August 2017

Issue 18

THE SPECTRUM SHOW

Magazine

LUNAR RESCUE

CLONE SHOOTOUT

FLASHBACK 86

GAME REVIEWS

HARDWARE

SPECIAL FEATURES

RETRO EVENTS

REPORTS FROM RECENT EVENTS

Includes material not in the video show!

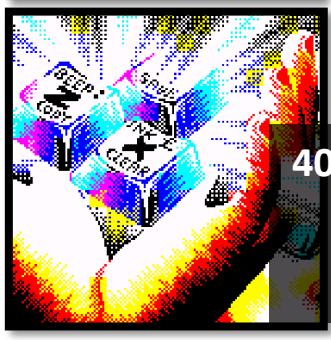
SPECCY GAME JAM

Games creation event.

CONTENTS

30. REVIVAL 2017
Report from the recent event.

12. LUNAR RESCUE SHOOTOUT
Which is the best clone?



40. SPECTRUM MEANS COLOUR
A look at colourful games

FEATURES

And more….

GAME REVIEWS

EDITORIAL

Welcome to issue 18 and thank you for taking the time to download and read it.

This column is written across many months and deals with things I have been doing across that period. At the time this particular piece was started I had just returned from Revival 2017 in Birmingham.

It was a great event, and being asked (more like persuaded!) to sit on the panel for one of the talk sessions was a genuine surprise and a great pleasure.

Also at that event I was asked by Chris Wilkins, producer of many great books including the Ocean story, to contribute to his next project, a full colour special issue of Crash magazine, targeted to be released for Christmas.

A few weeks later I went to Replay Blackpool for the first time. The venue was smaller than Manchester as expected, but larger than Revival, and was packed with arcade machines.

The atmosphere was great, with the halls full of like-minded individuals, all excited to grab a game on their favourite console or computer as well as to try out others they may not have had access to previously.

These events are a great opportunity to gather, play games, buy stuff and mingle with similar-minded people. Long may they continue.

All of this, coupled with some new submissions, means this issue is larger than previous ones. There were things I wanted to get into this one, like the events reports as they were recent, and also new articles that people have very kindly sent in. In this issue alone there are articles summitted by three other people, which is fantastic.

I recently purchased a new keyboard for my trusty PC, having gone through many variants. A keyboard is something personal, and each person has their own favourite type, colour, feature set etc etc. I have struggled to find the one that could ever replace my ancient (and now disposed of) Logitech. I have spent hundreds of pounds trying different manufactures, models, styles and key types.

The Microsoft Bluetooth keyboard (Mac copy!) lasted about three months before the lag really got on my nerves. I am now trying out, what seems to be a great purchase, the Logitech G413, and this got me thinking about Spectrum keyboards. You were stuck with the famous dead flesh unless you wanted to spend half the Spectrum's value on a replacement. Event then your choice was limited to about four or five main models.

The DK'Tronics being the most famous (I still want one!) followed by the likes of Fuller, Saga and the one I bought, the Lo-Profile.

I still want one of these!

Sinclair moved to the black QL-style keyboard later, which was an improvement, but still did not comply with the normal layout that was now standard on 'real' computers, and even the Commodore 64.

Amstrad gave us a better experience with their CPC keyboard in the Plus 2 and 3, and this was a great leap forward in standardisation. Now we have hundreds to choose from, and I suppose that is a good thing, but sometimes I feel there is too much choice, but then maybe it's just me fed up with being unable to find the ideal model for me.

Fancy writing a game review or special feature?

I am always looking for new content and all contributions welcome.

CLASSICS CLOSE

The new budget label, 299 Classics, run by Elite Systems, is being shut down due to licence issues and software suppliers being unhappy with how the company was being administered.

The label was set up by a company named Foundry Business System, strangely operating from the same address as Elite Systems, and was to release old classic games from various software houses for the price of 2.99. Titles released so far included Skooldaze and Full Throttle, but company boss Steve Wilcox claimed they cannot keep up with demand, and this was the reason for shutting down.

However, several companies who supplied titles to Wilcox are taking legal action claiming breach of contract and non-payment. Vortex software, one of the suppliers, were not even aware of Foundry Business Systems, and thought they were dealing with Elite.

PLUS 2 PROBLEMS—AGAIN

Last issue it was reported that Boots had stopped selling Amstrad's new machine due to poor quality control. Although now it is thought the problems are not as widespread as expected, both Amstrad and Boots are not making any statements.

Previously Boots made several issues they were concerned about known, including lack of external tape player support, miss-aligned tape heads, poor volume, lack of standard joystick ports and bad TV picture, but at the moment it's all gone quiet.

Other issues included slow down with the basic editor for long programs. Some, with more than 3000 lines of code became impossible to edit, making the user wait 2 to 3 seconds for each key press to be recognised.

CDS FORTUNES

CDS have released a new type of computer game that is a cross between a monopoly style board game and a football strategy game. Not only that, but they have signed up a football legend to have his name associated with it.

Brian Clough's Football Fortunes includes not only the computer game, but also a large board game with cards, money and pieces to move around. Other elements include buying and selling players, getting sponsorship and trying to balance the books so you can pay wages.

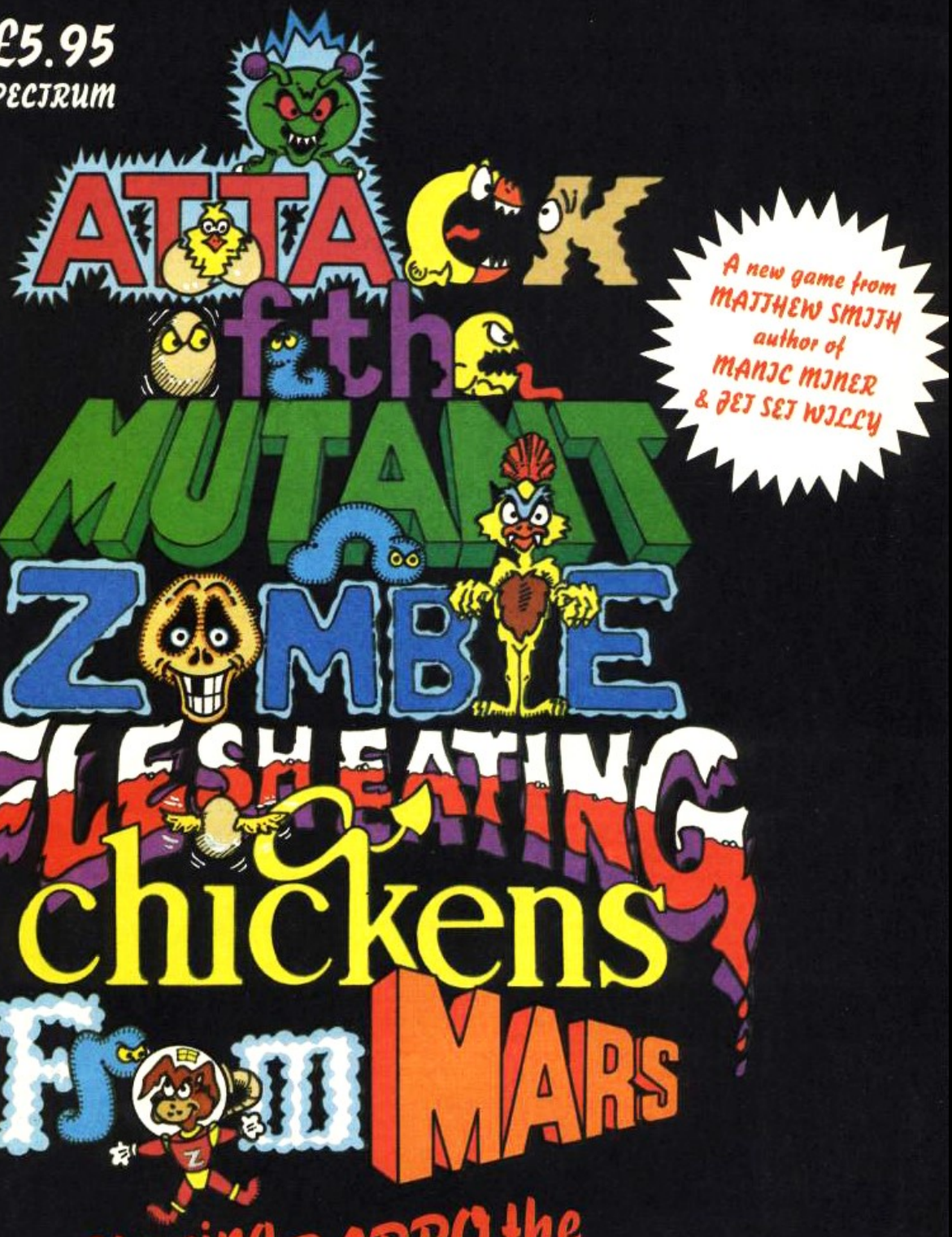
Despite having the managers name, Brian himself had no part in creating the game, with all the work being done by CDS.

MIKRO-GEN SOLD

The long lived software house Mikro-Gen has been bought by Creative Sparks. One of the few surviving independent software houses, they had been looking to expand recently, but the only way they could survive was to follow the trend and join a larger company.

It is expected that Mikro-gen will continue to produce titles but they will now be marketed by the ever growing Creative Sparks.

ONLY £5.95
FOR YOUR SPECTRUM



A new game from MATTHEW SMITH author of MANIC MINER & JET SET WILLY

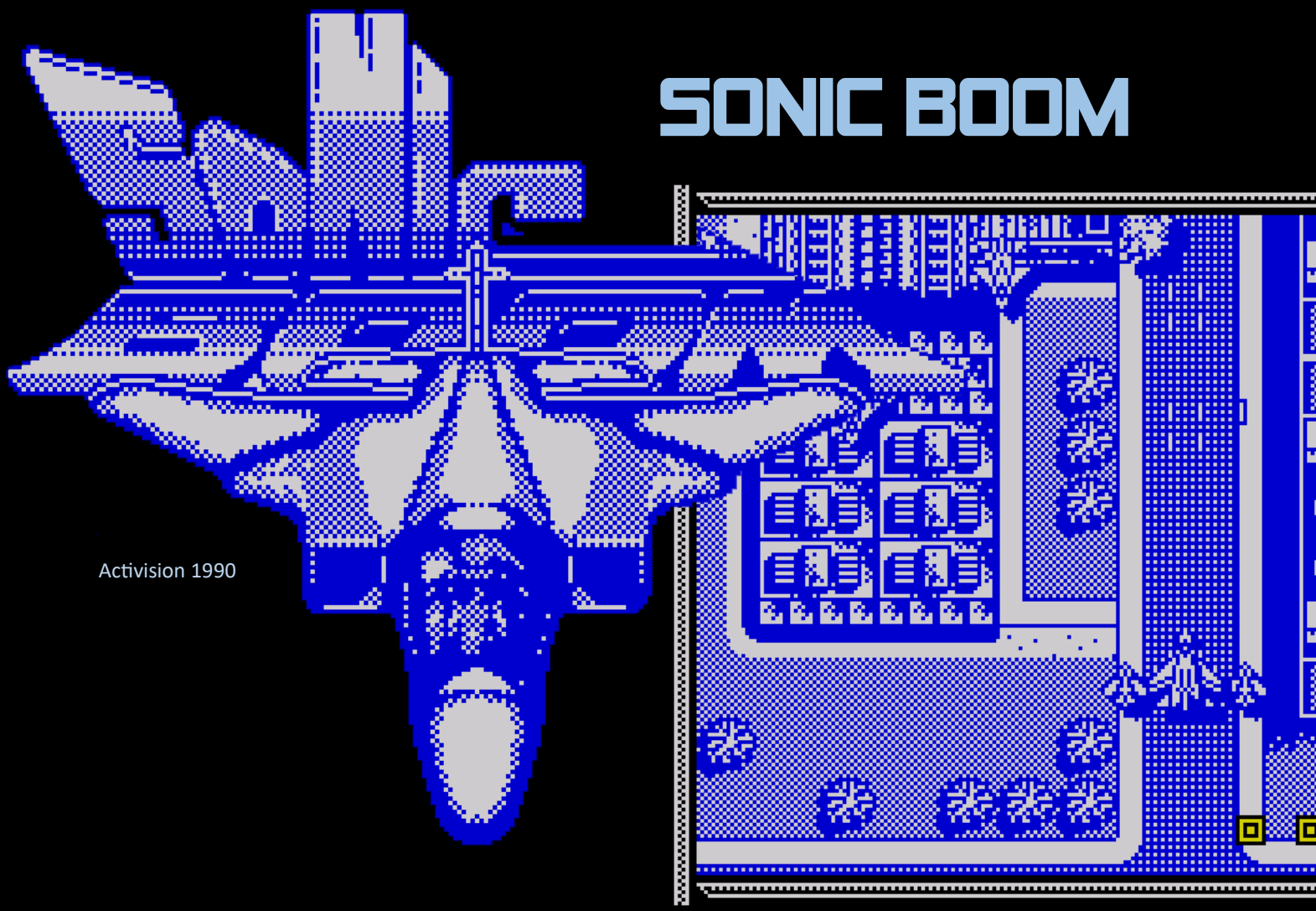
Starring ZAPPO the DOG

Dry, dusty deserted field, in the heart of Arizona. Soft rest the landing claws of the Martian silver ship. Many were the cackles of delight from tall and vicious chickens. Oft strolled through cheery cactus grove went Zappo our young hero, showed peacefully contentment. A broken shell of Elephant Bird across his path became. His eyes and ears alerted up. His nose a-twitchy raised to the wind. He saw them leave their silver ship; he saw their mutant hatching. He heard their evil plans for dogs and beasts. He said, "I shall not fear these fiends from Planet Mars, they are but chickens". He wished he hadn't for every single chicken turned to where he stood, and hoisted up their fearsome weapons. With nothing left to do, he jammed the broken egg shell on his head. The confusion reigned for half a tick and while he ran away, a thousand flaming bolts of fire burst all around his tail.

New From

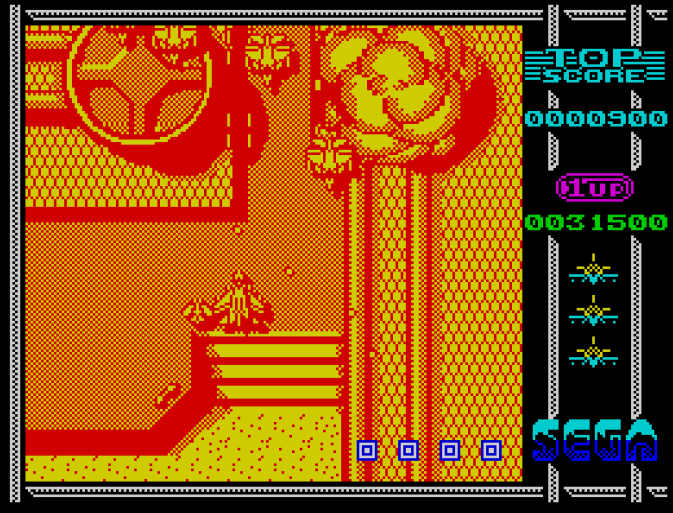
SOFTWARE PROJECTS

SONIC BOOM



Activision 1990

Sonic Boom was released into the arcades in 1987 by Sega and is a tough shoot-em-up with great graphics, good sound and the usual pick-ups and end of level bosses. It's a hard game and playability was tailored for the arcades rather than home micros, which makes conversion a bit tricky.

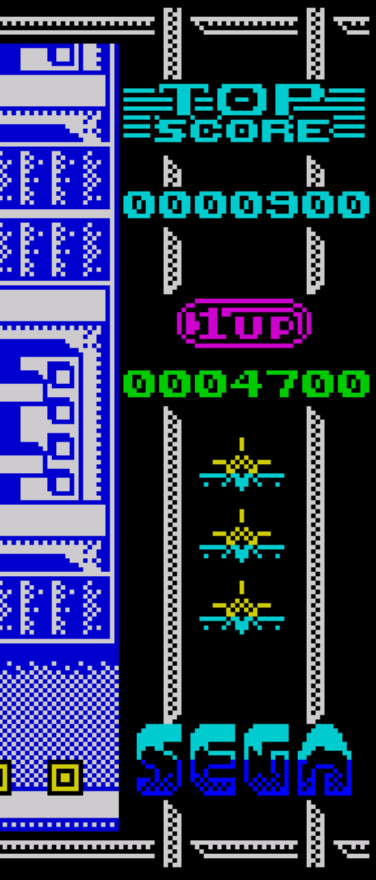


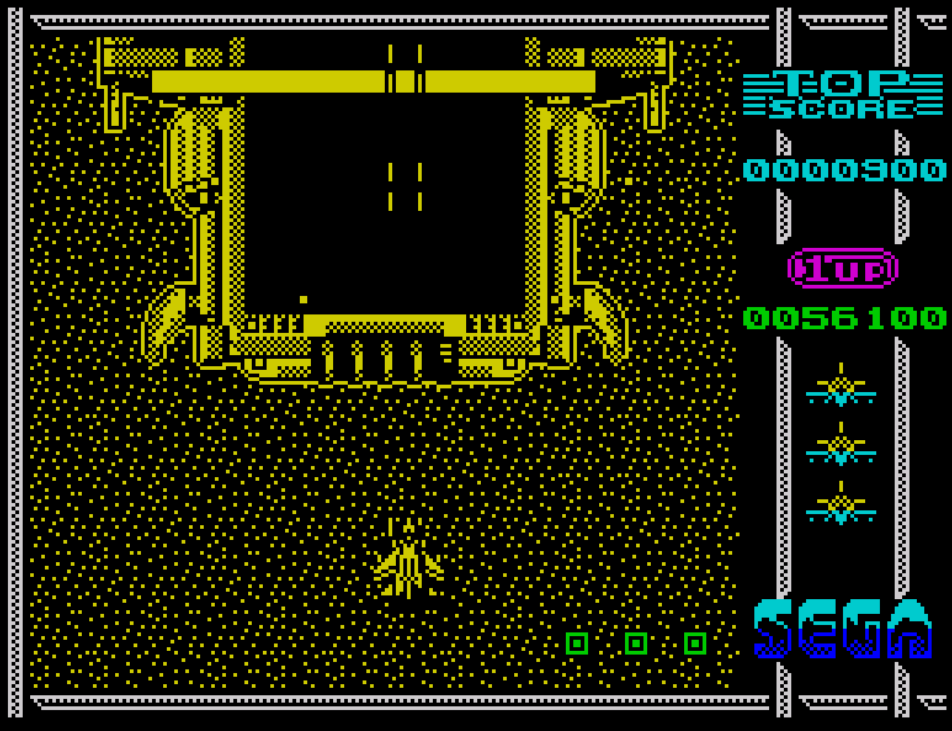
The game was converted to the Spectrum in 1990 by Activision and thankfully it's a bit easier than the arcade version, but no much.

As with all shoot-em-ups the object is to blow everything up, avoid enemy fire, gather power ups and reach the end of each level without losing too many lives. If you manage this, then you get a chance to face the end of level boss.

The graphics have been ported really well and do look like the arcade counterparts, however the colour have been removed providing a monochrome screen.

The landscape is nicely detailed and scrolls smoothly but





because the entire game uses two colours only it is very difficult at times to see the enemy or their bullets. This can make for a very frustrating game as you get killed by something the same colour as the landscape.

The screen soon becomes full of things to shoot, avoid or collect, which is hard to achieve on the Speccy with any great success. Here though things move at a fair pace regardless of what is on screen.

Land based targets and enemy planes swarm about and for me, the game soon becomes an avoidance bullet hell style shooter, the ones I don't particularly like.

You do have a super shot, that explodes out and destroys all enemies, but you only get three of those per level.

Control is crisp, and it needs to be, allowing you to swoop about and dodge those almost invisible bullets.

The sound is a major let down especially considering this game is 128k only. The weak intro tune often goes out of sync and the effects in the game are embarrassing. Why is there no use of the AY chip here? Instead we get the standard beeper sounds that devalue the whole experience.

At the end of the first level you have to take out an aircraft carrier and I never made it past this section, it was just too difficult.

Using infinite lives pokes I got to the next level, of which there are 6, each having different colours and scenery.

The background graphics are well drawn and very detailed on all levels, but again this makes spotting enemy fire almost impossible sometimes.

I wanted to enjoy this game, I like shoot-em-ups but this one is just too hard and unforgiving. I tried for a long time to get past level 1 without cheating and failed each time. This made the game frustrating the degree I didn't want to play again.

A shame really as this is a nice looking game.

Better sound and easier game play, or at least a easier learning curve, would have made this a great game.

Only try this if you are good at bullet hell games otherwise, well, don't say I didn't warn you!

3D SPACE WARS

Hewson Consultants 1983

This is the first of a quadrology by Hewson, centring on the evil alien race, the Seiddabs – for those not familiar with this race, it actually Baddies backwards, but I'm sure you all knew that anyway.

The other games are 3D Seiddab Attack, 3D Lunar Attack and Astroclone.

Onto this game then, and the scenario is familiar, fly around different regions of space, destroy any Seiddabs, watch your fuel, and eventually rid the universe of these evil overlords.

When you first launch you are faced with a mass of enemy fighters, and the instinct is to go in all guns blazing, this is a mistake, and you won't last very long. The best strategy is to quickly head off into open space. The Seiddab fighters do not shoot at you if they are not on the screen, so you have to use the radar at the bottom left, to pick them off in small groups.

You have to keep an eye on fuel, but there is a refuel point available, but this can only be used once though.

Using this tactic, you should be able to survive to the next level where things get harder. The Seiddabs fire more often and they are harder to hit due to the shape of the ships.

The graphics are well drawn, and the 3D works well, with the Seiddab ships getting larger as they approach.

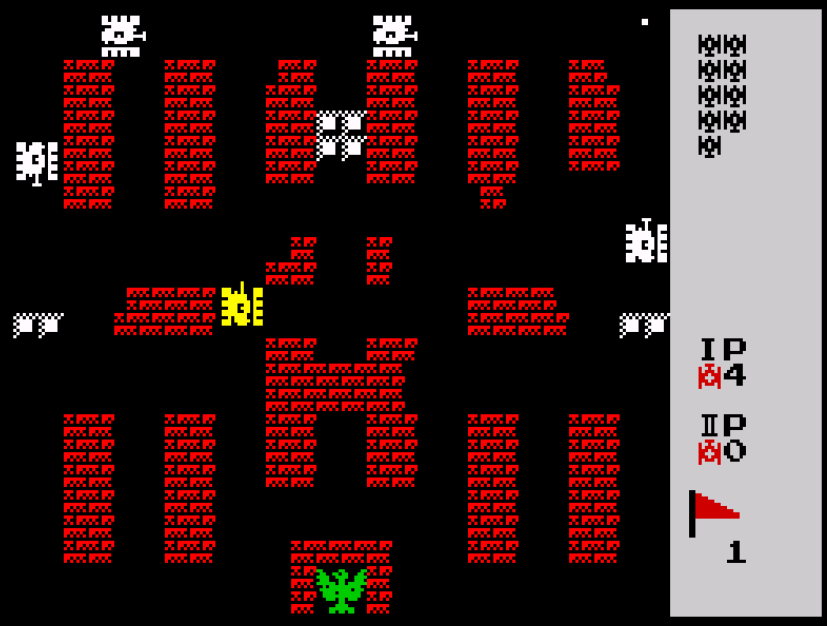
Sound is very well done with an array of effects and certainly puts a lot of other 16k games to shame.

Just remember don't go in for a fire fight, get some clear space and choose your target carefully.

Overall a great game then.. especially for 16k.

BATTLE CITY

Epsilon 2016



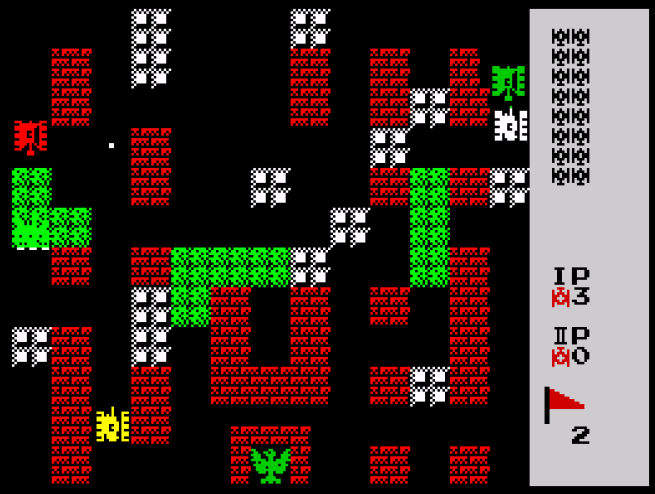
Battle City is a conversion of a NES game of the same name and involves, amongst other things, protecting your base from enemy tanks.

Your base is represented by a large bird at the bottom of the screen, and the other tanks drive around firing at random, which obviously you have to avoid.

Controlling your own tank, you navigate around the maze, pursue the other tanks and blow them up.

There is a set number of tanks per level, and until that limit is reached, they will keep appearing after you have destroyed them, so the strategy is sneak and shoot.

There are bonus items to collect too when you hit a red tank, including a hat, which gives your tank protection, a watch that stops the enemy tanks and bombs that destroy all visible tanks.



The screen is set out in a maze fashion, with some walls that can be destroyed. This can be used to your advantage, or disadvantage, depending on the placement of the enemy tanks and other walls around you. The enemy tanks can also destroy these walls, so you need to be careful when chasing them.

The graphics are large and mirror the NES version, and the sound suits the game really well. This is a nice conversion and the gameplay has a easy learning curve with the difficulty set just right. The challenge rises each level, so you don't feel as though the game is being unfair.

This is a nice little game, easy to get into, and it offers a challenge the longer you play.

Certainly give this one a try.

ZX SPECTRUM BASIC GAME JAM

learn to code for fun

```
10 PRINT "Coding is Fun"
20 GOTO 10
```

FELIX PLEŞOIANU REPORTS ON THE RECENT SPECTRUM BASIC GAME JAM

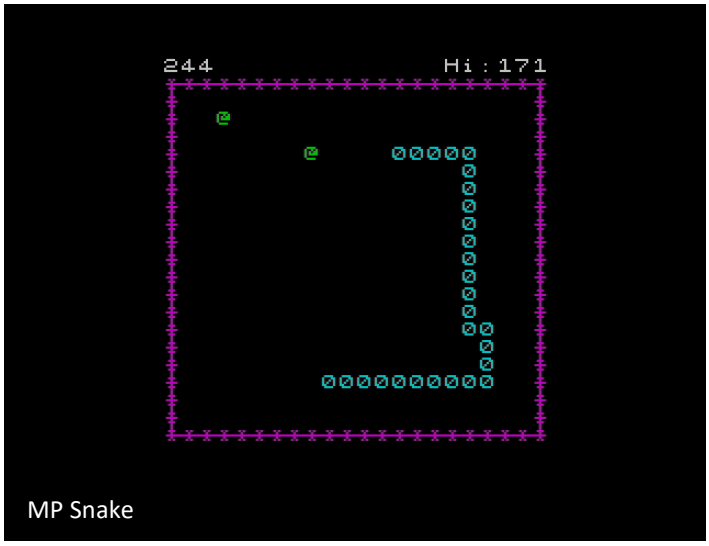
The ZX Spectrum BASIC Game Jam [zx-jam] took place between the 1st and the 15th of June, 2017 on Itch.io, organized by Gazzapper Games. The goal wasn't to create just any game for the good old Speccy, such competitions take place all the time and in fact the World of Spectrum community held their own simultaneously. No, this was a jam for type-in games, the likes of which they used to print in magazines.

Now, I already knew the old machine is still popular. My own titles are regularly found by people searching for "ZX Spectrum" specifically in the [Itch.io] marketplace, admittedly a small pond. But it was surprising to meet several entrants who had never developed for the Speccy before. Imagine that: an obsolete 8-bit computer that hasn't been manufactured for 25 years is still gaining new followers!

You can find these game at:
https://itch.io/search?q=zx+spectrum

Joining The Jam

Nearly one hundred people joined the jam; roughly one quarter of them submitted something. Fewer, actually, because multiple entries were the norm. The end results ranged from little one-off experiments, through recreated classics, and up to a few games that would have counted as commercial quality in the mid-1980s. There were three implementations of Snake, of which Martin Pokorny's is



MP Snake

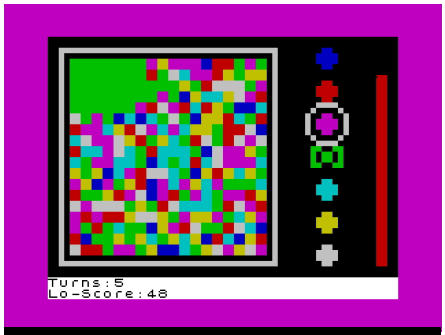
both playable and well-balanced, if also the simplest. There were also just as many text adventures, all unconventional.

Other highlights for me were Ink Fall, an original take on the same game with good presentation, sadly marred by slow response times, just like the organizer's own Westworld.

Much better in my opinion fares Physiced, which as the name implies is a physics-based puzzle, and one of the few jam entries that moves well despite running in real time. Gameplay is also well-explained and makes sense, even if it's not my cup of tea.

https://mpcz.itch.io/mp-snake

https://bootlegger.itch.io/ink-fall



Ink Fall

Westworld

Physiced

Sokoban

https://gazzapper.itch.io/w-e-s-t-w-o-r-l-d
https://uglifruit.itch.io/physiced
https://simonsnake.itch.io/sokoban

But the jewel of the crown is Break/Space, a turn-based space trading game with JRPG-style combat that could give some modern titles a run for their money (Pardus, I'm looking at you here). It's punishingly difficult, but damn, I wish I'd have designed it. The presentation is excellent, including a proper manual, and there are nice touches like the game beeping to let you know when it's your turn to move. There are only three types of merchandise to trade, but plenty of other things to do, including an end goal with a time limit. Just don't fight any but the weakest enemy ships. Not until you've had some upgrades, and those are expensive. Otherwise, a must-play!

As several participants needed just a little more time, our gracious host extended the deadline by one day, which made four new games possible. Among them, a competent, and playable Sokoban clone, and an Elite tribute called b-elite, that brings back happy memories but sadly fails to solve the responsiveness problem that compromises so many Basic games.

B-Elite

It was still a very enjoyable event overall, that gave a retrogamer renewed hope.

https://blerkotron.itch.io/breakspace
https://jsj.itch.io/b-elite

Article By: Felix Pleşoianu

LUNAR RESCUE

SHOOTOUT

Lunar Rescue was released into the arcades by Taito in 1979 and was the follow up to Space Invaders.

The game is simple in style and uses the same samples as the aforementioned classic but the game play offers a mixture of challenges.

First you have to get to the surface of the moon at the bottom of the screen, negotiating several layers of asteroids. Once landed you collect a man ready for the journey back.

When landing you have a choice of three landing pads, each with a different level of difficulty and each with a different score. Once used, they vanish though.

You then have to guide the ship back through layers of aliens, shooting them as required and eventually dock back with the mother ship.

A lot of different things to fit into a conversion… so how did the spectrum get on?

LOONY LANDER
(SOFTWARE SUPERSAVERS – 1984)

This is not strictly a direct clone of the arcade game, but it is impossibly hard, in fact I would say totally impossible to play.

The controls seem delayed and the craft has a life of its own, flying about all over the place. Despite having a hover key, the directional movement has too much inertia making the game just too hard.

In fact I never once managed to land the craft at the bottom of the screen!

There is an attract mode that shows some other sections, but I doubt anyone could complete them even if they managed to reach them!!

A totally abysmal game in all aspects… let's move on…

LUNAR RESCUE
CRL – 1983

Here we have quite a close version of the game. There are different platforms that can only be used once, asteroids and men to rescue. What is missing though is the shooting section on the return journey.

The graphics are both smooth, in the case of the asteroids, and jerky in the case of the lander, which makes navigation tricky.

The graphics themselves are chunky and I suspect they are UDGs rather than sprites. The men run across to the lander which is a nice feature, but in many ways this reminds me of a type in game.

Sound consists of a few basic beeps and a little tune if you manage to dock.

The blue background is a bit off-putting really… and there is no reason for it. Why isn't it black?

For a 16k 1983 game then, this isn't bad.. it's playable but does have some elements missing.

LUNAR RESCUE
LYVERSOFT 1983

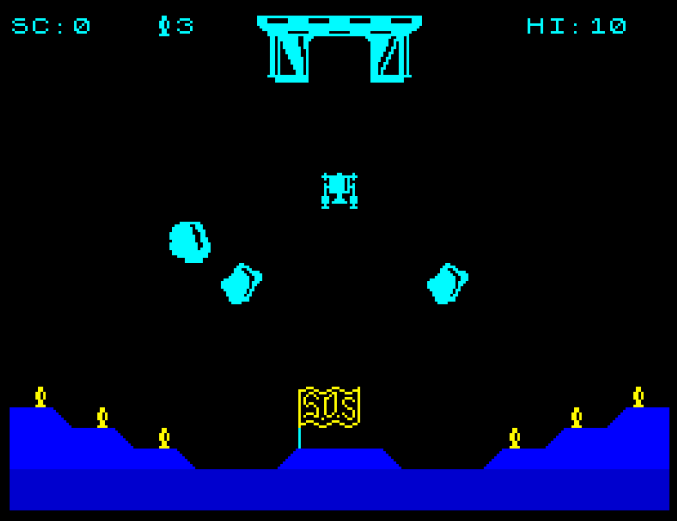
This version has super smooth graphics and large sprites, but plays in almost silence which is a pity.

There isn't the landing platforms of the arcade, instead you have to land in craters which makes the game a little easier, as they do not vanish when used.

Once landed you little man hops along and climbs on board for the trip back. The return journey does not have the shooting section, you just have to dodge the asteroids and dock with the mother ship again.

The first level is quite easy, but as you progress, more asteroids are added making the game tricky.

It's all a bit slow and despite the smooth graphics, it's a bit of a missed opportunity I think.



MISSION IMPOSSIBLE
SILVERSOFT 1983

This game does have three platforms, but they are not at different levels or offer different scores for landing on them.

The graphics are nice and smooth but the ship releases on its own as soon as the game starts, and often hurls you strait into and asteroid. Using the thrust you can navigate down to collect one of the stranded men.

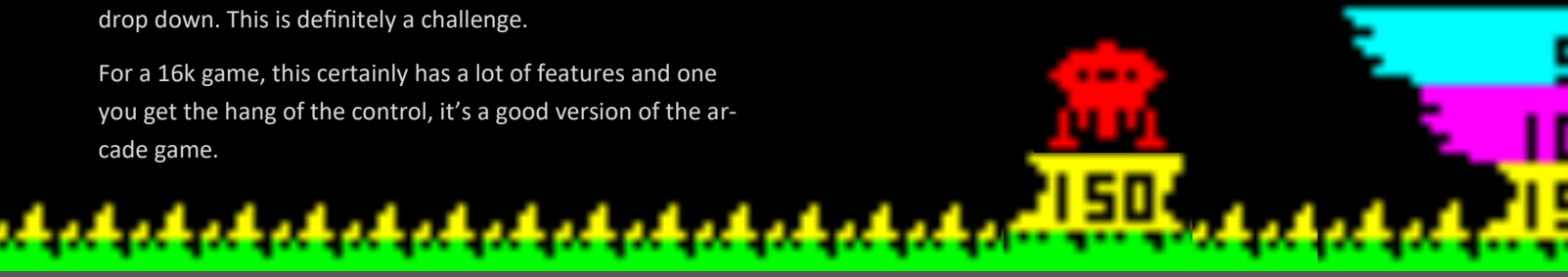
The journey back up does have the shooting section, which is good, but the aliens do not fire back like the arcade.

The difference in screen ratio means this is more difficult than the arcade game, but it's certainly the closest we have seen so far.

Sound is minimal, with bleeps for crashing, firing and docking.

Once the first level is complete, this game throws other elements at you too, like force fields and impossible craters to drop down. This is definitely a challenge.

For a 16k game, this certainly has a lot of features and one you get the hang of the control, it's a good version of the arcade game.



MISSION MARS

KEMPSOFT 1983

Here we have a strange version of the game, with several options that change the gameplay.

Selecting to have a week gravity gives you a game similar in control to Thrust. This proves very tricky to work, and obviously differs from the arcade game.

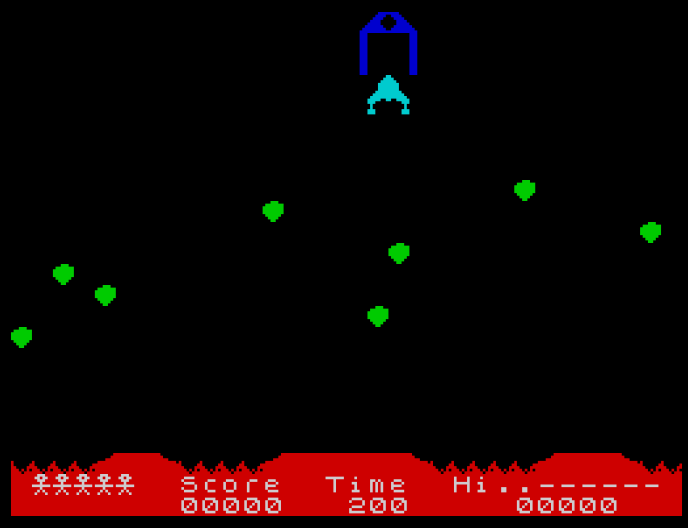
Selecting strong gravity, and we get the familiar version but you can still rotate the ship and head off in an uncontrollable direction – which soon becomes very frustrating.

The graphics move in 8 pixel jumps making things look very jerky, and the control is sometimes sticky causing you to hit an asteroid.

There are three landing pads, each giving you a different score, but they do not vanish when used.

On the return journey, if you can get that far, you can fire at the asteroids, there are no aliens in this version.

Sound is nice with a warbling effect during play but the control ruins it for me.



MOON RESCUE

ZX COMPUTING 1983

I normally don't include type in games, but seeing as though we are having trouble finding any decent versions so far, here is one from ZX computing.

Yes, it's BASIC but it looks good despite the jerky graphics.

In play it's quite challenging and gets closer to the arcade than some previous games.

Not a contender though, but then again neither are some of the commercial releases we've seen.

SHUTTLE

BLABBY COMPUTER GAMES 1983

Now here is the oddest version I've seen so far.

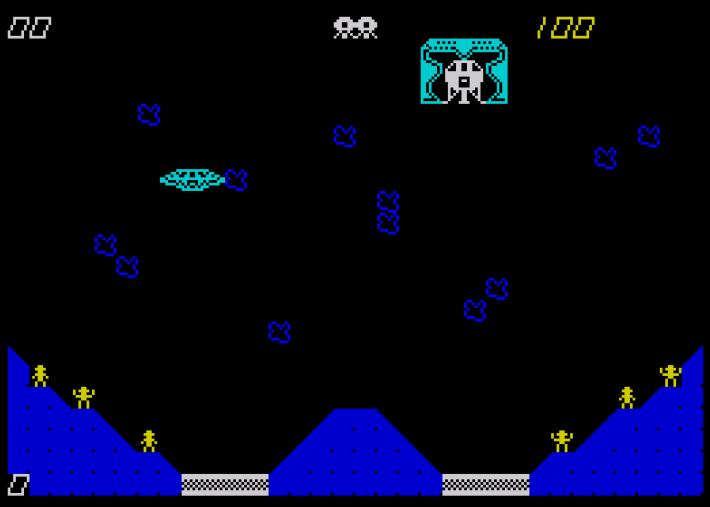
Most of the elements are there, but again just two fixed platforms.

Movement is fully controlled by the player, so there is no gravity. This means you can move in any direction and stop dead. Sometimes this makes things easy, other times it doesn't.

The graphics, although large, move in 8 pixel jumps making navigation a bit difficult to judge.

Sound is used well with some nice effects for landing and docking.

There is no shooting on the return journey either, so although this is not the best version we have seen, it is by far not the worst.



SOS

VISIONS 1984

This is a version I had not seen before, and was surprised at how close it is to the arcade, at least in gameplay.

The large graphics move smoothly, but there are some odd shapes here, not the usual asteroids or aliens.

Navigating down is usually not too difficult, but the return journey is very difficult, almost impossible at times.

There are the different platforms that vanish when used and there is the shooting section.

Sadly, because of the amount of aliens, it is very tricky to get back, especially as they fire back at a rapid rate giving you little chance to get out of the way.

Sound is used well, and control is nice and responsive. It's just a pity about the difficulty of this game, it could have easily been our winner here.

SPACE RESCUE

BREADHILL SOFTWARE 1982

This is the earliest version of the game to be tested so I wasn't expecting too much, which is just as well.

This 16K BASIC game suffers the usual problems; slow, jerky graphics, bad control, terrible sound and yes, the death march when you die.

Oh dear… let's move on…

XENO II

ANIROG SOFTWARE 1983

This is our last game to be tested but am I missing something here? This game is in the same league as jungle trouble. Time after time after time your ship gets smashed by asteroids and there is nothing you can do.

If you try to use gravity, your ship suddenly hurtles downward without warning. If you try to steer your way you can't move fast enough and if you use the thrust it's too slow.

This game is impossible! I never ever landed. And I did try. I wanted see what happened.

Just as I was giving up after about 30 minutes of trying, I actually managed it. What would the return journey be like? Well there isn't one. The gameplay changes to a Berzerk–like game, which killed me after about a second.

After you land...

After a little lie down I can safely say there isn't a decent Lunar Rescue clone for the Spectrum, and that is surprising.

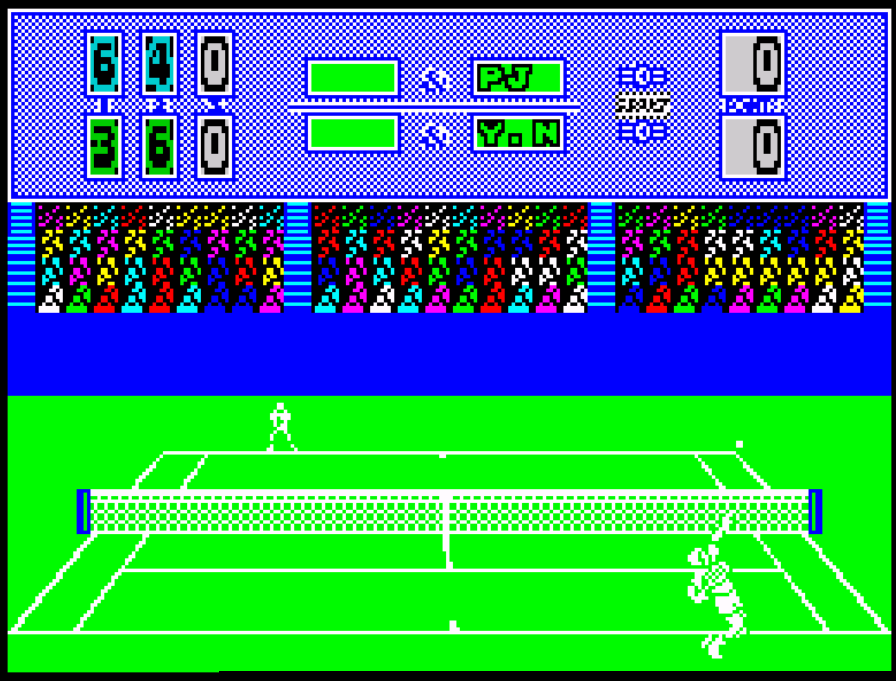
The closest in gameplay is SOS and the best for gameplay is Mission Impossible.

I'd stick with the Silversoft version for now though.. and what ever you do.. never ever play Xeno II….

PASSING SHOT

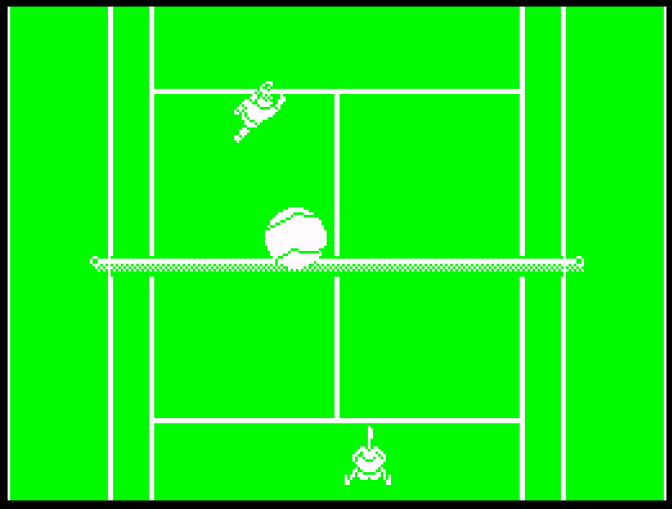
Image Works 1989

Passing Shot was originally released into the arcade by Sega with the Spectrum version released in 1989, and it does a great job of getting the game over to the machine. Most people will have played a tennis game in one form another, and this one is certainly one of the better offerings.



You start with choice of locations to play, with France being the easiest and England being the hardest. Once you enter your name you are ready to play.

The game starts from a behind the player view, and as the ball flies above your head you press the up key (or joystick up) to hit it. As it flies across the court the view switches to above.



Now you can see the opponent running towards the ball and usually they will hit it back. At this point you have to guess where the best position to stand in to be able to return it. This means a lot of running about until they finally hit it back.

Then it's a mad rush to get to it and position your player to be able to hit the ball. At the point you press the hit key, you stop moving, so you have to be absolutely sure you are in the right position.

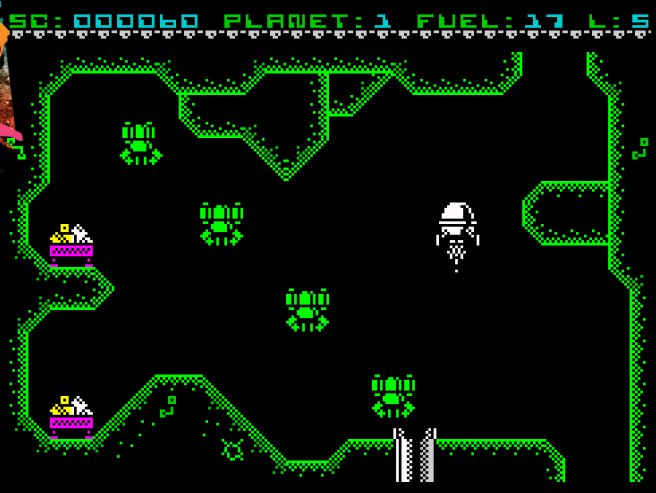
You can return the ball one of four ways, by using a direction control as you hit the ball. This will allow you to slice, lob, top spin or play a flat shot. Usually you are too concerned with getting to it than which shot to play though.

The graphics are great, very detailed and smooth moving, but the sound is a let down. You either get music (128k only) or a small thwack sound as you hit the ball (48k).

Gameplay is good, and once you get used to the controls, you can get some very long rallies going on. The computer player is much better than you, but practice makes perfect, so give this a try.

Deep Core Raider

Paul Jenkinson 2016



With so many planet and asteroids holding valuable minerals, larger corporations sent out not only probes, but entire automated Discover and Protect units.

Any resource found, and a series of defence units were set up to make sure no one helped themselves unit a full mining team could be dispatched.

These Discover and Protect units were easy to track, if you had the right tools, and if you could get there before the larger corporations, you could make a fortune.

Of course the stakes were high. You had to navigate through the caverns and defences - welcome to Deep Core Raider.

The game is a collect-em-up featuring controls similar to Lunar Lander with a bit of Thrust thrown in for good measure. Your craft is constantly pulled downwards, and you have to use your thruster to move around and avoid hitting the landscape.

You have to watch your fuel too, and can find refills scattered about the different planets you will visit if you can get far enough.

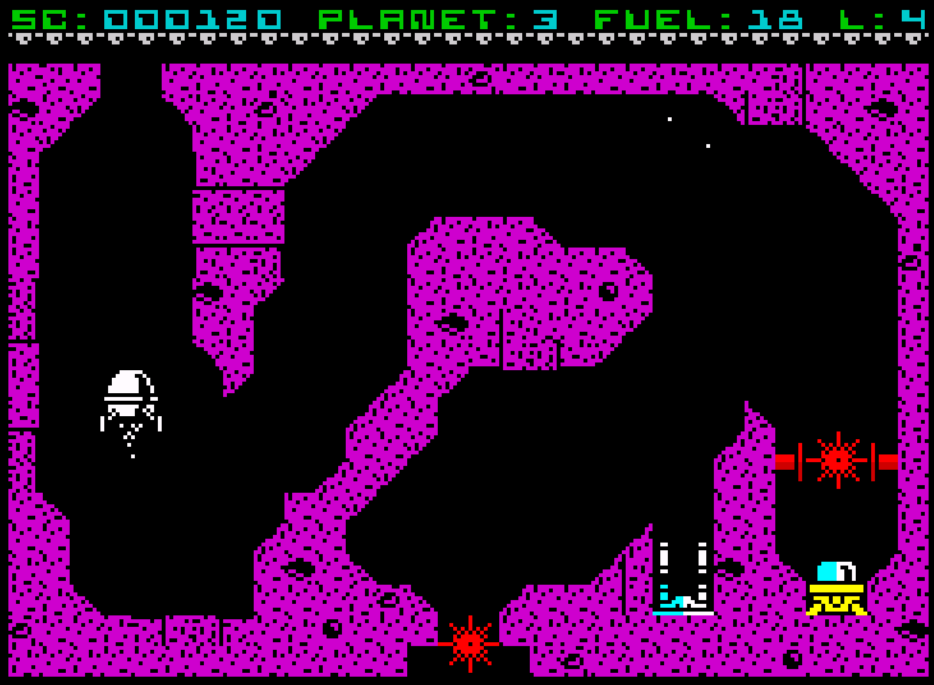
You also have bombs that can be used to blow away mines, or any hostile aliens you might find.

There are 5 planets to raid, featuring different graphics and different cavern layouts, and a special treat at the end if you can make it.

The graphics are large and well drawn, and as with all Arcade Game Designer games, move smoothly. Sound is used well and uses the AY chip, so for best results, play it on a 128k machine.

A nice game that has received some good reviews.

There is also a version available on real media from Cronosoft for the collectors out there.



MIND YOUR LANGUAGE

George Beckett continues his voyage through Spectrum programming languages

Machine Code

Environments such as Laser BASIC and Beta BASIC (as seen last issue) extend the potential of BASIC on the ZX Spectrum a little. However, they do not overcome the fundamental issues with BASIC: It's (relatively) large memory requirements and its sluggish performance.

BASIC programs are slow because they are written in a language that is foreign to the Spectrum and, specifically, its Z80 central processor. Just as when you visit a country where people speak another language, it takes you longer to understand what people are saying and to get things done, the Z80 takes longer to understand commands that are written in BASIC.

As discussed previously, BASIC is designed to make computers accessible and easy to program for a human. The elements of BASIC – commands such as PRINT and PAUSE, and data types such as strings and floating-point numbers — are built up from much simpler commands and concepts that are meaningful to the Z80 processor at the heart of the Spectrum. To make BASIC commands useful they have to be flexible, and this makes them less efficient. For example, the Spectrum's DRAW command lets you draw straight and curved lines in any direction across the screen, and it checks to make sure your line doesn't stray off the screen. To encapsulate this flexibility, the DRAW command translates to a long sequence of Z80 instructions. If, however, your application only ever needed to create horizontal lines – perhaps to underline text for a word processor program — and you accepted responsibility to make sure lines always stay within the bounds of the screen, then you would only need a much shorter sequence of Z80 commands, which would take less memory and be much quicker to run.

The native language of the Z80 is commonly called machine code and, by writing in machine code rather than BASIC, a programmer can create faster programs that occupy less memory and (potentially) do more than is possible in BASIC alone. However, where BASIC is quick to learn and easy to use, machine code is primitive, fussy, and slow to develop with: to get more from the Spectrum by writing your programs in machine code, you need to invest a lot more time and care in the programming phase.

Fundamentally, a machine code program is a sequence of numbers rather than commands. The Z80 only actually recognises whole numbers between 0 and 255 (coincidentally, the range that can be represented in 8

binary digits or bits, and hence the term 8-bit computer) and, in a machine-code program, sequences of 8-bit numbers are used to describe both the commands that make up a program and the data that they work with. Each number corresponds to an operation that is hardwired into the Z80's circuitry; and together these numbers (instructions) make up what is called the Z80 instruction set.

While the Spectrum is powered on, the Z80 will be continuously reading machine-code instructions (numbers), one at a time, from the Spectrum's memory. Each number produces an action inside the processor, and when these actions are considered together, we get a working Spectrum – with its flashing 'K', ready to receive BASIC commands, or displaying the next scene in the Hobbit game, for example. Everything from the momentary black screen that precedes the welcome message "© 1982 Sinclair Research" until the point when you switch off the power happens as a result of the Z80 endlessly reading 8-bit numbers from memory and performing operations as a result. When the computer is turned on and when you are (writing or) running BASIC programs, the Z80 will be receiving its instruction sequence from the 16 kilobytes at the start of memory called the ROM (short for read-only memory). This memory was hardwired during manufacturing with a long sequence of numbers (that is, a machine-code program written by Sinclair engineers) that encapsulates the Spectrum's monitor program and BASIC interpreter.

You can look at the first few numbers in the ROM with a program such as the following:

```
10 FOR N=0 TO 7
20 PRINT PEEK N
30 NEXT N
```

—which, when run, prints the sequence 243, 175, 17, 255, 255, 195, 203, 17 to the screen. This is the first eight bytes in the Spectrum's ROM (or, at least, the version of the ROM on my Issue 4 Spectrum) and is the first thing to run whenever the computer is turned on.

Most mortal programmers find it difficult to remember the correspondence between numbers and actions and so a system of mnemonics has been created to make the Z80 easier for the programmer. Together, these mnemonics are called Z80 assembly language, with each mnemonic corresponding to one (or a short sequence) of number(s) representing a machine code instruction. For example, the mnemonic LD A, 4 – which is a little like the BASIC instruction LET A=4 – is the assembly language representation of the machine-code sequence 62, 4. When read in, the number 62 causes the Z80 to 'load' the internal storage register known as the 'accumulator' with the next byte read from memory, which in this case is the value 4.

As another example, the sequence of eight numbers at the beginning of ROM (which we listed above) is usually represented by the following mnemonics (machine-code numbers on the left; mnemonics on the right):

243	DI
175	XOR A
17, 255, 255	LD DE, 65536
195 203, 17	JP 4555

Unless you have experience of machine code, these commands will probably be meaningless (except maybe for the LD instruction, which you may remember from earlier).

For those who are interested, this is the START routine, which runs every time the computer is powered on:

- First, 'DI' tells the Z80 to (ignore or) disable interrupts (which are electronic signals produced by devices like the keyboard and the Microdrive unit when they need to Z80's urgent attention).
- Then, 'XOR A' is a quick way of setting the value of the accumulator to 0, which the START routine later checks to confirm that the computer has just been powered on, rather than reset with a NEW command.
- Thirdly, LD DE, 65535 tells the Z80 to write the number 65,535 to its internal storage called DE. This is the highest memory address available on a 48k Spectrum and is used a little later to test how much memory is installed (16k or 48k) and whether it is all working: that is when you briefly see the black square, when you first power on the computer.
- Fourthly, the Z80 is told to (continue with or) jump to the program at memory location 4,555. To find out what happens next in the program, we'd need to peek at the number sequence starting from memory 4,555, and we'd discover that the Z80 continues with a long sequence of operations required to start the computer – to the point at which "© 1982 Sinclair Research" appears on the screen (and interrupts are re-enabled, so you can type at the keyboard).

The list of mnemonics that makes up Z80 assembly language is relatively short, and covers operations such as data movement; simple arithmetic and condition tests (e.g. whether a value is zero or not); plus branch and call statements. To the unfamiliar, the Z80's instructions and data types will seem very primitive. However, with a little practice, you can quickly build up the skills and knowledge required to write quite sophisticated programs that go way beyond what is possible in BASIC.

It would be foolish of me to try to teach assembly language programming in this article. It would take too long, I wouldn't do a very good job, and – most important of all – there are lots of resources already available to help you learn. Instead we will focus on the tools and applications that were and are available to make it easier to write programs in assembly language or machine code.

In the 1980's, the most common way to learn to program was with a book, or possibly magazine articles. In the 21st century, the Internet is a more readily available option for learning assembly language. A quick search for 'how to program in ZX Spectrum machine code' should yield a good mix of articles, videos, and other resources to get you started.

If you would prefer to work from a book, then I can recommend Toni Baker's book "Mastering Machine Code on Your ZX Spectrum", which is how I learned Z80 assembly language. This is an excellent book, which was very popular among budding programmers in the 1980's, so you will hopefully be able to find a second-hand copy reasonably easily. It's equally useful for novices and experienced programmers: I still have my copy of Toni Baker's book and I often refer to it even though I've been writing machine code for many years.

Another book that will also be useful, if machine-code programming becomes your thing, is "The Complete Spectrum ROM Disassembly" by Ian Logan and Frank O'Hara. As the title suggests, it is a complete assembly listing of the Spectrum's ROM along with a detailed commentary (disassembly is the process of turning machine code (numbers) back into mnemonics, so they can more easily be read by a human). The book has two important uses. First, it gives you the information you need to access a vast range of routines within the ROM from your own programs – including printing routines, keyboard interfaces, tape I/O, floating-point arithmetic, and so on. For performance-critical games programming, it may be necessary to write these kinds of routine from scratch. However, if you don't need to, then using a ROM routine is a better alternative. Second, it is a good way to build up your repertoire of important tips and tricks in machine code, which you can't get from learning the language alone. It may sound weird but it is worthwhile to read and try to understand the Spectrum ROM and using Ian and Frank's disassembly/ commentary makes this much easier. You'll learn a lot about the philosophy behind the design of the Spectrum – for example, why screen memory is laid out in the way it is – and see many of the popular tricks that experienced machine-code programmers use to save time and memory – for example, using XOR A to write the value zero to the accumulator rather than LD A, 0 (the former occupies one byte rather than two and is nearly twice as fast to execute).

If you want to learn machine code, then one element of computing that you will need to get to grips with is the hexadecimal number system. While in everyday life, we are used to counting using a ten-digit number system, called decimal, this isn't the most efficient counting system for computers. Because of the way numbers are represented in a computer, it is much easier to count in a sixteen-digit number system, called hexadecimal. In BASIC, programmers typically working with decimal numbers, and the BASIC interpreter takes on the burden of converting these numbers into hexadecimal. Conversely, in machine code it is more common to count using hexadecimal, which produces faster and more efficient programs. To represent hexadecimal numbers, we need six more digits, to supplement the ten digits of the decimal system – that is, '0', '1', '2', …, '9'. To get the extra six digits, we use the first six letters of the alphabet: 'A' represents the 11th digit, 'B' repre-

sents the 12th digit, through to ‘F’ for the sixteenth digit. With the extra digits, we can count in hexadecimal, as ‘0’, ‘1’, ‘2’, ‘3’, ‘4’, ‘5’, ‘6’, ‘7’, ‘8’, ‘9’, ‘A’, ‘B’, ‘C’, ‘D’, ‘E’, ‘F’, ‘10’, ‘11’, … So the hexadecimal number ‘10’ is actually 16 in decimal and, if you keep counting, you’ll get to ‘1F’ which is 31 in decimal and then ‘20’ in hexadecimal which is 32 in decimal. Because some hexadecimal numbers look like decimal numbers, such as ‘10’, to avoid ambiguity, it’s normal to precede hexadecimal numbers by a ‘#’ character. So, #10 is hexadecimal and 16 is the same number in decimal, and ‘#30’ is 48, for example.

The most common way to write Z80 machine code programs is to use an assembler. It accepts a program of assembler mnemonics and then translates it into a sequence of eight-bit numbers that can be run on the Z80. An implementation of the classic ‘Hello World’ program in ZX Spectrum assembly language is shown in Figure 2:

Fig.2

```
;; 'Hello World' example in ZX Spectrum machine code

TVFLAG   equ #5c3c     ; Spectrum system variable con-
                           trols TV mode

         org #ff00   ; Call from BASIC with USR
                           65280

START    xor a             ; Make sure to print to upper
                           screen, by
         ld (TVFLAG), a    ; setting TVFLAG to zero

         ld hl, MESSAGE    ; HL points to start of message
         ld b, END - MESSAGE ; B contains length of
                              message

LOOP      ld a, (hl)       ; Load next character and
          inc hl           ; advance message pointer
          rst #10          ; Routine in Spectrum ROM
                           prints character
                           ; in A register

          djnz LOOP        ; Loop to next character,
                           unless we're done

          ret              ; Return to BASIC

MESSAGE   db "Hello World"
          db #0d           ; Carriage return

END
```

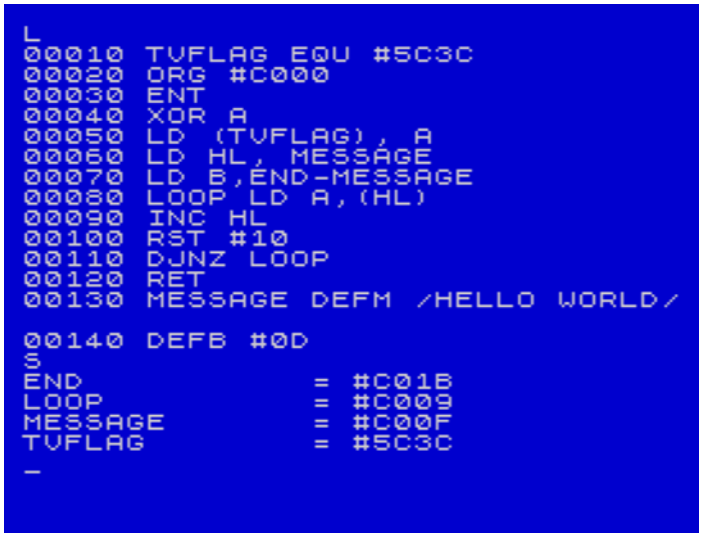
This is a fairly typical assembly-language source code that should work with most assemblers. There is more than just a sequence of assembler mnemonics here – to make the program easier to understand, to simplify the development process, and to configure the assembly process.

The first thing to note is that there are lots of comments (highlighted in red). Typically an assembler will ignore any text after a semicolon, which allows the programmer to add inline comments. These are critical when writing in machine code, as otherwise programs tend to be very difficult to comprehend – even just a couple of months after writing them.

You will also see that labels (in blue) are used in place of absolute addresses in several places. Labels are strings. Usually they assume the address in memory of the mnemonic that they precede. However, if used in conjunction with the ‘equ’ directive, then they are assigned the value that follows the directive. Here we have used ‘equ’ to assign the hexadecimal address #5c3c to the label TVFLAG. If you look at the list of system variables for the Spectrum, you’ll find that address #5c3c (23,612 in decimal) holds various flags associated with the television. Most assemblers will also allow simple arithmetic with labels. Here we subtract the address of END from the address of MESSAGE to work out the length of the message, which is quicker and less error-prone than working it out ourselves.

Not every instruction is an assembler mnemonic: some are directives to the assembler (including ‘equ’ noted above). A very important directive is ‘org’, which tells the assembler at which address the program will be loaded (in this case, address 65,280, which is just below the user-defined graphics). Another assembler directive is ‘db’, which tells the assembler to insert data into memory rather than machine-code instructions. In this case, we are storing the ASCII codes of the message “Hello World<CR>“ into memory.

Unlike some other microcomputers, the ZX Spectrum does not have a built-in assembler. In the 1980’s, if you wanted to write machine code on your Spectrum, you needed to either translate the mnemonics into (hexadecimal) machine-code numbers by hand (often referred to as hand assembly) and then poke the machine code into memory using a program called a hex loader, or buy an assembler program. The lack of a built-in assembler meant hand assembly was a reasonably common approach for those learning machine code. Many of the programming courses in magazines and books provided a hex-loader program to simplify the entry of the machine code into the computer. Toni Baker’s book includes a reasonably sophisticated hex loader, which made data entry quicker and less error-prone, though no hex loader gets around the most significant bottleneck, which is actual-



ly translating the mnemonics into hexadecimal.

A number of assemblers were available for the Spectrum, ranging from relatively simple ones that allowed people to write short machine-code routines to enhance their BASIC programs, through to comprehensive development environments that could be used to write complete machine-code applications and games.

Sinclair published an assembler called the Zeus assembler, which was quick to learn and easy to use. The Zeus assembler includes the most common assembler features, has a functional built-in text editor, and allows rudimentary testing of software within the assembler. The Hello World listing above would be straightforward to enter into Zeus (see screenshot).

There is a companion application to the Zeus assembler called the Monitor and Disassembler, which can help you test and debug your programs. The monitor lets you to run your program in a controlled environment, pausing the execution at a suspect bit of code and checking the register contents and memory. As the name suggests, the disassembler reverses the assembly process, turning machine code (numbers) back into assembler mnemonics (human-readable instructions). The disassembler can be used to check your own program, to make sure it was assembled correctly and is located in memory as you intended. However, it can also be used to disassemble other software or the Spectrum ROM, so you can try to understand how it works.

The Zeus assembler, plus the Monitor and Disassembler, are useful tools though, as you get more experienced, you may spot limitations that impact on your ability to develop applications. Most significantly, Zeus is limited to loading and saving to tape. When writing assembly language, you need to save your source code frequently to avoid losing your work (as unlike in BASIC, it is very easy to crash the computer, when testing machine code). Having to load and save source code or assembled programs from/ to tape quickly becomes frustrating. Also, the Zeus assembler only allows in-memory assembly, which means there has to be enough space in memory for the assembly source, the assembled machine code, and the Zeus assembler itself. As you get more ambitious, the scale of your programs is likely to grow and you will want to reuse routines from previous projects in new programs. This is challenging in the Zeus assembler, so you will probably want to look at alternatives.

A more sophisticated assembler, which was the one I used in the 1980's, was produced by Ocean as part of their IQ range of software (which also includes the Laser BASIC and Laser Compiler we looked at in the previous issue). Laser Genius is an advanced, feature-rich assembler, disassembler, and monitor that addresses the limitations of the Zeus assembler.

Laser Genius has support for the ZX Microdrive, which makes developing machine code much quicker and easier. Second, it allows programs to be assembled from/ to Microdrive (or tape), rather than just in-memory. This makes it possible to tackle more ambitious projects and build up a library of routines that you can incorporate into new projects. Laser Genius also includes a macro extension, called Phoenix, which is slightly higher level than native Z80 assembly language and good for both quickly prototyping ideas and for simplifying code writing. For example, it allows you to use integer arithmetic operations like multiply and divide and to create and reference integer arrays; operations that would normally require a reasonably long sequence of Z80 instructions to implement.

Once you've written your program, you will need to test (and probably debug) it. Laser Genius is able to help with this too, thanks to a sophisticated debugger/ monitor that does far more than the Monitor and Disassembler published by Sinclair. Breakpoints can be set based on an eye-watering list of conditions, it is possible to detect unbalanced stack opera-

tions, and it is possible to single-step through a program or to run it in slow-motion.

Being a more sophisticated application, Laser Genius takes some time to learn to use, and is best used by an experienced machine-code programmer. It is accompanied by a comprehensive manual to help you get the most out of it, along with some sample programs to demonstrate the possibilities.

Sadly, there isn't a version of Laser Genius for the 128k Spectrum, despite there being various references to one in the manual. Discussion on the Internet suggests that the publisher Ocean had a disagreement with the author and, as a result, the 128k version was never released.

```
Pass 2 errors: 00

Table used:    82  from   143

>L
   10 TVFLAG EQU  #5C3C
   20        ORG  #FF00     ; Addr = 65,280
   25 ENT
   30 START  XOR  A         ; Make sure to print to

   40        LD   (TVFLAG),A ; upper screen
   50        LD   HL,MESSAGE ; Start of message
   60        LD   B,END-MESSAGE
   70 LOOP   LD   A,(HL)     ; Load next character
   80        INC  HL
   90        RST  #10
  100        DJNZ LOOP      ; Next character
  110        RET
  120 MESSAGE    DEFM     "Hello World"
  130        DEFB #0D
  140 END
>
```

Another machine-code development tool, with comparable functionality to Laser Genius, is HiSoft Devpac. HiSoft were well-known during the 1980's for producing a number of high-quality assemblers and compilers, covering both the ZX Spectrum and its various contemporaries. Various versions of Devpac were produced during 1983—1987 for the Spectrum covering all models from the 48k up to the +3. HiSoft even ported their CP/M implementation of Devpac to run on the Spectrum +3 with Locoscript's CP/M Plus operating system, though I suspect few people have ever actually used it.

Devpac has a similar feature set to Laser Genius, including an assembler, monitor and disassembler. It supports tape, ZX Microdrive, +3DOS and Opus Discovery, and is capable of handling large-scale applications and projects. Some people are put off using Devpac because of its archaic, CP/M-inspired user interface, which – to a typical Spectrum user – would have had very strange keyboard conventions. Also, the built-in line editor for writing source files is less user-friendly than more modern interactive editors.

As with Laser Genius, Devpac is accompanied by a long and detailed manual: It's not a tool you will learn to use overnight, but with perseverance, I suspect you would find it to be both powerful and feature-rich.

In fact, most commercial software houses did not develop games and applications for the ZX Spectrum on the ZX Spectrum. Instead they would use a more powerful workstation computer (perhaps running CP/M), possibly with a built in Spectrum emulator, and would only test the application on the Spectrum in the final stages of development.

In the 1980's, the cost of a workstation was prohibitive for most hobbyists. However, in the 21st century, it is somewhat more manageable using a modern PC, with a built-in emulator.

Writing software in assembly language on a PC is a quick and convenient way to develop an application. Modern PC tools are way more advanced than the tools available in the 1980s. There are editors with built-in syntax highlighting, formatting, and navigation commands that drastically speed up the development process; screen resolutions allow more of the program to be in view at once, so you can easily keep the context of your project; and a modern Z80 assembler will create machine code near-instantly.

I do almost all of my programming on a PC, using a few simple, freely available tools. I use the Gnu Emacs editor, which has a built-in assembly-language mode, the command-line Z80 assembler 'z80asm', and the Spectaculator emulator (with built-in disassembler and debugger). However, this is a relatively archaic setup, which probably reflects my background with Unix workstations. There are easier-to-use environments out there, as you will see with a quick search of the World of Spectrum Forum. If you are interested to write games, there are also plenty of tools for creating graphics and music that can be exported into a Spectrum-compatible format, plus some emulators have built-in assembler functionality. The best thing to do is try some different options out and see what works best for you.

More from George next issue.

TERRA FORCE

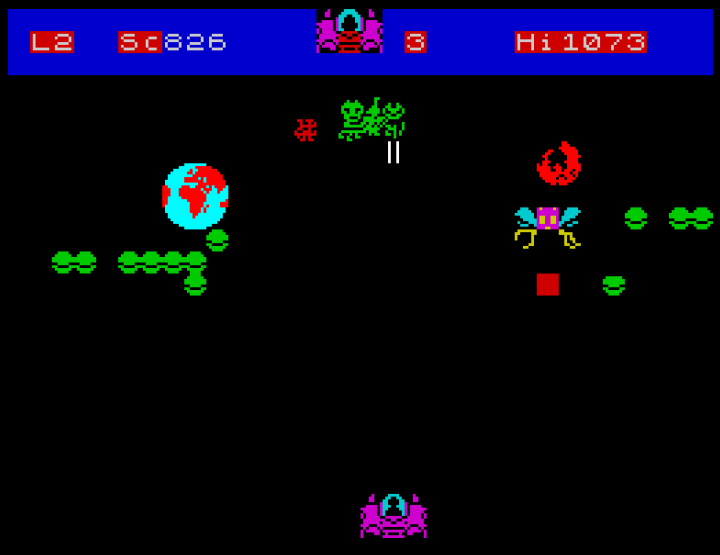
Fashoinsoft 1983 / Firebird 1985

Now this game has an interesting history and was first released in 1983 by a new company, Fashionsoft. Reviews were positive and Popular Computing Weekly said that this new company is one to watch in the future.

Fashionsoft only produce two games, Armageddon (which is this game) and Menace. Both games were later picked up by Firebird and re-released in 1985. Firebird changing the name of Armageddon to Terra Force, possibly because there were already several games called Armageddon on the market already.

Crash magazine reviewed Terra Force when it was released in 1985 and comically said it was more like an older game that should have been released a few years ago. The fact that it was, seemed to have been missed.

On to the game then, and it is a cross between Centipede and Gorf. A line of alien eggs move across the screen, dropping down as they reach the edge (like Centipede). When you shoot them, the egg changes to a static splat, that can then cause the other eggs to drop down a further line. These can be shot to remove them.



The next stage introduces a large fly that fires bombs at you, but when shot, it just re-spawns again. At the top is a larger alien that seems to do very little, even if you shoot it, It does keep vanishing and re-appearing for some reason though!

The graphics are average and move in character squares, which does make it a little jerky, and the sound is fairly dull. A clicking sound accompanies the game with just a few beeps when you get hit.

A bit of an uninspiring game that soon gets boring.

Antics

BugByte 1984

Antics is the follow up to The Birds and The Bees and was released by Bug Byte in 1984.

You play Barnabee, a bee on a mission to rescue your friend Boris the Bee who has been kidnapped by ants and hidden deep in their nest. The nest consists of many screens of deadly foes, vanishing walls, life giving flowers and narrow passages.

This maze exploration game also has a sneaky trick, some of the passageways are hidden, and only by colliding with them are they revealed. This means you have to fly about, bumping into things that look like they could lead somewhere, and this is where the fun lies with this game, at least until you know where all the hidden passages are.

Some are only made visible by collecting pollen too, so it's a real challenge to find the right path to Boris while keeping your stamina up.

Life is not easy though, and you have to contend with ants that follow you about, ladybirds that reduce your stamina, spikes and a menagerie of other nasty things that cause Barnabee damage.

You have to keep an eye on your pollen and stamina levels but, these can be replenished by bumping into plants.

The graphics are basic, but are well drawn and smooth. Control is a bit odd. You have left, right and fly keys. To move down you just stop flying. Flying also uses stamina so you have to use the floors to move whenever possible.

Some of the characters are not animal based, with things like bouncing balls, flapping memory chips and the famous BugByte logo.

Sound is nice to begin with, the constant music helps things along for the first few minutes, then it becomes annoying. Luckily you can switch if off leaving just the sparse effects.

Once you battle your way to the inner levels and Boris himself you then have to drag him all the way back to the hive. This gives the game an extra element. You have limited stamina and now you have Boris in tow and he's not the brightest of bees and you often have to wait for him to catch up.

It's not the most graphically impressive game.. and yet I always liked it (apart from that annoying music). It was fair… it was easy to get into and it was a lasting challenge.. even though I never rescued poor Boris…

An early game then that's worth a look….

O.K YAH!

Pirate Software 1988

Despite being a budget title, this game seems to annoy me for all the wrong reasons. There doesn't seem to be any originality here, or any attempt to better an existing genre.

In essence, this is a horizontal shooter, but a very mediocre one, and that's being generous.

You control a yuppie, on a jet skateboard, flying in the sky. Who comes up with these scenarios? Swap the bloke for a spaceship and you get a space shooter—but still a bad one.

First the good points. The screen scrolls smoothly. Yep! I think that's about all I can come up with.

Now onto the bad things. The collision is terrible, the music playing during play is annoying, the sound effects are poor and when you use a Kempton joystick, the controls are reversed!

The game starts with sample speech shouting 'Okay Yah!' and things go downhill rapidly from there.

There are things to avoid and things to shoot, but they do not move, sticking to the same point on the screen as it scrolls. Initially here are clouds that cannot be shot, and drinks tins that can. You just have to move around, shoot and hope the collision detection doesn't kill you.

As the levels move on, if you can bebothered to try and get that far, the clouds turn into clumps of grass, and the tins turn into… R2D2 look-alikes, but the gameplay remains the same.

One to avoid unless you like repetitive, uninspiring games.

Weetabix
VERSUS
THE TITCHIES

Romik 1984

The story behind this game is somewhat more interesting than the game itself. It was written in conjunction with the famous cereal company after another game, Paranoid Pete by Ubik was blocked from distribution because they claim not to have given permission to use the name or characters.

Romik stepped in to help and produced this game for reasons I am not too sure about. The game does not really involve anything to do with cereal, the company or the adverts, other than it uses one character, Dunk.

Apparently Weetabix is being attack by The Titchies, and you have to help Dunk throw Weetarockets at them. I thought Weetabix was a cereal and not an actual place!

The game is a poor version of Space Invaders, with just a few changes. Before Dunk can fire a Weetarocket, he has to pick it up. Then when he fires it, he has to wait for it to hit a Titchie or reach the top of the screen. Then it appears randomly again, ready to be picked up, and so it goes on.

On the left is an energy bar which reduces (I think) when a Weetarocket is fired or Dunk is hit by a lightening bolt dropped by the advancing Titchies.

The Titchies are Space Invader, but move in circular patterns. This can make them tricky to hit as you have to guess where they will be when the rocket reaches them.

You do have a shield you can use, but this uses your energy, so you have to be careful.

Graphics are poor and sound is below average, and the whole game is lacklustre and boring.

There is no variation, it's the same thing over and over again. As the levels progress, the Titchies get faster and drop more lightening bolts but that's about it.

Not very inspiring really and one that will hold your interest for about 2 minutes.

Event Report From Birmingham

I hadn't attended this event before, but had heard good things about it, so after arranging to meet up with Geoff it was great to finally experience Revival for myself.

The room was smaller than I had expected, but was packed with arcade machines, consoles and computers. There was a separate room for pinball tables too. I think the event attracted more people than it could hold, because at times it was really packed out, meaning it was difficult to get onto the arcade machines.

The arcade machines were all free play with some classics like Turbo Ourrun, Robtron and Donkey Kong, as well as some obscure ones like Ice Cold Beer, a mechanical game that attracted the crowd. There were only about 30 machines on offer, so getting a game could be tricky.

There were many stalls selling games too, including a lot of Spectrum titles that I was tempted to buy. On one stall was Chris Wilkins from Fusion Retro Books who was selling most of his books and I managed to grab a copy of the US Gold Sotry.

I caught up with the Retro Asylum guys who were hosting several excellent talk session with the likes of Dave Perry, Gremlin Graphics, Rare and the Spectrum god Jim Bagley.

I was persuaded to sit on the panel for the Spectrum Next talk along with Jim, and thoroughly enjoyed it too. The audience got to hear about the latest developments and some of the great features the new machine will have. There was standing room only and I think everyone enjoyed that 40 minutes of Speccy chat.

After a quick burger it was back into the main room for more gaming and the talk of the event from Saturday was the main stage where, as I am told, a mammoth player vs player game of Street Fighter was taking place along with commentary from Dave Perry.

Overall it was an excellent day, and had I not been recovering from a cold, I would have been back for the Sunday session.

It was more intimate than the larger events like Replay Manchester, the talks were held away from the main areas which was better and it focused on retro rather than other things like modern consoles, cosplay to network gaming.

I hope they hold it next year, and expand it too. There was certainly the crowds for it.

Congratulations to Retro Asylum for putting on some great talks.

Dean Swain, Jim Bagley and myself chat about the Spectrum Next

The guys from Gremlin Graphics give their story

PLAY EXPO BLA

CKPOOL

It was a wet, misty day when Blackpool hosted their sixth expo event, and a slight miscalculation had me arriving an hour early, but after a bacon butty, eventually I got into the large hall and took a look around.

The event is larger than Revival, the event I went to in Birmingham, but not quite as large as the one held in Manchester, usually in October.

There were plenty of classic arcade cabs, and it was easy to get a game on these throughout the weekend. All set to free play, I tested my skills on a lot of them including Galaga, Gyruss, Nemesis, Power Drift and Asteroids.

Sadly, the volume of the machines was very low, meaning it was impossible to hear most of the sounds. Gyruss for example, I played without hearing anything from the cab.

The hall was loud though, with a mix of pinball, arcade, PC and console gaming noise.

There were plenty of classic consoles and retro computers set up, sadly only two Spectrums., One stuck on Cookie – at least I couldn't get the divIDE to select anything else, and a Plus machine that seemed to have Manic Miner always loaded.

The other machines were too numerous to name but included, Vic 20s, C64s, Vectrex, BBC, Master system, Megadrives and a whole lot more.

There was a separate room for sellers, but again no Spectrum games on offer. I was tempted to buy an Amiga 1500 with Monitor – going for £100, but with no guarantee it would work, I left it.

I did however, pick up a good condition ZX Printer, complete with manual and original reel of paper complete with the Sinclair emblem.

I had one of these on loan from Geoff for a review, but wanted one of my own, and this was a decent price.

There were a series of talks hosted by the Retro Hour guys across the weekend, with guests like Gary Bracey of Ocean software talking about the company and the games, and David Pleasance, head of Commodore UK, who told stories of the Amiga years.

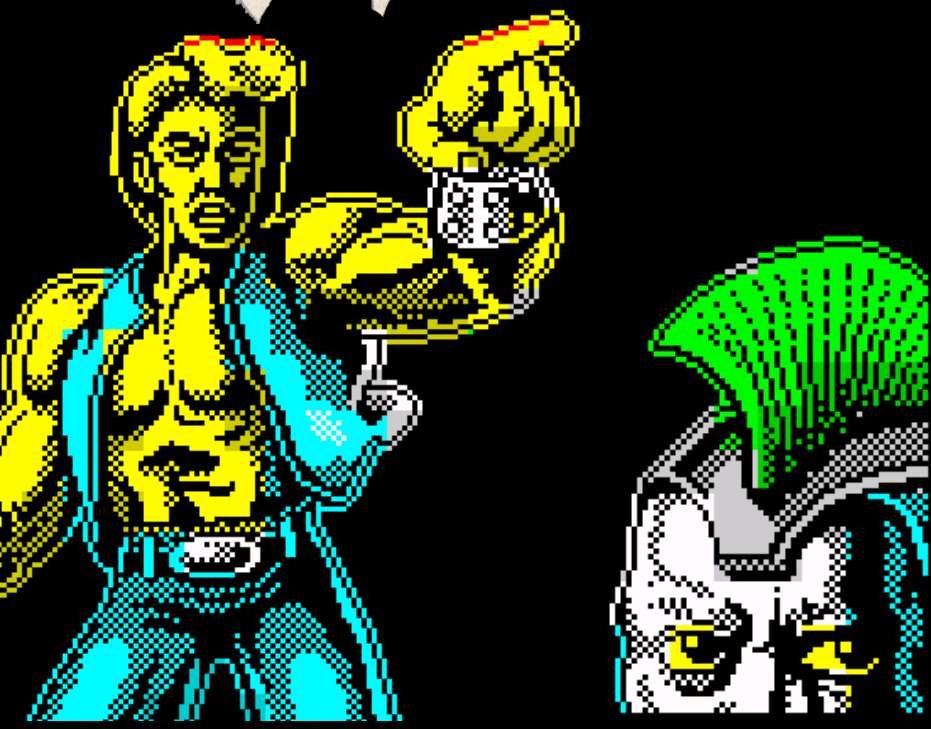
These were interesting to attend, and it was here that I bumped into Mark Jones, the ex-Ocean graphic artist, and Dan Of Lemon Amiga.

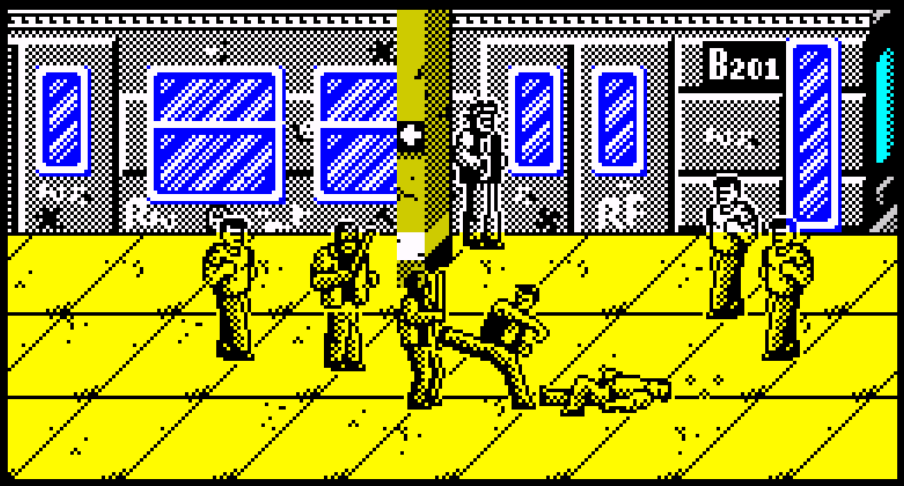
All in all, it was a good event, plenty to do, easy access to the machines on offer, and good breakout sessions.

I enjoyed my time there, and am now looking forward to Play Manchester in October.

RENEGADE

Imagine 1987





Renegade was released into the arcades by Taito in 1986, and was one of the popular breeds of beat-em-ups. It follows the usual story; you have to rescue your girlfriend and to do this you have to fight your way through different levels and different bad guys.

Home machines were quick to pick it up and the Spectrum version was released a year later by Imagine. The game came in two flavours, 48 and 128k versions. Both games are the same apart from the 128k version includes additional sound and music as you would expect.

I'll be honest and say beat-em-ups are not my favourite type of game, but occasionally I will give them a try.

The first screen mimics the arcade and there are a few men you have to take care of. Some have sticks, and these are very dangerous. Avoiding them is tricky and the keyboard certainly takes a pounding.

The variety of moves, like the arcade, is impressive, with punches, kicks, knees and jumps all being handled by four directions and a hit button. Some do more damage than others, the jump kick being very effective.

Playing these style games very rarely meant it took me ages to get past this initial level. I found the jump kicks and the ability to grab your opponent very useful. These had to be timed though, as the other men surrounded you.

The next level and the jump kicks again are used to get rid of the motorbike riders before finishing

off the rest of them with punches and knees.

At times this is a very frustrating game, just as you are lining up a kick, you get hit from behind and then as soon as you stand up, the same guy smacks you in the face again. It is best to use the hold command to at least stop one of them hitting you.

The graphics are great, with well drawn and well animated characters and the fighting animation is really good, covering a wide range of moves as previously mentioned.

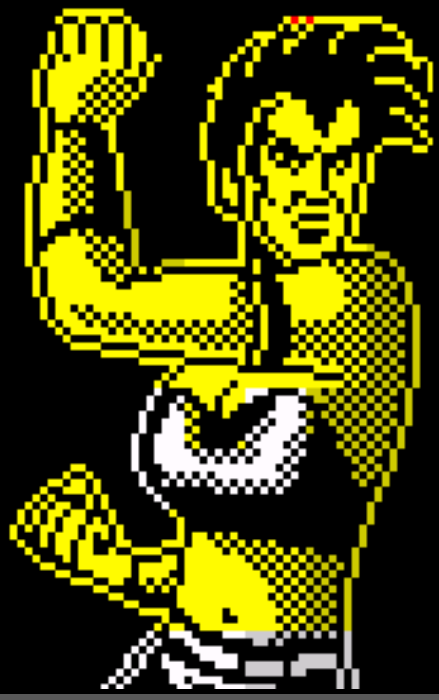
The backgrounds are nice and don't distract too much from the action, but have some nice detail.. To see the other levels I had to use the RZX playback because I was just not good enough to get there myself.

Sound is used well on both machine, although the 128k version is certainly the better of the two.

Control is good, and controlling your character is easy, which is a hard thing to pull off in beat-em-ups.

If you are into these types of game, then this is a fine example, excellently converted from the arcade and nice to play. It's also a good game for people, like me, who don't usually play beat-em-ups. There isn't complicated multi-combo moves to remember, making for a good learning curve.

A great game then… especially for beat-em-up fans…



Reviewing the games that came with the Vega console

..but without instructions!

ELECTRA 9000

Hang on a minute, I know this game, and it isn't called Electra 9000. This is a type in game that appeared in Your Computer called Bomb Alley which was later released by K'Soft as Lunar Attack. It seems it got a few commercial releases under different labels and names!

The game is, as you can see, a Scramble clone, and to be honest, not a bad one.

The graphics are nice and well defined and look like the arcade game, especially the two colours of the landscape, something missing from most, if not all commercial clones.

The scrolling is character based, so does look a bit jerky, but the game play is adequate to give you a fair challenge. The sound consist of just two main effects, both machine code and sound quite nice, however, it does play the death march when you die!

There is some bad points, in particular the collision detection can be off by about 8 pixels, so this can be very annoying, and the other issue is with sudden death syndrome, which happened to me a few times.

An arcade game then, that doesn't require instructions and apart from the jerky scrolling plays quite well. Not that you need any instructions of course.

KENTUCKY RACING

I loaded this game expecting some kind of racing games, you know the ones with cars, motorbikes or karts. What I got though was a dull, skill-less approximation of a really old game often found in the nosier parts of seaside arcade right next to the bingo.

For those unfamiliar with the concept, the real game had a line of long flat play areas with various holes in them. The player had to roll a ball up the 'table' to try and get it into the furthest holes.

If the ball managed to actually get into a hole, a wooden horse (one for each player) would move along a wall by a set amount, dictated by how far away the hole was.

The noise usually came from older grannies hurling wooden balls up wooden tables, rattling them on the sides and shouting encouragement to their horse on the wall.

This then is the computer version of that game that takes away any skill there was in the original and gives you a hand, a target and a ball.

You move the target to where you hope the ball will go, hold down the fire key and wait for the power meter at the top of the screen to reach the value you want.

Upon release, the ball moves up the table and hopefully into a hole. If it does, a fairly good animated horse trots a few pixels along the screen.

The game has another computer controlled player but oddly three horses!

It is a dull, repetitive game only worth playing once if you actually remember the real game and the fun that often ensued around them if the horses were neck and neck and the old lady in question wanted to win a cheap and probably dangerous cuddly toy.

The lack of instructions can be forgiven, but only if you know what this is and how to play it. Younger players will not have a clue, and will probably move on after a few seconds of dull gameplay.

WARNING: MAY CONTAIN SPOILERS

GRUMPY OGRE'S Adventure Page

Right, it's time for a good old whinge, and this time it's about fonts. Yes, those lovely 8 pixel novelties that are used to give games a certain look. It could be science fiction, it could be scary or it could be just a nicer font than used by Sinclair.

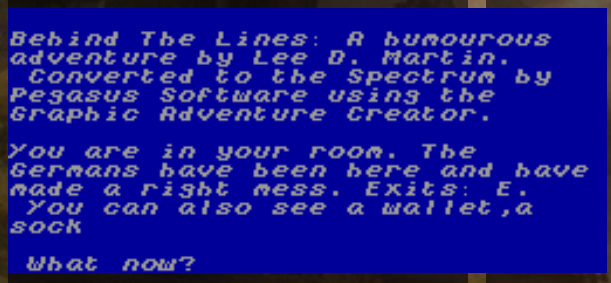
To be honest I do think a nice font makes a difference, unless you can't actually read the thing, then it just becomes plain annoying.

There are a lot of fonts out there, free to use and you can even make your own if you feel that way inclined, but over the last few years I have seen some truly terrible scrawlings.

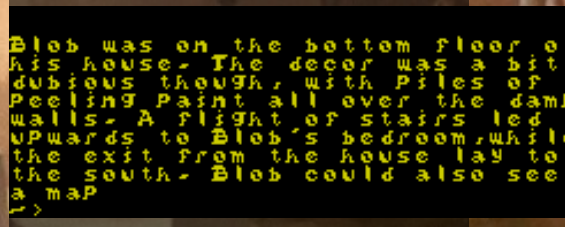
Lets takes a look at a typical example shall we, just to name to names and get the theory across to you mortals.

Hunchback The Adventure was a fairly high profile game released by Ocean in 1986, so it is not one of those early DIY games. The font in that makes it a chore to actually play!

Another rule is never use italic for general reading, that really does cause problems, as can be seen in Behind The Lines.

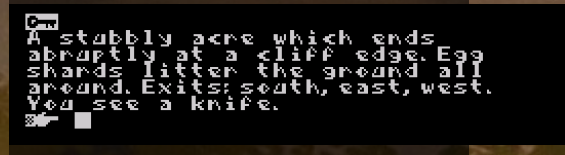


And the final rule is don't use capitals! Early Artic games were guilty of this, and although I like the games, reading capitals for long periods of time just makes me want to shout all the time!



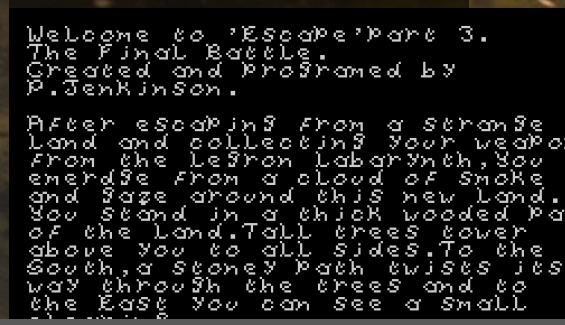
Blob Quest, a game that nearly gets the fonts right! They are almost nearly but not quite easy to read.

And now onto a 'favourite' company of mine, CRL. They released quite a few high profile adventures, but some of them had terrible fonts, just take a look at Book Of The Dead.



Argh!!! My eyes are bleeding!!

I am as guilty too, just look at this mess....



That was from a very early BASIC adventure I wrote, and I feel rather embarrassed about it. Rightly so!

Onto the game this issue then, and I thought I would try Masters Of The Universe. Once you get past all the bloody TMs above almost every sodding word (including Adam)... hang on, how can you trademark Adam? Anyway, into the game.

This is very reminiscent of a Scott Adams™ game, with instant graphics and nice font. The parser is good, and the game leads you gently into the depths of the secret layer behind the mirror and then proceeds to kill you.

I found the sword, became He-Man™ and then got killed by scorpions. Why not just stamp on the things with your big boots man?

I hate games with instant death, giving the player no chance to work out how to beat the adversary.

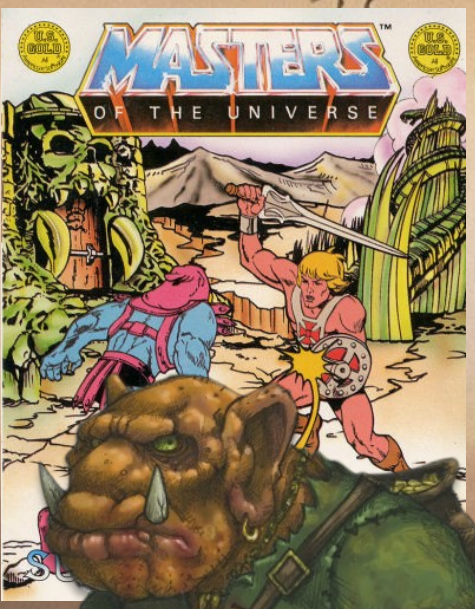
Another try then, this time not going into the mirror, instead out onto the gold road for a wonder. Into the pub where you can't even buy beer, and then.. The Evil-Lynn arrives, casts a spell and kills me!

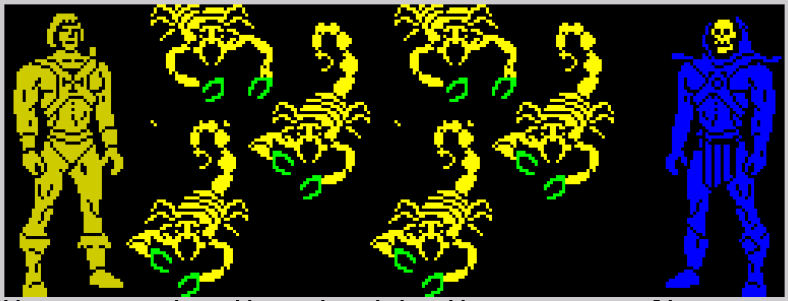
Not again!

This kind of thing in games makes me angry. If I had a leafy branch I would give it a damn good thrashing!

The clue is in the name, ADVENTURE. It's not called QUICK DEATH GAME is it?

Needless to say, I gave the game enough of a chance to entice me in, but it failed.





```
You are standing inside the narrow fissure
cut into the rock buy the quake. You see
an army of large scorpians rushing towards
you. You can go west, east.

> FIGHT
I don't understand.
The earth tremors more violently.
You are stung to death.
Press any key to continue.
```

```
You are on the golden highway which has
been torn in two by the quakes leaving a
giant chasm in its wake. You also see:
Evil-Lynn. You can go north.

> E

> S
The earth tremors more violently.
Press any key to continue.
```

CASSETTE 50

GAME BY GAME

33. Bowls

Bowling (not the ten pin variety) involves getting your bowl closest to the jack (smaller bowl). You can knock your opponents bowls away to stop them winning too. Controlling the bowlers arm, you set the speed of the bowl and release. Dull!

34. Raiders

A poor Space Invader game. Your laser doesn't actually move, and gameplay is monotonous. The invaders don't even move!

35. Field

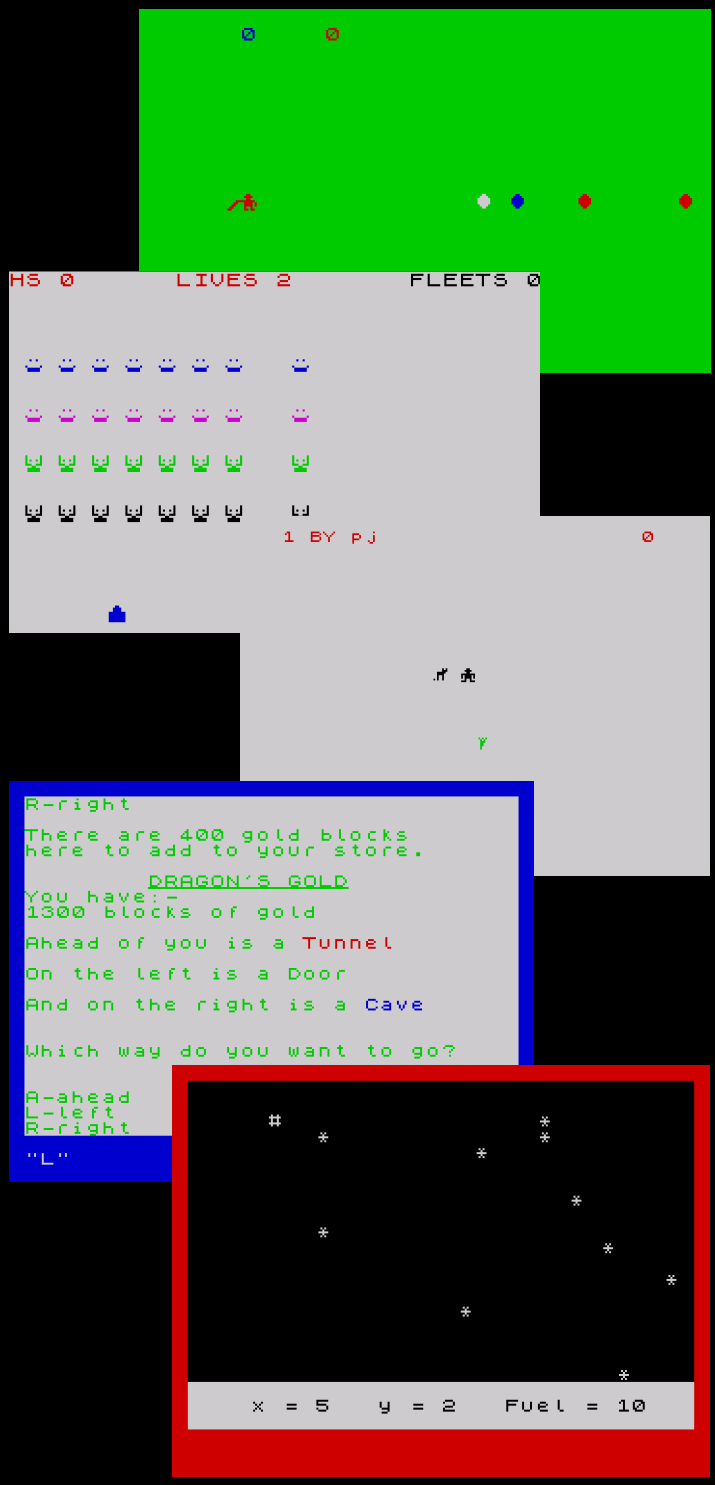
Really! You have to run around a field avoid the dog and hidden mines, and hopefully reach the flower. If you do, it all starts again.

36. Dragon's Gold

This reminds me of my own poor attempts the day I got my Speccy. It's a kind of adventure game with simple input, bad locations and random Dragons. If you run into the aforementioned creature, it demands gold, and if you have enough you can continue.

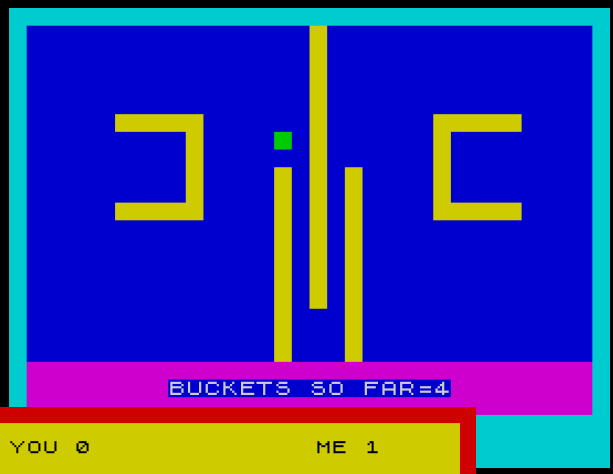
37. Space Search

Guide your hash sign around a screen of asterisks' trying to find the right one with limited fuel. Should you get close enough to a star (asterisk) then you get a refill and can carry on your pointless search.



38. Inferno

This is an interesting, if dull game. You guide a square around the screen trying to put out a fire (which you can't actually see). The fire is in the room on the left and the buckets of water are in the room on the right. You move to the right hand room, the square turns green, move to the left hand room and you have delivered one bucket. Ten buckets in all and there is a timer shown as a magenta bar that moves up the screen. A bit slow, but the idea is good. Might borrow that!

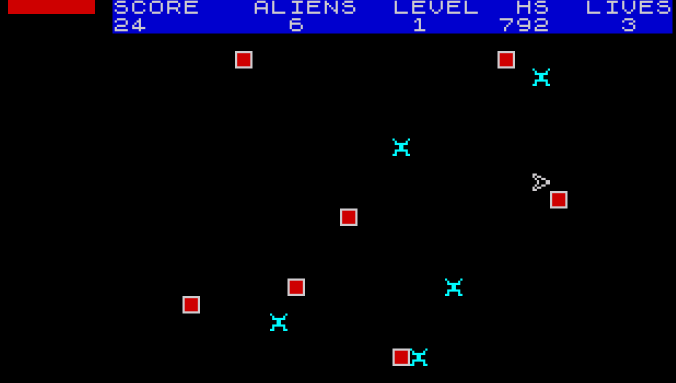


39. NIM

Another novel game involving the taking of stars. You take it in turns with the Spectrum to remove any number of stars from a single row. The player who takes the last star (or stars) wins. A bit of a brain challenge that I totally failed to win.

40. Voyage

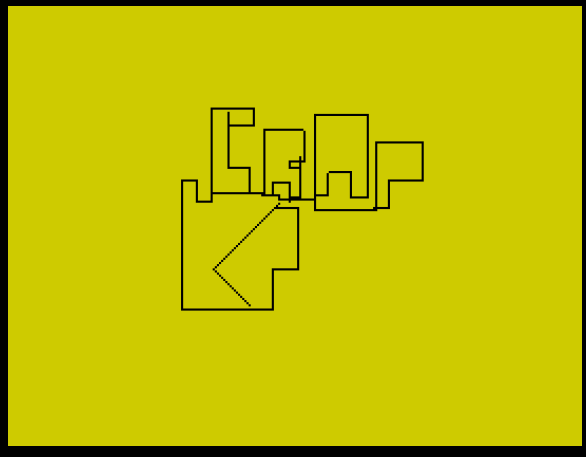
Things are looking up, and we get a half-decent game at last. Here you guide you ship from left to right with the aim of hitting aliens. You have to dodge the red blocks and the level changes when you collect a certain number. This would be one of those star type-in games in a magazine, as it plays OK and the graphics and sound are quite nice. The aliens change each level too!



41. Etch A Sketch

Everyone had an Etch a Sketch as kid. Those red boxes with two wheels that let you control a dot as it leaves a line and draws… a complete bloody mess! This is the Cascade version and it lets you draw more than just lines. You can have circles, diagonals and curves too!!

Don't get too excited though, it won't make you a good artist, just like the real thing then!



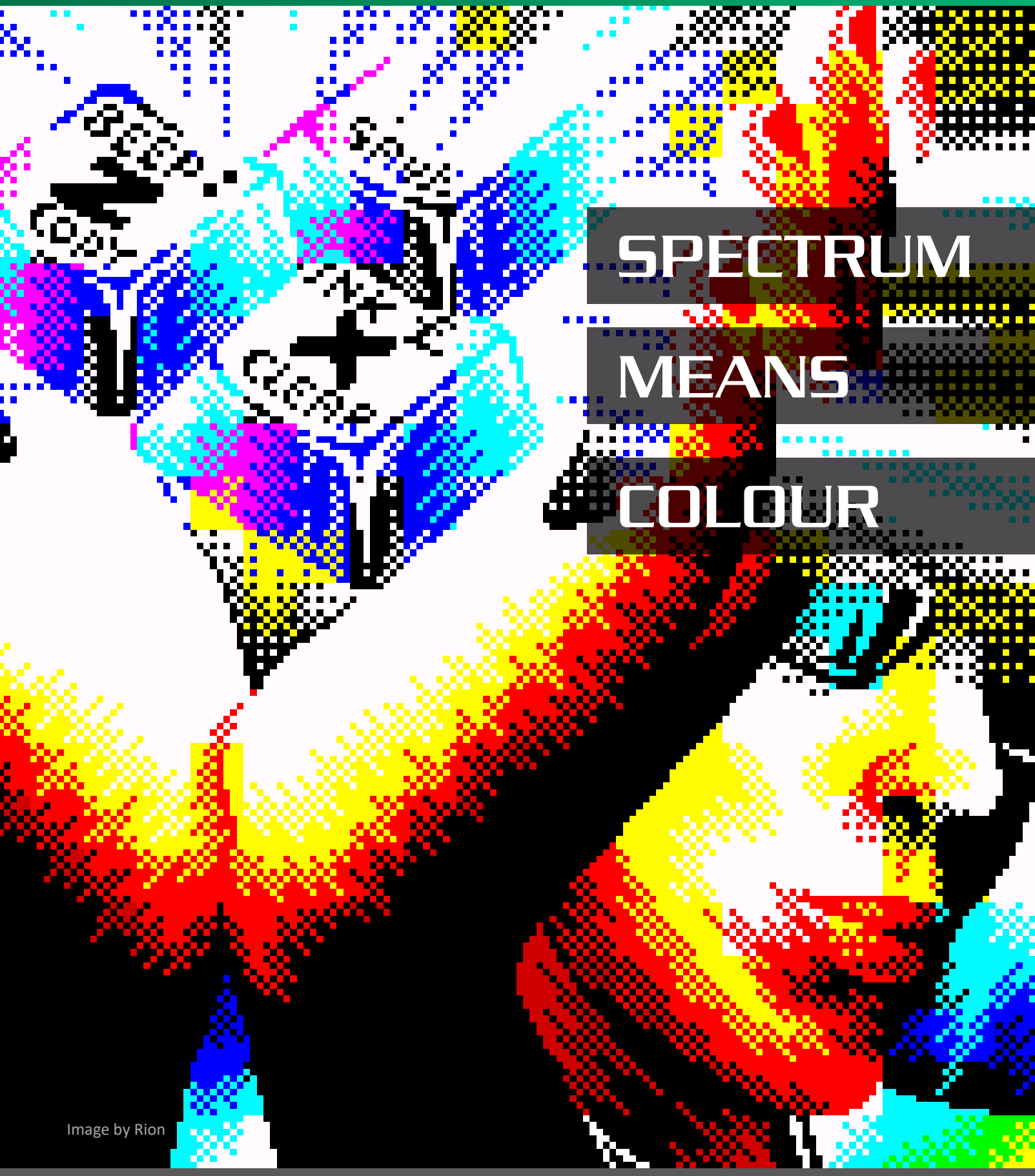


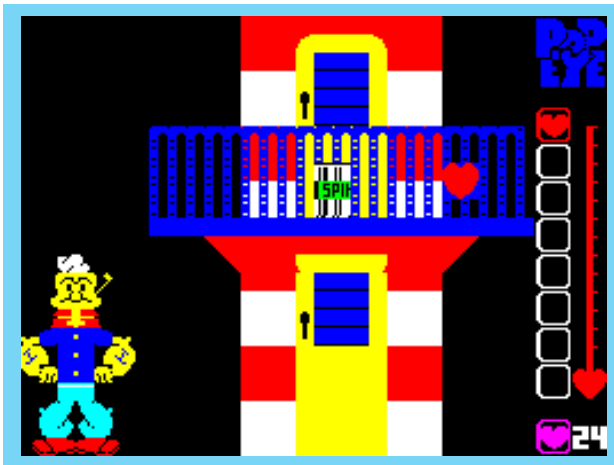
Image by Rion

PIOTR SZYMANSKI GOES IN SEARCH OF COLOUR

The ZX Spectrum can display 15 colours but only 2 of them can be inside a 8 x 8 character square. This feature, called "colour clash", makes creating graphics challenging. Static screens are not a big problem, but if you want to add an animation things become complicated. That's why many Spectrum games, especially those with scrolling, are monochrome. Fortunately there are also many games with colourful graphics and in this article I'd like to present a few examples that stand out for me. I will focus on games where everything (background and sprites) makes use of the Spectrum's limit palette.

Don Priestley's games

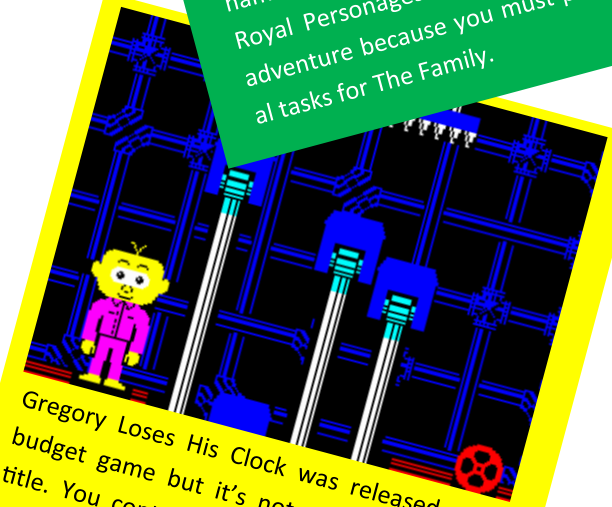
Don Priestley started creating Spectrum games in 1982 and is the author of early classics like 3D Tanx, Dictator and Maziacs. Later he started to create games with amazing, almost cartoon quality graphics, full of big and colourful objects.



Popeye is a computer version of famous cartoon. Olive's love for Popeye fades and to renew it, he must collect and deliver 25 hearts. There are also other objects, like keys, essential to complete the game.

Benny Hill's Madcap Chase is an arcade title where you control (surprise!) Benny Hill. Your goal is to help the neighbours by collecting clothes, apples and jumble. There are other characters that can chase you and obstacles you must avoid.

Flunky gives you a chance to visit Buckingham Palace and collect the autographs of Royal Personages. This time it's an arcade-adventure because you must perform several tasks for The Family.



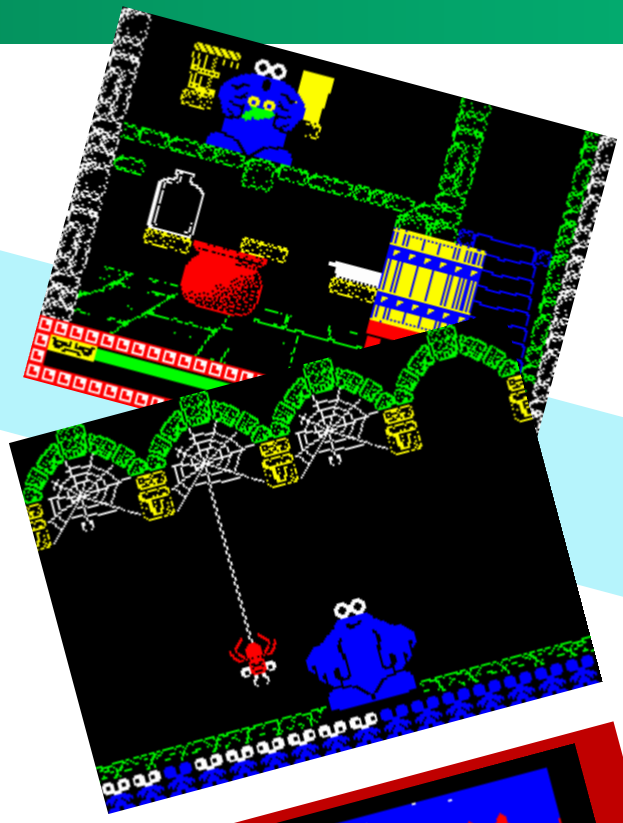
Gregory Loses His Clock was released as a budget game but it's not a budget quality title. You control a boy called Gregory and you have to find parts of an alarm clock. If you fail you will never wake up and will be trapped forever in a dream.

SPECTRUM MEANS COLOUR

Don Priestley's games

Another game based on a cartoon, and probably the most famous Don Priestley title is The Trap Door. In this arcade-adventure you control Berk, a slave of the Bad Tempered Thing. Berk must perform 5 task ordered by the Thing. If he succeeds he will receive a safe full of treasures.

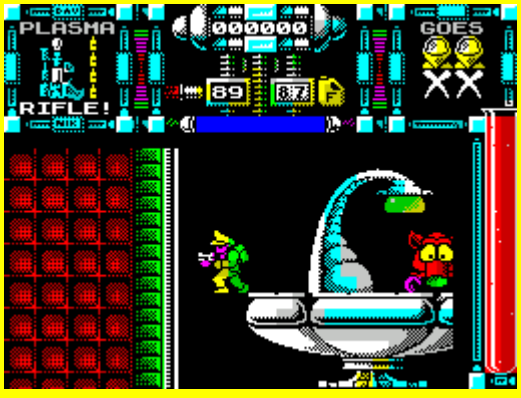
Berk returns in a sequel called Through The Trap Door. Boni the skull was kidnapped and Berk must rescue him. This time it's not an arcade-adventure but arcade game based on cooperation - you can control Berk or his little sidekick Drutt.



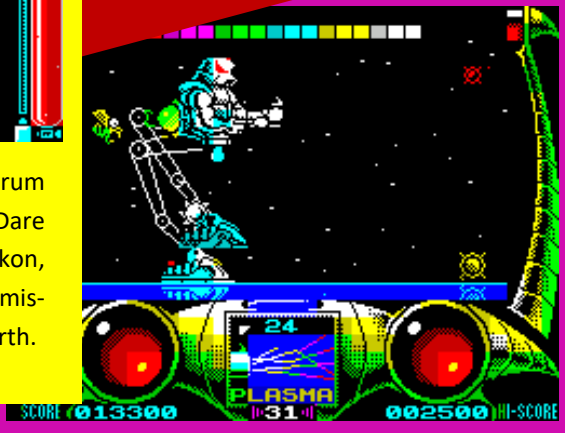
Games by Nick Bruty and David Perry

These two gentlemen created many games for Spectrum and most of them were very colourful. They specialized in arcade titles with scrolling.

In Captain Planet, based on a TV cartoon, you must save the Earth by defeating the enemies of environment. It's a mix of side scrolling and "into-the-screen" 3D levels with a lot of shooting.



Dan Dare III: The Escape is the last Spectrum game with this title character. Colonel Dare was kidnapped by his adversary, the Mekon, and transported to a space prison. Your mission is to escape from it and return to Earth.

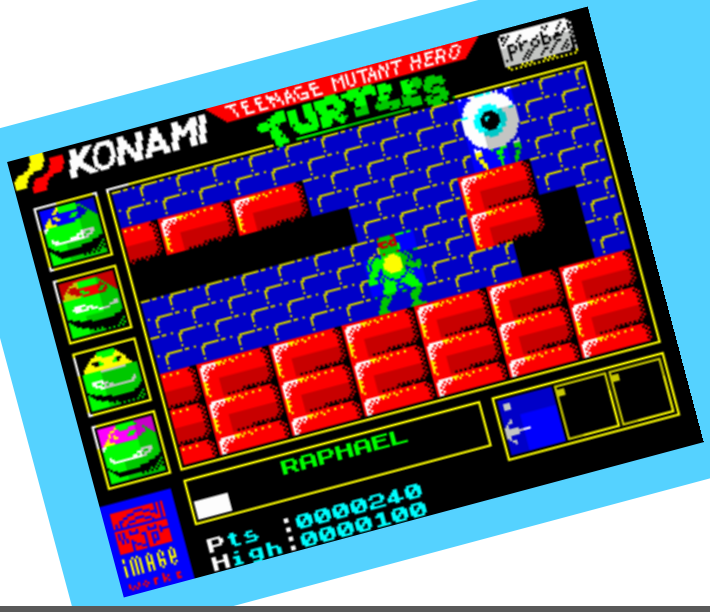


Extreme looks similar to Dan Dare III, but the storyline and main character are different. The spaceship with a self-destruct mechanism has crash-landed on Earth. This mechanism can destroy our planet, so you must disarm it. There are only 3 levels, so gameplay is not long, but the graphics are amazing. Just look at the walker in the third level!

Great Gurianos is a scrolling beat'em-up converted from Taito coin-op. You are a warrior equipped with a sword and shield and must defeat many enemies. The final boss is the hardest enemy ever - you'll never defeat him, because the game author made him indestructible (there was not enough memory to include game ending, so there isn't one!).

Savage is probably the biggest game in this chapter. In fact it's not a game but 3 games in one. The action takes place in a fantasy world where Savage must free the prisoners from the castle. The first game is a pure action where Savage moves right and kills monsters standing in his way. The second game is a cross between Deathchase and Space Harrier and in the last game Savage uses an eagle to find prisoners in a maze.

Smash TV, another title converted from a coin-op, gives you the chance to take a part in deadly TV show. Do you remember The Running Man? It's very similar but with more enemies and more shooting.



Everyone who was a kid in the late eighties knew Teenage Mutant Hero Turtles. There were comic books, TV cartoons and movies about them, and of course computer games. One of those games was created by Nick Bruty and David Perry. It's an arcade title where your task is to rescue April O'Neil captured by Shredder. There are a lot of levels to explore and an interesting ability to change active turtle.

More next issue...

Feature by: Piotr "PopoCop" Szymanski


DEEP CORE
RAIDER
Available from http://cronosoft.orgfree.com