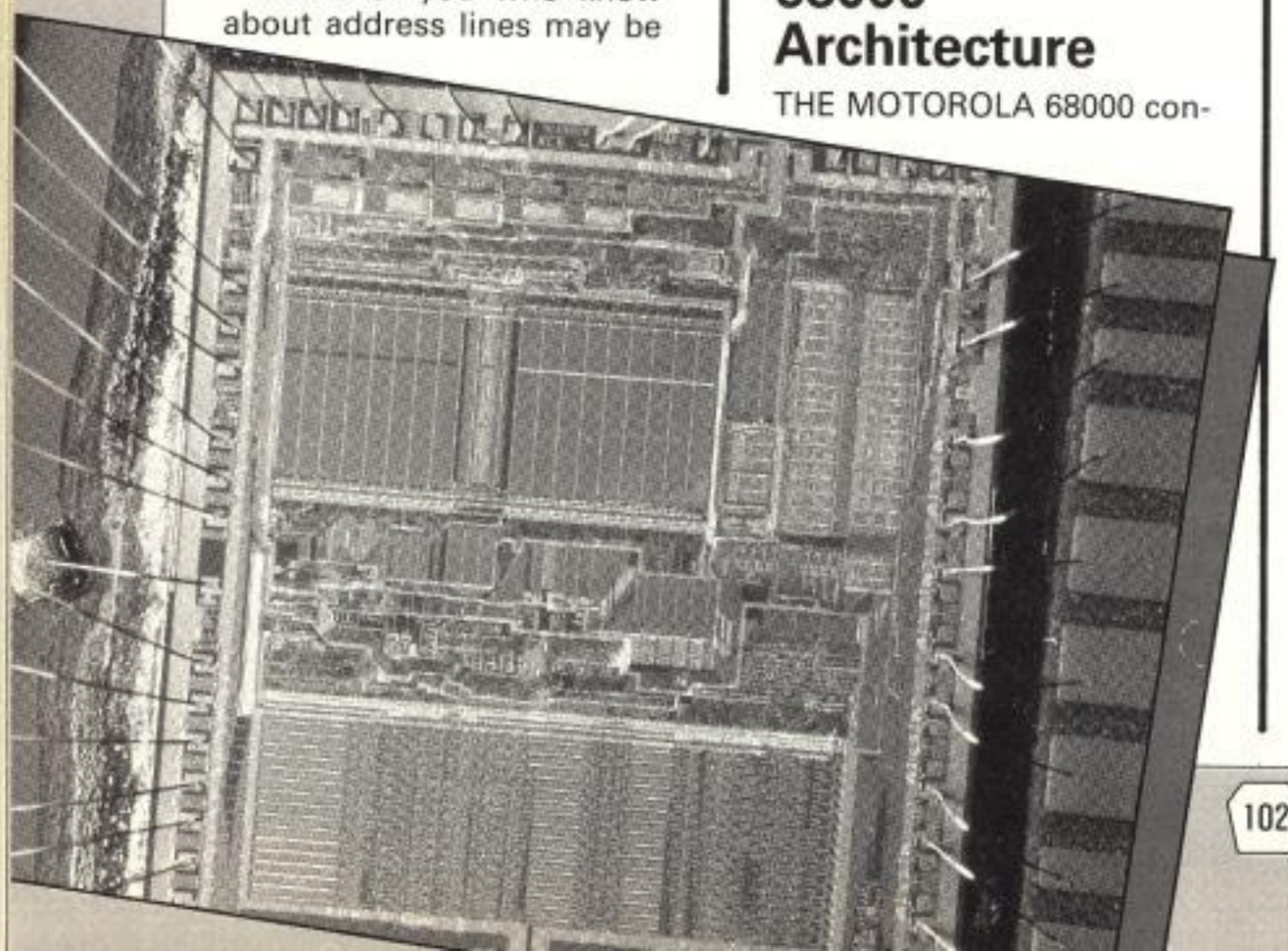
Supervisor Mode

The Bits can be either Set or Clear. The Status Register can be modified. What can be modified depends on the register itself — to be specific, it depends on the Supervisor Flag. If it is set then the 68000 is in Supervisor Mode of processing, otherwise User mode.

The difference between these two modes is mainly one of privilege. In Supervisor Mode you are allowed to execute any legal instruction. In User Mode there are a few instructions you cannot execute, these being mainly instructions that would allow you to enter Supervisor Mode! If not in Supervisor Mode then it should only be possible to enter it by an Exception or by a 'entrance' made available to you by the person who programmed the Supervisor Mode portion.

Trace Mode

The most valuable bonus of Supervisor Mode is its ability to single-step through each instruction. 'Single-stepping' is the execution of a single instruction, then normally a jump to a monitor routine, which allows you to examine and modify processor registers. You can then execute the next instruction and so on. Single-stepping is initiated by setting the Trace Bit (T) to one.



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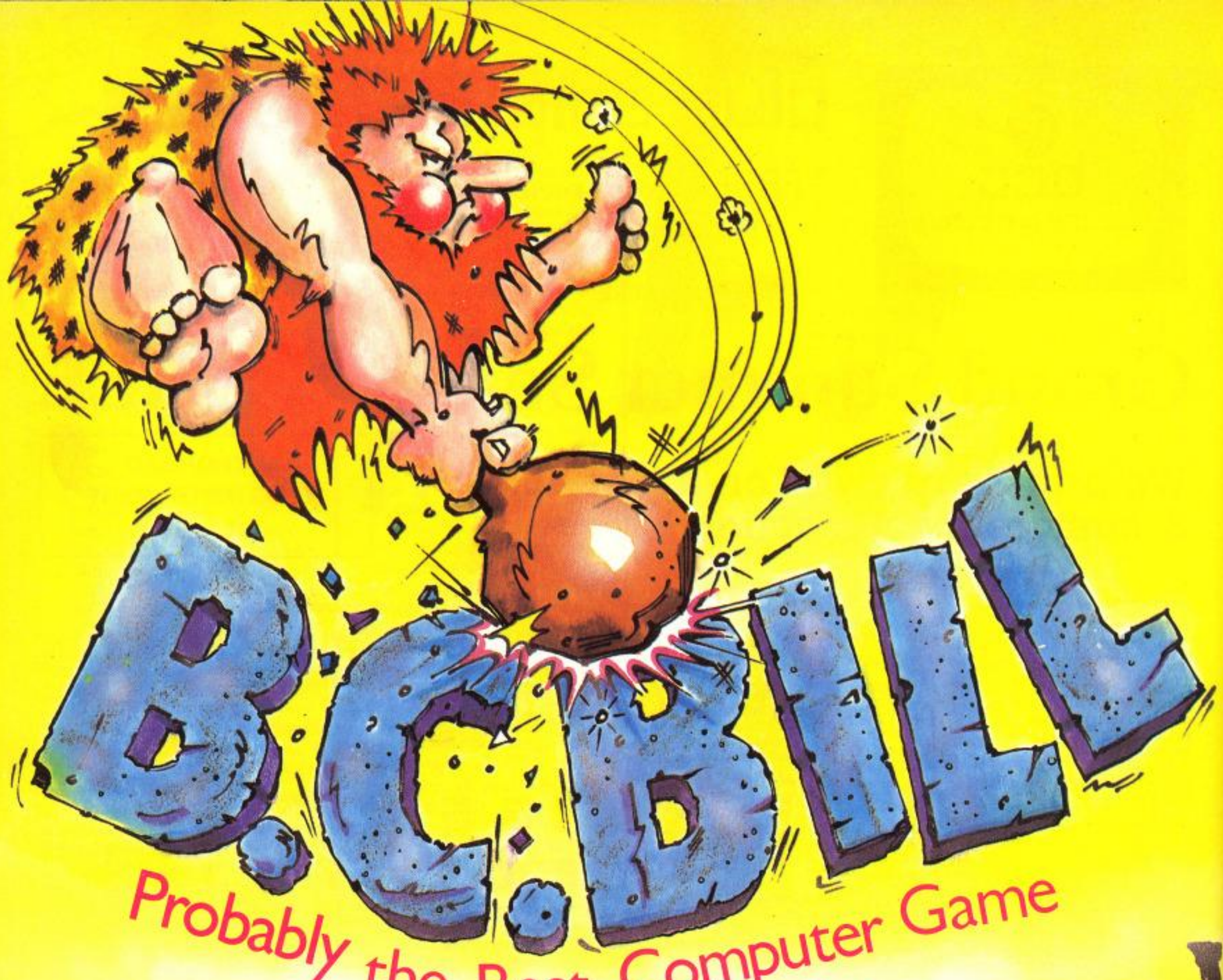

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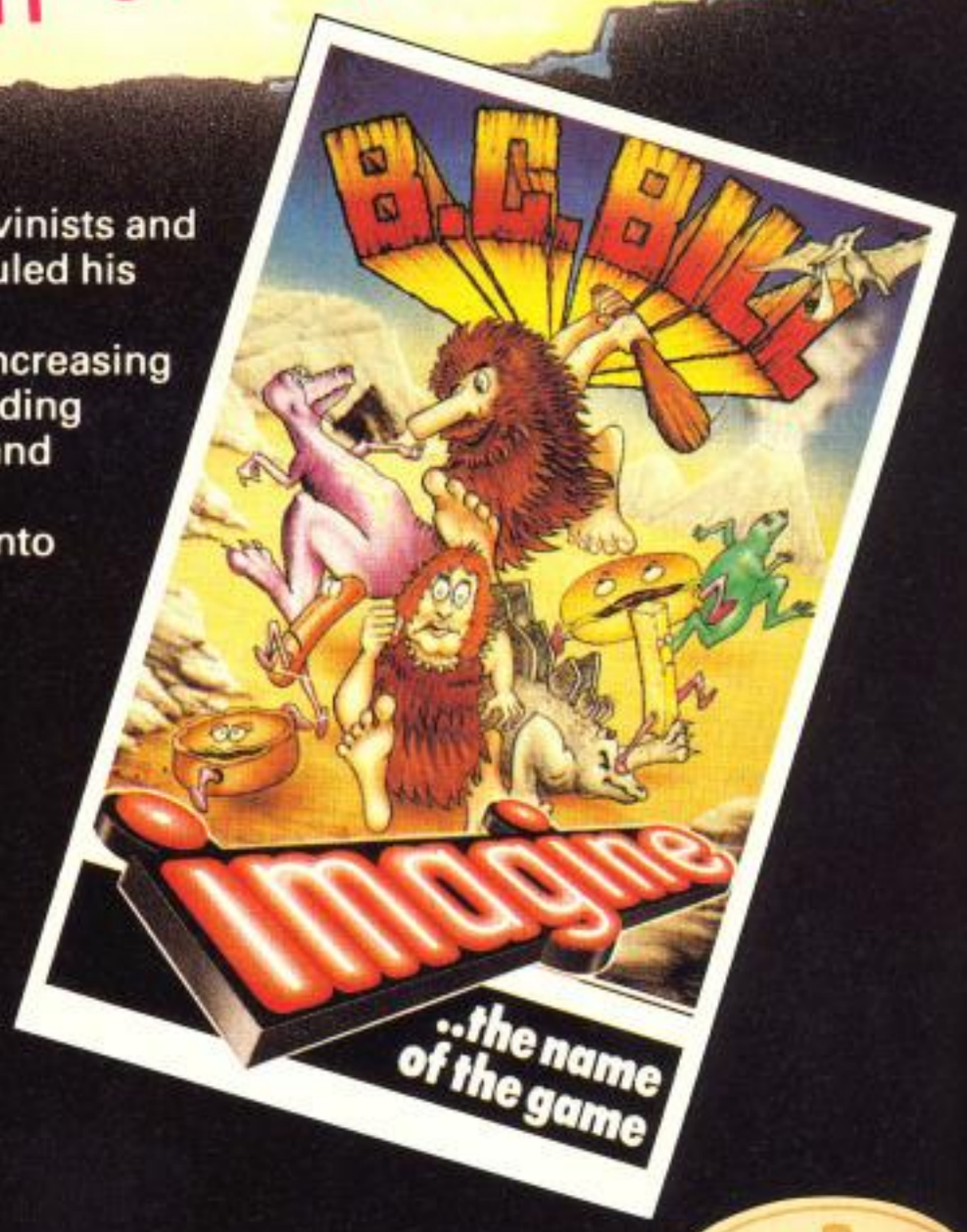

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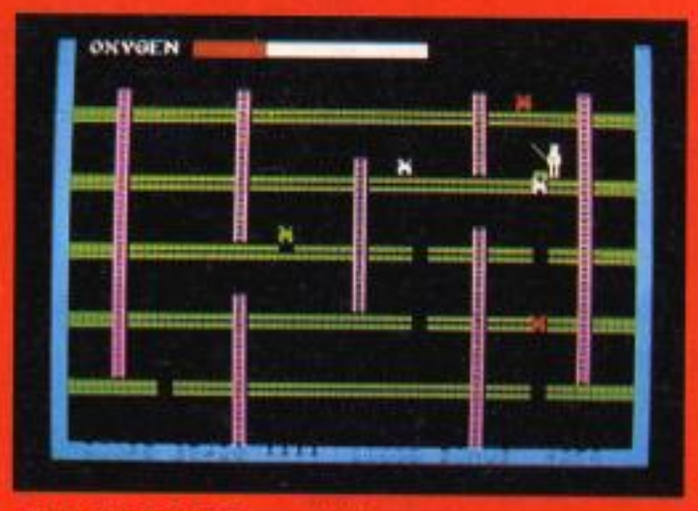
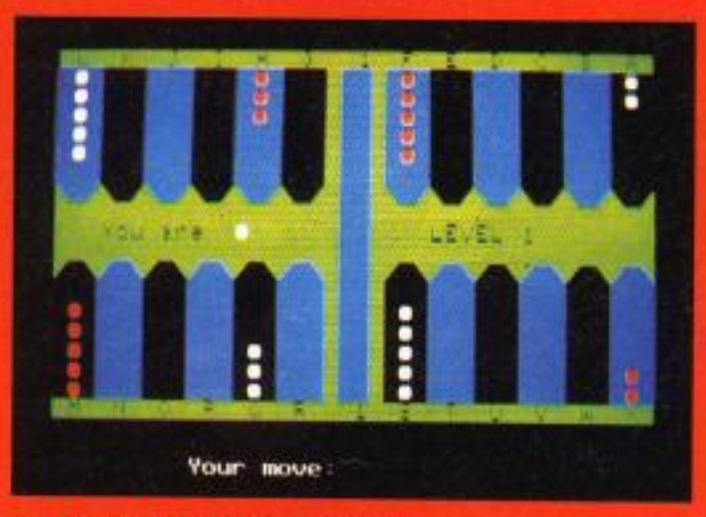


SPACE PANIC — £7.95

How long can you survive in the multi-storey building filled with alien bugs. This machine-code programme accurately simulates the arcade game where you climb ladders and dig holes to catch the aliens then fill them in again once they are caught. The red ones must fall through one floor, the green ones, two floors and white ones, three floors. Red aliens who have time to dig themselves out get rather cross and become green. PANIC!! Joy stick or keyboard control.

GALAXIANS — £7.95

A high-speed machine-code version of the popular arcade game where the massed space invaders must be cleared from the skies. After a few seconds they will begin to swoop and dive at you, showering you with scatter bombs as they go. The game becomes progressively more demanding as you kill more and more of the marauding aliens. Very entertaining — hours of fun!!! Joy stick or keyboard control.



BACKGAMMON — £7.95

Now available for the MZ-700, this traditional board game can now be played against the computer. Simple to follow instructions for the beginner — higher levels available for the more experienced player.

NIGHTMARE PARK — £6.95

If you have never played this type of game before, you're in for a treat. As you make your way along the intricate pathways to the exit, you are constantly given tasks to perform or games to play. Each of these must be successfully completed before you are allowed to continue. It takes a lot of doing. You must remain quick and alert at all times. A little luck is handy. Amazing graphics and sounds!!!

FIGHTER COMMAND — £6.95

A mission flown completely on instruments where you are pursuing a fleet of ten enemy aircraft fleeing from you. They will show on your long range radar screen and you must manoeuvre your craft to get them within range of your missiles. If you get too near, they will fire at you and warp away to safety. You only have one chance to destroy incoming missiles with your lasers.

CHESS — £9.95

Suitable for the rank beginner through to the more experienced player, this Chess program may be used in three different ways.

1. As a referee between two players, checking for valid moves, CHECK and CHECKMATE situations.
2. As an opponent with 14 levels of intelligence to match your skills.
3. As a teaching aid when asked to play against itself or show you the best move if you get into difficulties.

Long games may be saved on cassette for completion at a later time and a print-out of all moves made is available.

XANAGRAMS — £9.95

Not only a terrific spelling test but also a great game. You are asked to guess up to five words, represented by blocks on the screen in a crossword format. All the letters that you need are shown on the right of the screen in alphabetical order and the computer will give you the first letter if you ask it nicely. Suits almost any age with 3 skill levels and from 1 to 5 words to be guessed. Really habit-forming!!!

LIGHTNING PATROL — £3.95

Choose your rank in the RAF and you are immediately sent on a mission to catch and shoot down ten enemy Mirage jets that are fleeing after their attack on your airbase. You must manoeuvre your plane to get them in your gun-sights whilst they are weaving about the sky to avoid being hit. Limited ammunition and fuel available so efficiency and accuracy are all important to your completion of the mission. Promotion for the successful but poor performances can mean you are asked to leave the air force. Joy stick or keyboard control.

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