

ISSUE 13

MAR - APR

£1.20

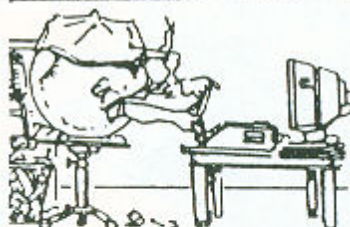
ZAX

FOR SAM COUPE & SPECTRUM



DB 3392

CONTENTS



EDITORIAL

by D. BLACKBURN

COMPUTING

- 3 SOAPBOX: Martin returns!
- 5 ARCADE ALLEY
- 7 MINDGAMES: It's Joseph's first regular column!
- 11 BACKCHAT
- 13 PLAYPEN: Polly begins her tenure as compiler of the games section. This issue is a "sport" special. Plus the SAMManic Miner.

- 17 CHIPSHOP:
CODEBREAKER: Part 5.
PROGRAM BOX: Part 5.
LISTING by Daniel.

- 24 POLL RESULTS
- 27 NEWSFLASHES
- 30 MEAN BIZ

GENERAL

- 2 EDITORIAL
- 34 MEDIA MENACE
- 35 PAIN PALACE

Cover by D. Blackburn.

Robert Burns wrote "The best-laid schemes of mice and men. Gang aft a gley". This refers to an announcement written in the last Editorial which didn't quite turn out as predicted. Intrigued? Then go to the News page for a non-poetic answer.

This issue marks the start of ZAT's re-subscription drive. With the results of the Poll in mind, we've tried to come up with a re-subscription campaign that we hope will succeed.

If all goes to "plan" (above quotation in mind) we should be in attendance at the All Formats Fair on the 26th April at Birmingham, maybe with our own stand. We did attend the last Birmingham show; in fact we were on the Samco stand with Bruce and Chris. During the show, we met a number of ZAT readers, as well as selling the odd issue or two, and see a few previews of up-coming SAM games and programs that will be on sale in the months to come. Two items particularly caught my eye. First a superb animated screen showing SAM in full 3-D, juggling balls. As animation, programming and graphic techniques go, it was brilliant, and shows just what the SAM is capable of in all departments. The other item was a Astronomy program (Astronomy is a favourite pastime of mine). For beginners, its a good utility to use; star-charts, reference tables, in fact the only gripe I had (and Andy Wright shared it too) was the lack of using traditional star names in favour for the Greek ones. Both items feature on a up-coming Newsdisc, check them out!

We'll enjoy the issue and I'll see you all next time. Take Care. D.B.

ZAT 13. MAR/APR 1992. Editor: D. Blackburn. Acting Tech Editor: D. Ledbury. Advertising/P.R. D. Ledbury & P. Sheppard. Proof Reader: M. Garbett. CONTRIBUTORS: M. Scholes, T. Vanner, R. Swann, S. Kemp, J. Crawford, D. Addey, A. Davis, D. Cannon & S. Wilson. ZX92 piece by Simon N. Goodwin. Printed at Madeley Peoples' Centre by Rob and Antony. Next issue is due out on MAY 22nd.



Special, compatibles please.)

Also, is there anyone out there with a SpecDrum program that they'd be willing to exchange for an (original) copy of Legend of The Amazon Women, Soccer Boss and Easy Speak?

Hello fellow toilers in the SAM and Spectrum world! We have yet another issue of ZAT, fair brimming with the usual fantastic mixture, with a bit extra squeezed in for good measure.

I really do think that you SAM owners should buy the SAM version of Manic Miner, because it will make Matthew Holt a very happy chappy indeed, as he did the conversion and re-vamp edit, and well-known Czech musician, Frantisek Fuka, did something with the music. Our own David Ledbury was to blame for a lot of the screens - so you know who to shout at when you get too bamboozled!

Writing of computer games (which I often do - an occupational hazzard of writing a column such as mine, I expect!) I have recently been bedeviled by a similar problem on 2 different games, namely because both games are only recorded on one-side, there seems to be a data corruption somewhere.

Both of the games in question: 1984 and The Secret Diary of Adrian Mole, originally loaded perfectly, but on SDAM one side has a Spectrum version, and on the other an Amstrad Version.

Needless to say, I am not happy with this state of affairs and want to remedy it as soon as possible. Which is where YOU come in, dear reader! I will swap, for a LEGIT copy of of 1984 and SDAM, a copy of The Great Fire of London, General Election and Go To Hell (honestly, this is a game and not an insult!). Can't say any fairer than that, eh? (I need Spectrum 128, Sir Clive

Some of you may know that I have been off work with ill health for the best part of 6 months. It now seems that what started out as Glandullar Fever, has become Post Viral Fatigue Syndrome - sometimes known as M.E.

This ill health has set me to thinking... how many "medical" type programs are available for SAM and the Spectrum? By medical, I mean self-assessment style programs, programs which Doctors, Optician, etc have written themselves to help in their work. Programs designed to produce biorythms, cast fortunes, etc. Please send them in, as I'd like to do a feature on them. Who knows? If it's good enough, it might be possible to get programs on to the PD catalogue we are slowly building up.

Oh what fun our councils are having with the Poll Tax!

You may be aware that it has been against the law for computer data to be used in ANY case in a Magistrate's Court, not just Poll Tax cases. So the government (always assuming it hasn't changed before you read this!) is passing a law to enable - at least in Poll Tax cases - computer evidence to be used in Magistrate's Courts.

BUT... in many instances, people who are honestly paying up their Poll Tax have been sent up to FOUR bills at the same time all showing different sums that the council claim people owe. As these are all on the computer records, what would a court do? The danger is, that some people seem to think that just because some information is "on" a computer, that it must be right. FAR

FROM IT! GIGO (Garbage In, Garbage Out) is an old saying in the world of computers, but it is still very true.

Any Council Solicitor who tries to make a case stick on the grounds of computer records which are wrong COULD find him or her in the dock themselves on charges of perjury, uttering a false document and several others too! It seems that some of the software for the Council owned Main-Frames have more bugs than in a cheap boarding house bed! Still, it all means more work at £xx pound per hour, for those Software Consultants!

The one thing I really lack, at the moment, is a printer, but if all goes well

I should have a rather tasty second hand NLQ printer by the Spring, which as you read this will not be too far away. Of course, what I REALLY need is a SAM, but sick pay doesn't stretch that far, so that's going to have to be something for the future. A pity, but that's the way that it is!

Well, that's about it for now. I hope you're keeping as well as you can. In closing, I'd like to remind you that if you have any comments on anything, please write in to me! We know you're out there somewhere, we'd just like proof!! Also, if you have anything that you'd like me to cover in a future Soapbox, then I'd be pleased to hear from you.

ZAT RE-SUBSCRIPTION DRIVE

This issue marks a point where many ZAT readers are due to re-subscribe, as they have now had their full years worth of magazines.

To re-subscribe to ZAT, for a full year (6 issues), now costs £7.20 - or £9.00 in Europe. However, as we are fairly kind and generous (if not particularly rich!) sorts, we'd like you to feel that you're getting even more of a bargain by taking out another subscription. So, listed below are the benefits ALL subscribers are entitled to, now and in the future:

- 1) A full year of ZAT! This includes FREE technical help, friendly service, and all that you know us for!
- 2) Discounts on certain items advertised in ZAT. This will include more items in future issues, as we are stipulating to all new advertisers, that they should put a ZAT Subscribers offer, with their product.
- 3) Discounts off all ZAT related services. SAM Quartet, its Spectrum equivalent, Quest Software Adventures, Demos, etc.
- 4) Plus other ideas, still on the drawing board!

Additionally, if you answer these 2 simple questions when you return your cheque, you can win a mystery software bundle!

1. Who invented the "Difference Engine"?

A) Bruce Gordon B) Charles Babbage C) Alan Sugar D) Charles Gill

2. Who founded "Sinclair Research"?

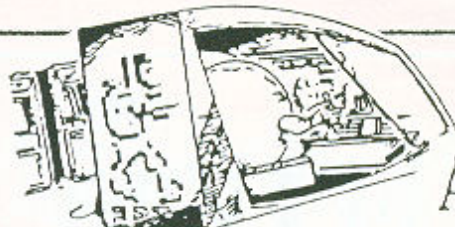
A) Ian Sinclair B) Clive Sinclair C) Sir Clive Sinclair D) Anita Sinclair

So, just send your nice cheques for £7.20 (or £9.00 overseas) to:

ZAT RE-SUBSCRIPTION DRIVE (13), 103 CHILTERN GARDENS,
DAWLEY, TELFORD, TF4 2QJ

Please make cheques payable to: ZAT, and PLEASE list your system (Computer/s, drives, printer, memory, interfaces, etc) and interests.

Don't delay - write today, right away!



ARCADE ALLEY

by THOMAS VANNER, RICHARD SWANN & STEVEN KEMP.

Never mind that we've been Absent Without Official Leave for the past few issues because we're back and we're better than ever. It's a POKE SPO! special this issue, so without further adieu, I'll hand you straight over to Richard.

Here I am again, ready to give a serious POKEing. But first of all, a quick resume on how to use a poke.

- 1) Type out the listing, making sure there are no mistakes.
- 2) SAVE the listing to tape, for later use.
- 3) RUN the poke listing.
- 4) Insert your rewind game tape and press play.
- 5) The game should now load with the poke activated!

AD ASTRA & TEMPEST

In case you haven't encountered a MultiPOKE before, I'll briefly explain. First of all, you must type out the main BASIC listing, then type in the lines appropriate to your game only. First the main listing:

```
10 REM RICH MEGA MULTI POKER
20 CLEAR 24420: LOAD " " CODE
30 POKE 65150,0: POKE 65151,91
40 FOR F=23296 TO 1E9
50 READ A: IF A=999 THEN
RANDOMIZE USR 65136
60 POKE F,A: NEXT F
```

...and now the lines specific to the games.

AD ASTRA (Infinite Lives)

```
70 DATA 33,9,91,34,176,95
80 DATA 195,108,95,175,50
90 DATA 13,140,195,232,128,999
```

TEMPEST (infinite lives)

```
70 DATA 33,9,91,34,252,127
```

```
80 DATA 195,185,127,175
90 DATA 50,1,131: REM PLAYER 1
100 DATA 50,74,131: REM PLAYER 2
110 DATA 195,0,190,999: REM
DON'T DELETE THIS LINE!
```

MAGICLAND DIZZY

Don't add anything to this infinite lives routine because there is very little memory available.

```
10 LOAD " " CODE VAL "24000"
20 POKE VAL "24079", VAL "0":
POKE VAL "24080", VAL "91"
30 FORN-VAL "233961" TO VAL
"23303"
40 READ A: POKE N,A: NEXT N
50 RANDOMIZE USR VAL "24000"
60 DATA VAL "62", VAL "182", VAL
"50"
70 DATA VAL "183", VAL "115", VAL
"195"
80 DATA VAL "94", VAL "94"
```

If you are using a 128k and want the extra music, you should type the POKE in 128k, changing line 20 to:

```
20 POKE VAL "24102", VAL "0":
POKE VAL "24103", VAL "91"
```

CONFUSED (Infinite ILives)

```
10 REM CONFUSED BY RICH
20 CLEAR 32767: LOAD " "
SCREEN$
30 PRINT AT 20,0: : LOAD " " CODE
40 PRINT AT 20,0: : LOAD " " CODE
50 PRINT AT 20,0: : LOAD " " CODE
60 LOAD " " SCREEN$: POKE
49860,0
70 POKE 51988,0: RANDOMIZE USR
32768
```

As well as the POKE, here are the level codes..

```
LEVEL 1 ENTER
```


LEVEL 2 METABOLISM
 LEVEL 3 SYNTHESIZE
 LEVEL 4 WELDEFJEF
 LEVEL 5 SKODALODA
 LEVEL 6 PROCESSORS
 LEVEL 7 RIMRAMROMS
 LEVEL 8 SINCCAIRO
 LEVEL 9 DIRECTORYS
 LEVEL 10 YUTILITIES
 LEVEL 11 ATTRIBUTES
 LEVEL 12 CENTURIANS
 LEVEL 13 MICRONAUTS

The following pokes were supplied by
Steven...

KUNG FU MASTER

Infinite lives once again..

```
10 REM KF MASTER BY STEVE
20 CLEAR 25599
30 LOAD " " SCREEN$
40 PRINT AT 0,0; :
50 LOAD " " CODE
60 POKE 27982,0
70 PRINT USR 27376
```

PAPERBOY

Infinite papers this time

```
10 REM PAPERBOY BY STEVE
20 LOAD " " CODE
30 FOR F=65400 TO 6E5: READ A
40 IF A <> 999 THEN POKE F,A:
NEXT F
50 RANDOMIZE USR 65400
60 DATA 221,33,0,64,17,232,189
70 DATA 55,62,255,205,86,5,48
80 DATA 241,175,50,114,192
90 DATA 195,58,254,999
```

Now for a another MutilPOKE, this
 time with..

CYBERNOID 2

```
10 REM CYBERNOID 2 BY STEVE
20 CLEAR 24999
30 FOR F=6E4 TO 6E5: READ A
```

```
F
50 LOAD " " CODE: POKE 25032,0
60 RANDOMIZE USR 60000
70 DATA 33,204,97,17,0,98,1
80 DAT 200,0,237,176,33,0,98
90 DATA 34,177,97,34,202,97,62
100 DATA 205,50,201,97,1,50,0
110 DATA 234,17,204,97,1,50,0
120 DATA 237,176,195,168,97
```

Tag on one of the following line 130's
 on the end of the above main listing
 depending on which version you are
 loading:

```
130 DATA 175,50,102,141,195,0,99,
999: REM 48K ONLY
130 DATA 175,50,220,140,195,0,99,
999: REM 128K ONLY
```

BLADE WARRIOR (infinite lives)

```
10 REM BLADE WARRIOR BY STEVE
20 FOR F=6E4 TO 6E5: READ A
30 IF A <> 999 THEN POKE F,A:
NEXT F
40 RANDOMIZE USR 60000
50 DATA 221,33,0,64,17,16,163
60 DATA 55,62,255,205,86,5,48
70 DATA 241,62,182,50,66,154
80 DATA 195,0,128,999
```

And that's all the pokes for this
 issue. Any pokes you've got that you
 would like to see in the Alley would be
 gratefully received: just send them in
 to the main address (the new one)
 and I'll be only too happy to print
 them. I would be especially grateful,
 and glad, to receive any SAM pokes
 or cheats as well. See you next time.

Thanks Richard, and to Steve as
 well. The same goes for me also. If
 you have any game tips, or the like
 for the Spectrum, or for the SAM,
 then send them into me via ZAT. 103
 CHILTERN GARDENS, DAWLEY,
 TELFORD, SHROPSHIRE, TF4 2QJ.
 See you all next time and take care.



MINDGAMES

by JOSEPH CRAWFORD, DAVID ADDEY & co



Hello and welcome to this issues wrecked. However, there are MINDGAMES.

As most of you will have read in the last issue, David Ledbury has retired from the post of ZAT Adventure Columnist, and has given this honoured post to me.

This month we have a Spectrum game review, a very useful article by Andy Davis and a competition where a copy of "Wombats" by Mike Gerrard is up for grabs.

OK, first of all there's a review of Deep Waters Two which is reviewed by Stephen Mullen. Over to you Stephen...

Deep Waters 2 - Zenobi Software - £4.99 - Spectrum (SAM Compatible)

Zenobi are well known for producing top quality adventures at very reasonable prices. This release, DW2 continues the trend in some style, 6 games go under a fiver. River software produced the 80's and the games on DW2 have all been released previously by River. The games are: Davy Jones Locker, The Jade Necklace, The Witch Hunt, The Challenge, The Lifeboat and The Cup.

First on the tape is Davy Jones Locker, an Adventure set on a board a ship which rescued yourself and 5 other people standing at the door is an old

mysterious goings on abroad this ship and when your friends vanish, you must protect them from the danger ahead of them. This game, really is the follow "The Lifeboat" and a pretty good game it is too.

DJL is a couple of years old though, and looks a bit dated with it's slightly unfriendly Parser. There is an "again" command to repeat an action and all in all, DJL is a quite difficult but entertaining

Adventure. Overall 75%

The Jade Necklace is a good old fashioned detectives tale, set around Private Eye, Phillip Mallow. While sitting in his office swatting flies, a "dame" suddenly telephones to tell Mallow that her prized "jade necklace has been stolen from her home. Mallow must retrieve the necklace before her husband finds out. I found this to be the most enjoyable game of the compilation, pitched at just the right difficulty level, with the odd clue here and there. TJN is a good game. Overall 85%

The Witch Hunt has a pretty strange plot; whilst out walking in the woods, a gentle mist descends around you. After

wandering around hopelessly lost, suddenly there appears a cottage in the mist and

never see your loved ones again. She then vanishes and you do the same, you are floating through space! Indeed a bit perplexing is this PAWed Adventure. The quicker response time of PAW helps this game along, but you get the "what am I doing?" feeling throughout the game.

Overall 65%

In The Challenge you are Yarulla, skilled hunter and trapper. In your village, the chief has recently passed away and there is a challenge declared to find the new village leader. Your opponent is Pacheo, son of the former chief, who has vowed to banish you from the tribe. The challenge is straight forward. Both challengers must go out into the forest with a medallion and the first one to return with the full medallion is the new chief. Will it be you? Another fine game. Probably the easiest and most user friendly of the lot. Your quest through the forest is an enjoyable and absorbing one.

Overall 80%

The Lifeboat is another nautical adventure set on both land and sea. You are stranded in a lifeboat on the high seas, along with 4 other survivors, and you must work together to be rescued. You must remember the stories of your childhood (Fairy Tales). An old woman will help you if you can find her prince, Sleeping Beauty. TL does have some slow graphics and I would say is not exactly a walkover to complete. I do like the interaction amongst the other characters and the little dog that barks away too. Cleverly written and challenging.

Overall 80%

Last, but not least, is The Cup. I like the plot of this one: After the annual prize giving dinner at "The Liars Club", won by Paddy Murphy, you stagger home. You are rudely awakened at dawn by screams from the foot of your bed. You are told to escape and save

yourself from the lion. Is this real? Or is Paddy Murphy at it again? Overall 78%

All games incorporate built in help commands, along with ram and cassette save. There is also a help service from River Software if you're desperate. To conclude, DW2 is a tape full of good games and represents excellent value for money. Well recommended.

Pack Overall 80%

Next, I have something which adventure fans have been crying out for for years! Without further ado, I'll hand you over to Andy Davis...

CRACKING ADVENTURES THE PROFESSIONAL WAY

Most games these days are simply hacked, giving infinite lives, or some other cheat making the game easier and within your reach of completing it. Adventure games however, do not get this treatment. The reason being that Adventures are written so that the right combination of inputs moves you closer towards the end of the game. In theory, you would think that a cheat program for an Adventure would be simple, but in fact it is virtually impossible! So, if you can't POKE an Adventure, what can you do? Well, most magazines carry an "Adventure Helpline" section. This is where people who get stuck at a particular problem can write in explaining where they're stuck and will (hopefully) get a solution or some clues. [If you would like ZAT to have a section like this, just keep sending in your problems - and solutions! DL]

Some people offer complete solutions to Adventures they have already completed. But, what if your letter isn't answered, or nobody can help you? Then what do you do? The answer is to crack it for yourself! You don't need

to be an amateur detective or a computer whizzkid, all you need is common sense and a few simple tools, the latter I'll supply you with!

FIRST CLUES: Arm yourself with a notepad and pencil, then MERGE the game loader. This is the first file on tape. If you are successful and OK appears, then press ENTER to list the program. If you're lucky and have a completely readable program in front of you, note down the address of the CLEAR statement, the address and the length of where the code loads to and the RANDOMIZE USR address. Don't forget to label all these values so you don't get them mixed up! If the program lines are protected, then the first line may tell you what the Adventure game was written on. Games written on the Professional Adventure Writing System (PAW) usually say "A PAWed gam o'hacker" or "A QUILLed game o'hacker" if written on Quill (PAW's predecessor). If this is the case, then jot this down too, as it makes things much easier later.

Press RUN when you've finished, and let the game continue to load. If there is a screen picture before the game, it may tell you which Adventure creator (if any) it was written with. The main recognised ones are PAW, Quill & Illustrator, GAC, and Dungeon Builder. The most popular nowadays are PAW & Quill. Although, 95% of you will now have GAC, thanks to Your Sinclair. If you have recieved it this way, I urge you to write to Incentive Software and buy a copy of the proper manual and a copy of the GAC Adventure Writers Handbook. Both will set you back about £1.50 each. But contact Incentive first for availability and price (The handbook costs £1.25. Incentive can be called on: 0734 817288)

More of this article, will appear in the next MINDGAMES.

Up until now, there has been numerous competitions in ZAT, but none in MINDGAMES itself. However, up for grabs is a copy of "WOMBATS", as kindly donated by Mike Gerrard. To win a copy of this wonderful adventure game answer the following...

Out of all the Spectrum software, there has been a particular trilogy which contains two games that have been regarded as Classics. The 3rd game in this award-winning trilogy was due for release in September 1985, but hasn't been released yet!

What was the name of this game?

Send your answers on a postcard to

WOMBATS COMPETITION, MINDGAMES, ZAT, 103 CHILTERN GARDENS, DAWLEY, TELFORD, SHROPSHIRE. Good Luck!!

Until next time, Joseph Crawford.



Postman's
KNOCK! with David Addey

This month, I've another game from KJC to reveal unto all of you - from the company that brought you Quest.

Monster Island is a "computer moderated" (i.e. Run by Computer) game, and has been programmed on a truly epic scale. It started in Britain early this year, having run successfully in America for a year, and is already very popular with those people who play it.

The game places you, as a monster from a race of your choosing, washed up on one of the many beaches of Monster Island. The rule book you receive at the start of game details some basic orders (movement and so on) to get you started, but as you get

further and further into the game, many more different orders you can carry out become apparent to you. You are allowed a maximum of 15 orders per turn, as in Quest, and the cost of each turn is 2 credits, with 8 credits costing £7; This works out at £1.75 per turn.

The game has been designed to be fairly easy to begin with, but with great scope for getting to be more involved later on. Also, if you've got up to 3 like-minded friends who also want to play in the game, you can ask to be started near each other. You also receive the addresses of other members of your race met during the game, so you can write to each other, making joint adventuring possible even if you haven't any friends (sniff).

Writing to KJC (see below) gets you a rules pack and sign-up card. Returning this gives you a free pre-game turn showing your location, stats, examples of movement and other aspects of the game. The turn printouts are particularly impressive, as they are laser printed, giving very clear maps and information. As far as I am aware, KJC are the only company to do this for a game. As with Quest, it's worth sending for the free startup as continuing isn't obligatory. Why not give it a try?

To contact KJC, write to:
KJC GAMES
FREEPOST
CLEVELEYS
BLACKPOOL
FY5 3BR

After the review of Quest last issue, hopefully some of you will send off for the starter pack, and will even play the game. For those of you that do (and I can't blame you) here's a few tips that I've come up with whilst playing the game, that you might find useful.

1) If you want to find out more about a particular creature, either write its name on your chatlist, or do an I (race£) order. Also, if you have a few spare orders one turn, try issuing I (any number between 801 and 1000). The number will be the number of a monster class, and it's quite possible that one of your group may know about that monster class. For example, the code for Dragon is 808. I orders work best in towns - also, I 0 investigates the current town.

2) Other good ways of using up spare orders:

a) Let your character practice with their weapons. The format is U (Char£) (item£) (Char£), where the char£ is the character number, and item£ is the weapon they are going to practice with.

b) Let your mages experiment with their powders. In the beginning stages of the game, you are best to stick to spells that only use one component, as, unless you have quite a high mage level, you are unlikely to discover higher spell so early on. Order format is C (char£) (powders) (0), where char£ is the character to experiment, and powders is the last numbers of the powders you want to experiment with - 345 would be powders 303, 304, and 305, 29 would be 302 and 209. Don't forget to put an "0" in the last column of the turncard, to show there is no target.

3) If you're just starting in the game, or are deciding which type of character to try and recruit, here's a few tips - Elves make good mages, but are weak. Halfbloods are tough and smart, but evil, and make good thieves. Humans are general all-rounders, and are usually the best priests. Dwarves, being very tough, make great warriors.

That's it for this issue. Watch this space, for more of the same soon!

Back-chat

BY ANDY DAVIS

Before I get stuck into this month's lesson, let me just give you the answers to last month's puzzle that I gave you. The missing lines were:

```
120 IF a=2 THEN GOTO 2000
130 IF a=3 THEN GOTO 3000
140 IF a=4 THEN GOTO 4000
1010 CLS
2010 FOR counter=1 TO 50
3020 INPUT name$
4010 LET num=RND*100
```

And that's it! I hope you did well. This issue, we'll cover some new words which you came across in the test. The first of these is GOTO. Analyse the word, it basically says "Go To" and that's all it does! When the program hits this word, it goes to the line number following the command. The next step up from this is the command GO SUB. This is a little more complicated and works in roughly the same way as a procedure. GOSUB stands for GO SUBroutine and goes off to perform a mini task and return where it came from. At the end of the mini task, the final line should have the command RETURN in it. Here's an example of how the GOSUB command can save you repeating a line...

```
10 PRINT "Load or Save?"
20 INPUT C$
30 IF C$="load" THEN GOTO 100
40 IF C$="save" THEN GOTO 200
50 GOTO 20
100 REM *** LOAD ***
110 GOSUB 500
120 LOAD f$
130 STOP
200 REM *** SAVE ***
210 GOSUB 500
220 SAVE f$
230 STOP
500 REM *** SUBROUTINE ***
510 PRINT "Enter file name"
```

```
520 INPUT f$
530 RETURN
```

Another good example is if you're clearing the screen a lot in a program ...

```
10 LET clearscreen=500
500 BORDER 0:PAPER 0:INK
7:CLS:RETURN
```

Then, when you need to clear the screen, just add the line GOSUB clearscreen. In case you're a little confused, it is possible to substitute line numbers for a variable, so long as a CLEAR command isn't executed to erase all variables. For SAM owners, it would probably be more wiser to use a procedure to clear the screen, but this is the closest thing for an unexpanded Spectrum. (Although SAM owners, with the particular example above, could always just use: 500 CLS E:RETURN as this will do exactly the same! DL)

READ, DATA and RESTORE

These three commands can save you hundreds of program lines, and hours of terminal tapping - and that's official! But don't get worked up too much as you'll soon find out that they're as boring as they sound! Say you're a computer musician and you want to input the latest Cliff Richard hit into your computer, what do you do? At a first glance, you'd type it in note by note ...

```
10 PLAY "A"
20 PLAY "g"
30 PLAY "f"
```

or the appropriate sound command for your computer. But if you do that, you're going to have a mighty long and slow program in at least 50 notes time, so what do you do? If you have brains, you'd use a specialist music package! But, if you're a poor struggling programmer (like me!) then you have to do things manually. What you need

is a "bulk store" of all the notes and get the computer to pull out a note at a time, but how? Forget RESTORE for now and look at the READ command. It does what it says. When the computer hits this command it will take something from the "bulk store". Simple, but how do we create this bulk store? This is where the DATA command comes in. After this command, we just put our data or information. It's all very well talking about it, but lets put it to work .. 1,5,3,6,12,33,2,9,76,3. We want to print out these numbers, one at a time, how do we do it? Like this ..

```
10 PRINT "1"
20 PRINT "2"
30 PRINT "3"
and so on? If we did, we'd have 10 lines of program altogether. What if we had 50 numbers? So, lets look at the quick way to do it ..
```

```
10 FOR count=1 TO 10
20 READ number
30 PRINT number
40 NEXT count
50 DATA 1,5,3,6,12,33,2,9,76,3
```

Line 10 is a loop to perform lines 20 and 30 ten times. (Don't forget - if your BASIC won't accept this line, change "count" to "c").

Line 20 reads in a number from the DATA line.

Line 30 simply prints it.

Line 40 is the end of the loop (see note about 10)

Line 50 is the bulk data line.

Imagine if we wanted the computer to wait 1 second before printing up the next number. In the 1st program (all the PRINTs), we would have had to type ..

```
15 PAUSE 50
25 PAUSE 50
```

etc. But on the second program, all we'd need is ..

```
35 PAUSE 50
```

If we wanted to use text instead of numbers, then its the same principle, except our READ variable would need to be a string, and each item of data would need to be encased in speech

marks. EG ...

```
10 FOR count=1 TO 5
20 READ city$
30 PRINT city$
40 NEXT count
50 DATA "Sheffield", "Moscow",
"Jerusalem", "New York", "Paris"
```

In some cases, maybe READ/DATA isn't the answer, perhaps if only 2 cities were printed above, but in complex programs with lots of data, then its the best solution. The reason we need the FOR - NEXT loop is because the READ command can't advance onto the next item of data on it's own. So the FOR - NEXT loop reads and prints the number of times there are data.

In the first example there were 10 numbers, so the count went to 10. As we have just seen, 5 cities for a loop from 1 to 5.

Don't worry about the position of the DATA command. It can be the first line, the last line or even tucked somewhere in the middle, but make sure you NEVER put it inside the FOR - NEXT loop for reading the data otherwise you're in trouble.

Now let's introduce RESTORE. The READ command isn't highly intelligent, once data has been read, the computer has finished with it and won't re-read it. RESTORE just re-stores the data into the computers memory, allowing it to be re-read. The main advantage of DATA in your programs is for storing music, text, numbers and performing a task many times but using the main statement only once. We will come across read and data again in a future issue when we use it to create some user defined graphics.

If you have any troubles or queries, then write to:

Andy Davis, 62 Tithe Barn Lane,
Woodhouse, Sheffield, South Yorkshire,
S13 7L

Please enclose an SAE, and a tape (if necessary).



PLAYPEN

compiled by
POLLY SHEPPARD

Although I officially began compiling this section last issue, there was not sufficient space last time to let me introduce myself to you all properly, so here I go. My name is Pauline Anne Sheppard. It is now my task to compile PLAYPEN and the game

reviews that are featured every issue. The Editor had been trying for some time to find a willing volunteer to do the job, but no one else, but myself, wanted the job, so here I am. Now let me reveal my secret: I don't play games, neither do I own a games machine. In fact I own a Amstrad PCW 8256, now hilarity please!

I will only add that I am a secret games fanatic, and the PCW prevents me from spending whole days in front of a screen filled with fantastic creatures, facing impossible odds, and eating the most revolting things! I was taken to Blackpool last Autumn, never again! I spent pounds on a space simulator, from which I had to be physically extracted by my fiancé, after threatening the owner if he dared to turn it off. I cannot count the number of dead and injured throughout the arcades as I ejected bewildered children off simulations of "Space Shuttles" and "Formula One" racing cars.

Games? I love them! So you ask how will I be able to handle game reviews. The simple answer is that I do not. As I stated I corollate the reviews kindly supplied by other game fanatics who have done, and continue to do, game reviews for this column. Well the running theme for this edition is Sport, as well as the long awaited review of the Sam Manic Miner, but first

The Match. (Spectrum) Cult Games. £3.99

Review draft by Stephen Motion

The review for this game leaves me wondering if food is not more important than the match? Managing a football team must be bad, but playing this game must be a nightmare. The game tackles the problems off the pitch as well as on it. How to afford the best players, ground maintenance and the possibility of a riot caused from a lack of pies?

Winning matches is apparently only half the job. Your team must firstly win promotion from the fourth division, failing that a personal reputation can be gained, leading to offers from other clubs. If staying with the underdog is your style, then you have the chance to turn them into world beaters.

There is a long line of Football clones for the Spectrum, but the Match is well put together, and not written in BASIC like so many others. You may scout for talent, improve your ground, sack players, buy pies (sorry), all the usual stuff. The graphics are good and involvement high. What else do you need?

This game comes highly recommended, not as a master piece of programming, but as an addictive and enjoyable game. A bit like pot really.

RATINGS

PLAYABILITY	80%
ADDICTIVENESS	87%
GRAPHICS	40%
SOUND	30%
OVERALL	80%

World Cricket (Spectrum) Zeppelin.

£3.99

Review draft by Stephen Mullen.

Before I relay this review, let it be understood that I am a Cricket fanatic. With many happy hours spent at Edgbaston in the rain watching the West Indies hammering my heroes.

World Cup Cricket blasts on to the TV via satellite in February, and last season was so good that what could be so appropriate than this game? Zeppelin are of course cashing in.

The game itself places you as the chairman of selectors of any country on tour. One to five test matches can be played, plus four games against weaker opposition, and of course limited overs games.

Once the tour has begun, you must choose your team for each match, the tour party including up to 30 players. The presentation is impressive, all players names are authentic, including their batting and bowling styles. Some players are opening bats and others the quick scoring middle order players. There are fast bowlers, spinners and the essential "all-rounders".

The options screen is full of icons and colour, and well presented. But what about the actual game? What a pity; there are no match graphics to speak of, only wickets crashing (to the West Indies do doubt) and sixes being hit. But alas no scorecard. You need to have quick eyes, as the action is fast. A well presented but shallow game, a disappointment to most.

RATINGS

PLAYABILITY	56%
ADDICTIVENESS	52%
GRAPHICS	70%
SOUND	40%
<i>OVERALL</i>	<i>55%</i>

Now for a change of scene. Some time ago in the mists of the recent past, I spent a day up at Darren's, where I was able to see the following game in the flesh, on David's SAM (I hadn't seen the SAM before until then, I knew of its existence, but I'd always wanted to see one close up, thank God that my friends are SAM owners, and that they live close by).

It's been very difficult to find someone to review this game, and give it a fair review since a number of ZAT readers and contributors had worked on the SAM version of Manic Miner. In the end we found the very person to do this task: here's his review...

Manic Miner (Sam Coupe) Revelation/Software Projects.

£9.99

Review by Joseph Crawford.

Manic Miner is one of the classic games in Spectrum history. First released in 1983, it still remains a legend even now. Smooth graphics coupled with frantic gameplay raised it well above the other games around at the time, and it still beats most of the bog-standard, run-of-the-mill arcade or film conversions you can find around today (for playability).

Now it is available for the SAM Coupe...and I've been placed in a bit of a situation, because it was written by Matthew Holt (one time technical writer for these very pages), and readers as well. So I will try to be as fair and as impartial as possible (depending on how far the ZAT kitty stretches, ahem).

The plot is fairly-simple: Miner Willy (make of it what you will) stumbles across an ancient mine shaft whilst prospecting one day. Seeing his chance to make some money from the rare minerals that are found deep down in the caverns, he dons an air tank and starts to explore. However, there happens to be a variety of killer robots and mutant telephones down there as well, so he must try to avoid these whilst he amasses his fortune.

To do this you must jump or fall between various "rocky" platforms strewn about the caves and collect all the keys. Conveyor belts, collapsing platforms, heavy drops, and the dreaded mutant telephones (and other creatures) all conspire together against you. The only defence is the jump button, so very accurate timing is required to dodge between these enemies whilst you try to escape from each level. Don't get too used to the jump key-poisoned spikes and plants are placed just in the "right" place. On top of that lot there is the ever decreasing time limit (in the form of your oxygen tank).

To be honest it sounds simple, and it starts off simply. But it is just geared at the right pitch to get more and more difficult. It is usually possible to see a way through the level, but getting there is another matter. The timing has to be just perfect otherwise you end up as yet another snack for a mutant telephone.

Graphics were drawn by Brian McConnel and Jeff Coppard. They have certainly made a good job of them: they are colourful, and the animation is smooth. Frantisek Fuka has done his usual excellence with the music (the Blue Danube on the title screen and the tune I can never remember the name of in the game itself (sorry))(Hall of The Mountain King from the "Peer Gwynt" suite I believe. D.L.)

On top of the original 20 levels, there are 40 more. If I just check with my calculator that makes a grand total of 60 levels altogether. However, all these levels are split into 3 sets of caverns so you don't have to play all 3 at once! All the old favourites are there: Teenage Mutant Ninja Telephones (see!), The Endorian Forest, and so on. The only change is in Eugene's Lair: it's been taken over by everyone's favourite computer and renamed The Sugar Factory. Alan's beard has grown slightly though. New levels include the Twilight Zones, In Xanadu Did Kubla Kahn(?), Dante's Inferno (designed by the the resident ZAT Artist/Editor) and Wibble Flowerpots (!?!).

Manic Miner was a classic game on the other computers, and it looks set to be a classic on the SAM. It retains all the playability of the older version, but with graphics and sound that are to SAM's credit. Now I'm off to do battle with a Whacky Amoebatron. See you there.

RATINGS

PLAYABILITY	94%
ADDICTIVENESS	93%
GRAPHICS	83%
SOUND	82%
OVERALL	90%

Don't forget: this issue you have a chance to win a copy of Manic Miner!

Now we return back to sporting events; the spotlight this time being trained on the fast-moving world of Stunt Car Racing..

Stunt Car Racer (Spectrum) Kixx (Originally Micro-rose).

£3.99

Review draft by Andy Davis.

Stunt Car Racer could be the alternative to "Hard Drivin", and they both appeared on the shelves at the same time, at Christmas at full price. On the tape are two versions of the same program: one for 128k users, featuring enhanced sound. The game uses Pete Cooke 3D solid wireframe graphical techniques, and the aim is to drive a super stunt car around a variety of tracks. Standard Cooke options are available, being define keys, practice, save and load, to complete and fantastic 3D maps.

[Now this sounds like my kind of game: fast, violent and noisy].

The idea is to take part in a championship with seven other computer controlled players, six if a second human joins in. You drive around eight varied courses, ranging from the simple little ramp, to the stepping stones. You race against one opponent at a time, and if successful move one place up the scoreboard, facing tougher drivers.

The controls are simple: accelerate and decelerate, left and right, plus additional turbo boost and brakes. Other pointers to look out for are the speedometer, boost remaining, the damage indicator and your lap time.

Graphics are outstanding, but lack a little in the backgrounds. For example, having just jumped a ramp at 200m.p.h., you are not sure exactly where you are, which way you are facing or if you are the right-way up?

More problems ensue if you leave the track, as it takes ages to land, crash, bounce and recrash. More time is taken to place you back on the track, and by then your opponent is several hundred units in front of you.

Stunt Car Racer is an amazing combination of racing and driving. Possibly the nearest game to take you to the thrill of experiencing a real Stunt Car race.

RATINGS

PLAYABILITY	80%
ADDICTIVENESS	95%
GRAPHICS	90%
SOUND	75%
OVERALL	95%

That's all the reviews for this month. Other games to take into consideration are Rainbow Islands (£3.99.): a cute cartoonish game which involves all manner of cute and cuddly characters, Robocop (£3.99): based on the first movie..and for those of you who desire even more doses of senseless violence there Navy Seals and Midnight Resistance (£3.99 each). All of these are Spectrum budget games, all from the Hit Squad label. On the SAM front there's Batz 'n Balls, Hexagonia and one other surprises. Batz n' Balls will be reviewed next time. I would like to hear from you if yoy have any comments or suggestions for possible games to review, just send them in to me via the main address. Take care and join me next time.

P.S.

compiled by
D. LEDBURY.

Welcome to another trip into one of the most popular parts of ZAT - "Chip Shop". This issue, Daniel continues his journey through the realms of Z80 Machine Code, and Steven through the Spectrum System Variables.

Before we continue with Daniel, one piece of information that any SAM M/C programmer may like to know: the March issue of a publication known as the "SAM Newsdisk" (which I don't know ANYTHING about!) starts the first part of the mammoth listing of SAM's ROM Source Code. This is the SAM equivalent of Ian Logan's Spectrum ROM Disassembly (almost!), so it is well worth buying! Contact SAMCo for details. (0792 700300)

Now, it's back to Daniel...

CODE BREAKER^{by} Daniel Cannon

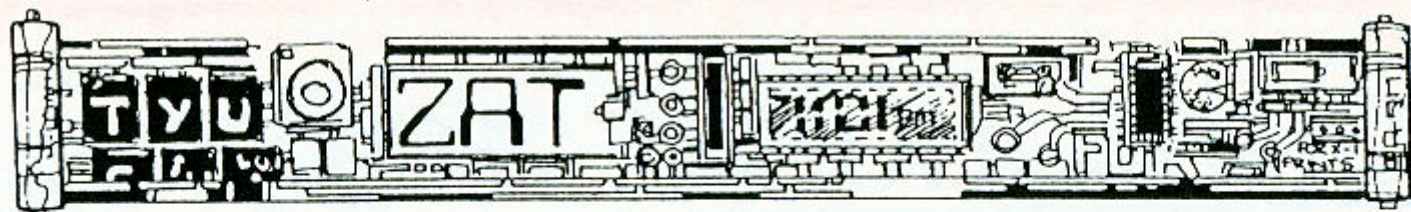
Hello again. I've realised I forgot to explain JR from last time, so your probably wondering what it does. JR is another jump command (like JP) but can only jump a distance of about 128 bytes either way. Why bother? It uses 2 bytes instead of the 3 that JP uses, so if you are running out of memory it can be useful. It also allows your code to be relocatable, that means that it can be loaded to any address in the memory without crashing. If you use a JP command it isn't relocatable and will probably cause a crash if you do load it to any address different from

it's ORG address.

No more sound effects this time, today we are going to print to the screen. First you should know that the processor only understands numbers. So how are we going to get the computer to print letters?

The screen memory is used to hold the information on the screen. It is simply an area of memory which holds a list of numbers. The computer automatically converts these numbers into colours and shapes and sends them to the TV at the right time. So if you poke in the correct numbers you can print text, or draw lines, or whatever. Poking in the numbers in the right area of the screen memory is quite a long and complicated job - over 1K of programming in the Spectrum ROM is used to do this, and SAM probably has 2K or more - so why not take advantage of the computer's program - by CALLing it?

Fine - now we can convert letters to shapes, but how do we tell it what letters to use in the first place? After all, the processor can only understand numbers. The ROM gives each letter, symbol, UDG, block graphic, etc, a different number. We simply give it a list of numbers which it will display as text. To find out these numbers, look in your computer manual under a section called "The Character Set" under the headings of "CODE and CHARACTER (ignore the other headings). If you manual doesn't have this chapter (SAM doesn't) then type in program 1. Either way you can see that each character is given a different number (or code).



```

10 REM Program 1: Chr Set
20 REM To get a print out,
30 REM replace PRINT with
40 REM LPRINT
50 PRINT "CODE","CHARACTER": FOR a
= 32 TO 127: PRINT a, CHR$ a:
NEXT a

```

First then, lets print the letter A. You can do this by typing in program 2. The LD A,65 is the code for the letter "A", and the RET returns us back to BASIC.

```

010 ;PROGRAM 2: Print a letter.
020 ;Start 32768, End 32771, Length
4. Relocatable.
030          ORG 32768
040 ;Code for letter "A".
050          LD A,65
060 ;Print this letter.
070          RST 16
080 ;Back to BASIC.
090          RET

```

The sub routine to print on the screen is at address 16 in the ROM. It prints the letter who's code you have in the A register. Because it is a sub routine we CALL it (similar to GO SUB), and because it is at address 16 we would use CALL 16. Yes? Almost! There is a slightly faster way which uses less memory, called a restart, in this case RST 16. You can only RST a limited number of addresses, which are 0, 8, 16, 24, 32, 40, 48, 56. No other addresses are allowed.

Now assemble this and call your machine code (CALL 32768 on SAM, RANDOMIZE USR 32768 on Speccy). And lo and behold! NOTHING! It's to do with the way the computer organises itself, and you should use PRINT: CALL 32768 or PRINT: RANDOMIZE USR 32768. Now it works.

Most assemblers will allow you to

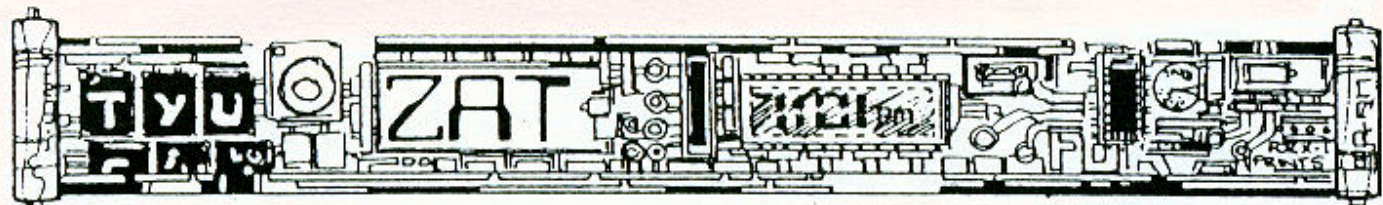
supply a letter, which is then converted into it's code when assembled (it makes no difference to the final program if you use LD A,65 or LD A,"A", but it makes things easier for you). So, to make more sense of printing text, try program 3, which prints "HELLO" - stirring stuff. You can run this program by using simply CALL 32768 or RANDOMIZE USR 32768 without the PRINT.

```

010 ;PROGRAM 3: Print "HELLO".
020 ;Start 32768, End 32788, Length
21. Relocatable.
030          ORG 32768
040 ;Want main screen (£2).
050          LD A,2
060 ;Select that stream. Replace 274
with 5633 on Spectrum.
070          CALL 274
080          LD A,"H"
090          RST 16
100          LD A,"E"
110          RST 16
120          LD A,"L"
130          RST 16
140          LD A,"L"
150          RST 16
160          LD A,"O"
170          RST 16
180          RET

```

You'll have noticed a couple of new commands. The CALL 5633 (or 274 if you have a SAM) calls another subroutine which selects what stream you want to print to, depending upon the value of the A register. What this means in English is use 1 for printing at the bottom of the screen (PRINT £1), 2 for printing on the main screen (PRINT, or PRINT £2), and 3 for printing to the printer (LPRINT, or PRINT £3). If you have a disc drive and your DOS allows you to open a stream to disc (SAM Master DOS, Microdrive, +D, Disciple, Discovery, but NOT +3!) then you can open a stream (say £4) to disc (follow your disc drive



manual) and print to that by using LD A,4. Good eh?

NOTE: If you try to print E1 then your text will be obliterated almost immediately by the OK message. This is why you first got nothing printed in program 2, because the computer is set up to print to E1 when your program is first CALLED. So you will probably want a PAUSE 0 command after your CALL or RANDOMIZEUSR so that you can see it.

Isn't it a bind to keep typing LD A, this, RST 16, LD A,that, RST 16?

In this case we can speed things up by storing the message you want to print as a list of numbers and getting the program go through each number in turn, printing out the characters as it goes, and stopping at the end. Try Program 4 which demonstrates this.

```

010 ;PROGRAM 4: Print a message.
020 ;Start 32768, End 32809, Length
    42.
030          ORG 32768
040          LD A,2
050 ;Select stream 2. Replace 274
    with 5633 on Spectrum.
060          CALL 274
070 ;Program is described in text.
080          LD HL,mess
090      loop:LD A,(HL)
100          CP 255
110          RET Z
120          PUSH HL
130          RST 16
140          POP HL
150          INC HL
160          JR loop
170 ;The message. Change to whatever
    you want.
180      mess:DM "Codebreaker is
    amazing!"
190 ;End marker. Leave it out and
    find what happens!
200          DB 255

```

won't go in, type in DEFM instead. Both mean the same thing - define a message (a string of characters). All the characters are converted into their codes when the time comes to assemble them (just like the single letters in Program 3).

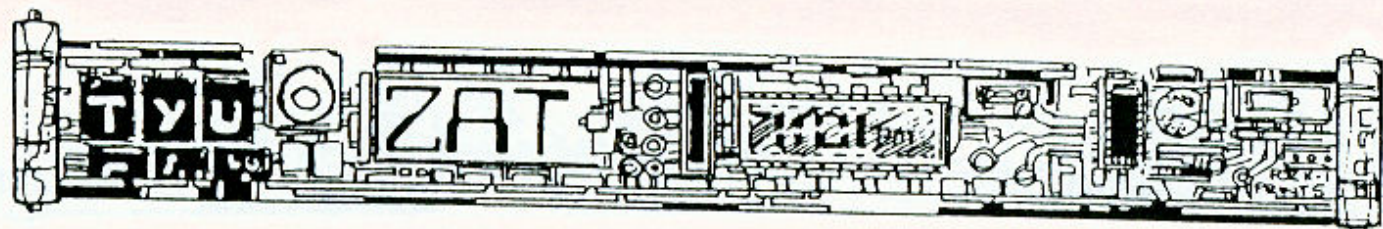
We are going to use an extra character, with a code of 255 to signify 'stop printing' (the DB just defines a single byte, which is poked in the memory when assembled. Replace it with DEFB if DB won't go in). If we didn't have this then the program would happily try to print out the entire memory onto the screen. Luckily, if this did happen, the ROM program would eventually catch on and say "Invalid colour", or would give you a chance to press N when "scroll?" appears.

The LD HL, mess points HL to the first character of the message. It does this because the message is labeled with mess - and this is the address in the memory which holds the first character in the message.

Next the LD A,(HL) is equivalent to LET A=PEEK HL. The brackets say that we don't want to put the value of the HL register pair in the A register (impossible in any case), but to get the byte from the address pointed to by HL.

Next we CP 255. CP means compare. It checks the value after it with the value in the A register and then sets up some flags (in the F register) to show the outcome of this checking. The outcome can be Z (equal =), NZ (not equal <>), C (less than <), NC (greater

If you find that the DM instruction



than or equal to \geq). This is the IF part of machine code, and is very important (try writing a BASIC program which does anything without an IF).

The next bit is RET Z. This is the THEN bit. It means RETURN if equal. So this bit means IF $A=255$ THEN RETURN in BASIC.

Next we store the value of HL by PUSHing it onto the stack. The SAM print routine takes care of this anyway, but the Spectrum one can corrupt different registers, depending on what you want to print. So, just to be sure, PUSH any used registers onto the stack whilst printing.

The RST 16 prints the character, then POP returns HL to us, and INC HL just adds 1 onto the HL register pair, which means move one address up the memory (or $LET HL=HL+1$). Then the JR jumps back to deal with the next character.

Now you've got a program which can print anything onto the screen, apart from colours and deciding where to print! So to fix this, we are going to use the control codes. These differ from computer to computer, unlike the ASCII (=American Standard Code for Information Interchange (ugh!)) we have been using so far which could be used on almost any computer. Luckily the SAM and Spectrum use very similar control codes, and all manuals list them.

I'll give a brief description of the most useful:

6: PRINT comma. This is the comma you find in normal print statements which tabs your text halfway across

the screen (eg. PRINT "CODE", "CHARACTER").

8: Cursor left. Step back a character to overwrite the last thing printed. There is a bug in the Spectrum version: don't backspace off the top of the screen, you'll get some wierd effects!

9, 10, 11: Cursor right, down, up. SAM only. Allows you to move in other directions around the screen.

13: New line.

16, 17: INK, PAPER. Follow with a number from 0 to 7 (0 to 15 on SAM).

18, 19, 20, 21: FLASH, BRIGHT, INVERSE, OVER. Follow with 0 or 1. The FLASH is only effective in MODEs 1 and 2 on a SAM.

22: AT. Follow this with the y co-ord (0 to 21), then the x co-ord (0 to 31).

23: TAB. Follow this with the x co-ord to tab to, followed by a 0.

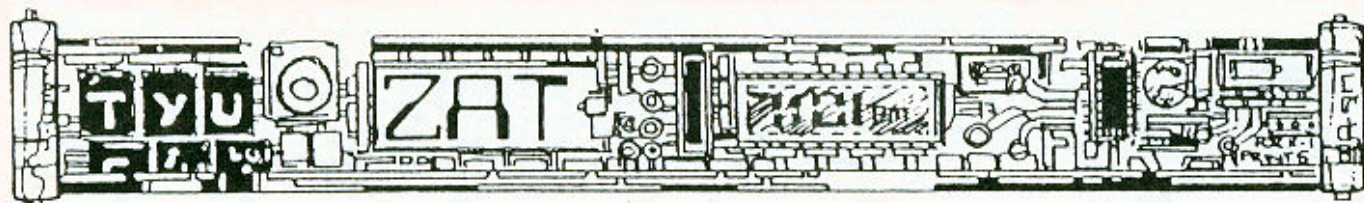
Program 5 will show you how they can be used. See what you can do. Next time I'll be reading the keyboard. Bye.

```

010 ;PROGRAM 5: Control codes.
020 ;Start 32768, End 32916, Length
149.
030 ;Before CALLing, if you have a
SAM, use MODE 1 or MODE 2
040 ;because the FLASH command only
operates in these modes.
050             ORG 32768
060             LD A,2
070 ;Select stream 2. Replace 274
with 5633 on Spectrum.
080             CALL 274
090             LD HL,mess
100             loop:LD A,(HL)
110             CP 255
120             RET Z
130             PUSH HL
140             RST 16
150             POP HL
160             INC HL
170             JR loop
180 ;AT 0,0. PEN 3. PAPER 0.
190             mess:DB 22,0,0,16,3,17,0
200             DM "A little plug..."

210 ;AT 5,14. PEN 5. PAPER 1. FLASH

```

```

1.
220          DB
22,5,14,16,5,17,1,18,1
230          DM  "BUY"
240 ;AT 10,12. PEN 6. PAPER 2.
FLASH 0. BRIGHT 1.
250          DB
22,10,12,16,6,17,2,18,0,19,1
260          DM  "LETTIS!"
270 ;AT 15,7. PEN 7. PAPER 0. BRIGHT
0.
280          DB
22,15,7,16,7,17,0,19,0
290          DM  "For any SAM
Coupe"
300 ;AT 15,7. OVER 1.
310          DB  22,15,7,21,1
320 ;6 underlines, space, 8 underlines,
space, underline.
330          DM  "-----"
340 ;3 CHR 13's, PEN 4, OVER 0.
350          DB  13,13,13,16,4,21,0
360          DM  "It's good"
370 ;PRINT comma, PEN 6.
380          DB  6,16,6
390          DM  "(honest)"
400 ;End marker.
410          DB  255

```

This holds the address of any user defined functions being evaluated - ie Run. This must be PEEKed in machine code, as when evaluation has finished, it is poked with zero.

Before we go on to PEEK this address, I'd better explain what a user defined function is, and how to define one.

To create a function, you must have a DEF FN ... statement (DEFine a FuNction) in your program. This is the only BASIC instruction which will not work as a command (without a line number).

The function must then be given a name: either a single letter, or a string variable. Next, in brackets, comes the types of variables you are going to use within the function. These are separated by commas, and would look something like this:

```

DEF FN T(A,B,C)
DEF FN A$(A,B,C$)

```

But, these would not be allowed, because we haven't said what the function is to do. This comes after an equals sign, and basically anything you could do with a "LET" statement you can do here.

So to define a routine to centre text, we do something like this:

```

10 DEF FN C(A$)=16-(LEN A$/2)

```

This function, C, takes the length of the string you give it, (which can be ANY string. A\$ is just used as a representative in the definition), then this value is taken from 16, to give a suitable value for the x position on the

Thanks once again Daniel. Don't forget, due to the DTP, the hash sign appears as a £ sign, so don't make a mistake typing in anything!

Next it's the turn of Steven Kemp, who once again helps to unfathom the mysterious Spectrum System Variables, in ...

Program Box^{by} Steven Kemp

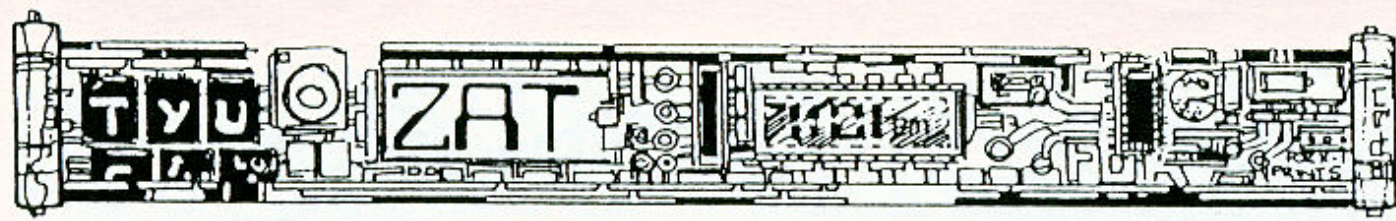
Serious Reading

This issue, due to various reasons, I'll skip covering CHARS and instead start on DEFADD.

```

DEFADD 23563 + 23564

```

screen.

This function can be used anytime something needs to be centred, eg:

```
10 DEF FN C(A$)=16-(LEN A$/2)
20 LET S$="Some text!"
30 LET a= FN c(s$)
40 PRINT TAB A;S$
```

Now to get back to the use of the system variable....

Usually, when you run a machine code program from BASIC, it will do the same thing every time, eg turn the border red. But by writing:

```
10 DEF FN T(X) = USR 30000
```

the value of x can be found, and the border turned that colour.

To find this value, it is necessary to "PEEK 23563" and add 4 to it. This is the address of the first number. For subsequent numbers, add eight to the address. Try the following program for a further example:

```
10 FOR F=30000 TO 30004: READ A
20 POKE F,A: NEXT F
30 DEF FN T(X,Y,Z)= USR 30000
40 LET A=FN T(100,1000,9999)
100 PRINT PEEK (A+4)+256 * PEEK (A+5)
110 PRINT PEEK (A+12)+256 * PEEK (A+13)
120 PRINT PEEK (A+16)+256 * PEEK (A+17)
500 DATA 237,75,11,91,201
```

Taking this program bit by bit, lines 10-20 poke in this machine code program:

```
LD BC,(23563)
RET
```

This value is stored in the variable A after the function, defined in line 30, is called from line 40.

Lines 100-120 display the three numbers, adding 4 for number 1, then 8 more, twice.

Line 500 contains the data for the machine code program.

Just one more functioning (groan!) example before I go..

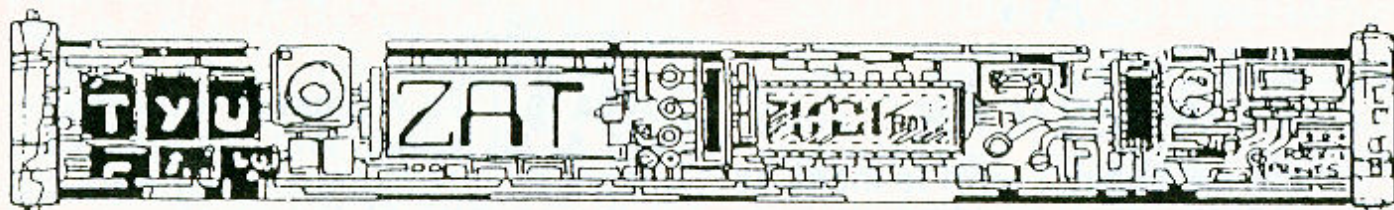
```
ORG 65000
LD HL, (23563)
LD BC,4
ADD HL,BC
LD E, (HL)
INC HL
LD D, (HL); DE HOLDS NUMBER 1
LD BC,7; 7 NOT 8, COZ WE'VE ALREADY
ADD HL,BC; INCREASED HL ONCE.
LD C,(HL)
INC HL
LD B,(HL); BC HOLDS NUMBER 2
LD (23670),DE
LD (23677),BC; STORE NUMBERS
LD BC,(23670)
LD HL,(23677)
SBC HL,BC; WORK OUT LENGTH
LD B,H
LD C,L ; THEN PUT IT IN BC
LD HL,(23670)
LD D,H
LD E,L
INC DE
LD (HL),0; ZERO FIRST ADDRESS
LDIR; COPY IT DOWN
RET
```

To use this program, the definition:

```
10 DEF FN D(S,F)=USR 65000
```

must be included in your program. Then to delete a block of memory, eg from 30000 to 40000 use:

```
LET A=FN D(30000,40000)
and it will be deleted.
```

If you didn't understand any of this,
then why not drop me a letter, to:

Program Box
c/o Steven Kemp,
20 Thief Lane,
Haslington Road,
York, YO1 3HS.

Thanks Steven. The first issue of the
SAM Newdisk, had a very clever
demo, called Surprise, that impressed a
great many people. Indeed, it certainly
impressed Daniel so much - he wrote a
version of it in SAM BASIC!

This listing will be useful for anyone
who has been stuck with using PUT &
GRAB, as it is a great example of how
to use these commands.

```

10 REM BASIC Vectorbob demo,
20 REM By, (C) Daniel Cannon.
40 REM Version 1.0,
50 REM Completed 26/1/92.
70 REM Public Domain,
80 REM Share and enjoy...
100 REM Just to show what SAM
110 REM BASIC can do. In this
120 REM version there are no
130 REM scrolly texts, music,
140 REM complicated patterns,
150 REM or wotnot. But I'm
160 REM sure somebody will do
170 REM something about that.
190 REM -----
200
210 REM Variables
220 LET scr=1,max=4,tot=1
230
240 REM Wipe screens
250 SCREEN 1
    DISPLAY
    MODE 4
    CLS £
    FOR a=2 TO 16
        CLOSE SCREEN a
    NEXT a
260
270 REM 4 animation screens
280 FOR a=2 TO max
    OPEN SCREEN a,4
    NEXT a
290

```

```

300 REM Create ball sprite
310 CIRCLE PEN 4;12,173-12,11
320 CIRCLE PEN 12;10,173-10,6
330 CIRCLE PEN 15;9,173-9,2
340 FILL PEN 4;3,173-9
350 FILL PEN 12;5,173-9,1
360 FILL PEN 15;8,173-9,1
370 GRAB ball$,0,173,25,25
380
390 REM Create sprite mask
400 CLS
    CIRCLE PEN 15;12,173-12,12
410 FILL PEN 15;12,173-12
420 GRAB mask$,0,173,25,25
    CLS
440 REM Main program. I'm sure
450 REM you can see how it
460 REM works. The SIN and COS
470 REM are there to make them
480 REM spin around in a
490 REM circle - a very simple
500 REM pattern...
510 FOR a=0 TO 2500 STEP 5
520     PAUSE 1
        SCREEN scr
        DISPLAY scr-1+(max AND
scr=1)
        LET scr=scr+1-(max AND
scr=max)
        IF scr=1 THEN LET tot=tot+1
530     PUT 128+(30+a DIV 45)*SIN
(a/180*PI), 88+(30+a DIV 45)*COS
(a/180*PI),ball$,mask$
        PRINT AT 18,0,tot
    NEXT a
550 REM Fade down
560 PAUSE 10
    PALETTE 4,0
    PALETTE 12,64
    PALETTE 15,68
570 PAUSE 10
    PALETTE 12,0
    PALETTE 15,64
580 PAUSE 10
    PALETTE 15,0
600 REM Close screens
610 SCREEN 1
    CLS
    DISPLAY
    FOR a=2 TO 4
        CLOSE SCREEN a
    NEXT a
630 PRINT "Just shows what can be
done in BASIC..."

```

See you next issue.
D.L.

ZAT

READERS POLL 1991

RESULTS

Before we begin, I want to thank all our readers for supporting us over the last year: thanks for sticking with us, and we aim to ensure, with the results that we've analysed from this poll in mind, to make 1992 an even better for ZAT and its readers, new or old. Now down to business.

From the number of poll forms that we received by January 30th, both myself, David, and the rest of the team here in Telford sat scrutinizing the marks related to the various sections and the answers to our questions that we posed.

This then, is how ZAT's first annual Reader's Poll turned out...

SECTION 1: General.

In this section, we began by asking you, out of 10, to rate the General sections: 10 in all. The "top ten" therefore is as follows..

1st: COVERS	81%
2nd: EDITORIAL	80%
3rd: SOAPBOX	78%
4th: LETTERS	74%
5th: NEWSFLASHES	72%
6th: TEAM SAM REPORT	71%
7th: SENTINEL	63%
8th: PROFILES	58%
9th: ART GALLERY	53%
10th: WALLPAPER STRIP	48%

The most popular "cover" was David Addey's Sam at Christmas cover art for issue 11. While the least favourite was Polly's Lazer Tag art for 10, although strangely enough issue 11's was almost voted the least favourite too: obviously we've got quite a few art critics out there. As for my own artistic endeavours, well it seems Sentinel lies on the half-way line... as it is, there's an announcement relating to Sentinel in this issue's Media

proved to be very popular: indicated by the poser set about it in Section 4. At the other end of the scale, it seems that the Wallpaper Strip has no fans at all, either that, or they were unable to vote because they were out of the country at the time.

SECTION 2: Computing.

Again we asked you to score, out of 10, the computing sections: 13 in all. The results are as follows:

1st: INTERVIEWS	83%
2nd: SAMANTICS	80%
3rd: PUBLICA DONINIUS	79%
4th: INTERGRATED BITS	76%
CODEBREAKER	76%
6th: UTILITY REVIEWS	74%
7th: MINDGAMES	72%
ON THE ROAD	72%
9th: ARCADE ALLEY	71%
10th: PROGRAM BOX	68%
11th: PLAYPEN	67%
12th: MASTERPLAN	66%
13th: BACKCHAT	65%

The interviews have proved to be very popular indeed, so much so that we asked you which was your favourite. An overwhelming majority came up with the same answer... our 2 part interview with Alan Miles (featured in issues 9 and 10).

As a follow-up, we also asked you if you had anyone that would be a suitable interviewee in future issues. The most popular candidate was Sir Clive Sinclair (although how we would obtain an audience with such a distinguished individual is anyone's guess). Other names suggested were Graham Burtchshaw (Enceladus), Chris White and Bruce Gordon. These three are definite possibilities.

Glancing at the above league table, it was very surprising to see Samantics with such a high percentage, especially considering that it's only appeared 3 times! As far as we know, its writer, Guy Middleton, has been very busy writing several new SAM

-ing that Guy will write again for ZAT soon. Publica Dominus also proved to be popular, and should remain so, especially for Spectrum users as new co-contributor: Stephen Mullen will be covering PD software for the computer (in all its guises) in future issues.

Going down the "ladder", Playpen has had a mixed reception, as well as Backchat: these two section continually jumped from high to low marks until finally resting at their respective placings. More comments on Playpen later.

SECTION 3: New Arrivals.

Like any fanzine or magazine, on any subject matter, there's always other aspects of the main topic/s that require sections of their own to cover them in sufficient depth. ZAT is no exception. Last year 3 new columns (and 1 revised one) arrived on the scene, and we wanted your opinions on these too. Here are the results..

1st: MEAN BIZ	88%
2nd: SPLIT SCREENS	68%
MEDIA MENACE	68%
4th: POSTMAN'S KNOCK	67%

Considering that this issue marks its 3rd appearance, Mean Biz has become very popular indeed, in such a short amount of time. In fact MB gained the highest overall percentage. Split screens also has a good following, as does Media Menace (although changes are on the way). PBM games have had a mixed response. Hopefully with David now co-writing Mindgames (in which PK will be incorporated), PBM and other "role playing" games, computer or otherwise, will become popular in the long-run. The overall "Top Ten" sections were:

1st: Mean Biz.	
2nd: Interviews.	
3rd: Cover Art.	
4th: Samantics/Editorial.	
6th: Publica Dominus.	7th: Soapbox
8th: Integrated Bits/Codebreaker.	

SECTION 4: Questions.

Lastly we asked you 6 key questions. There were varied comments, and relatively few critical remarks.

1) Which sections (computer/non-computer need improving?

"The Letters Page should be extended": Well, it would be, that is if we received a good amount of letters to print, as it is, we received in total 20 letters, aimed for inclusion in the Letters Page.. Fair, but hardly excellent! We have a readership, which is nearing the 150 mark, and as I've always maintained, ZAT is an interactive fanzine: we WANT TO HEAR FROM YOU! So lets hope that very soon, subscriber or single issue reader alike, we end up having a deluge of mail to sift through and print in future Letter Pages..

"Longer Adventure reviews": Well with Joseph and David on duty, longer reviews, on all aspects of adventuring are expected to materialize soon.

"More Spectrum PD stuff": Already in hand!

2) Which sections, computer/non-computer, should be limited in appearance or dropped?

"Art Gallery should be dropped altogether": Well as it is, we rarely have any graphics to print, so Art Gallery will cease to exist, unless you say otherwise..

"Games reviews should be limited, if people want reviews, they would refer to the glossy computer magazines": A valid point. However, the "big 3" magazines have an attitude, which comes across in their reviews, that makes readers feel alienated - or insulted! Our reviews - hopefully - at least treat our readers as if they had some sense! We may lack the facilities that others have, but hopefully

"Sentinel should be reduced in appearance" "Media Menace should be reduce to two issues per year". For an answer, read Media Menace this issue..

"MasterPlan should cover G.A.C": It may well be incorporated..if David has time!

3) Favourite and Least Favourite issue?

On the whole, most of you were content with all the issues that appeared last year. Most favourite issue was number 11..while number 7 was least favourite.

4) If given the opportunity, would you write for Soapbox..and what subjects would you highlight?

The majority of you said "Yes" to the above query. Subjects that came up included..the lack of SAM coverage and "Amstrads" Spectrum degeneration..the potential writer of this would call his piece "Sugar is very bad for you!" Considering the amount of potential Soapbox writers waiting in the wings, we'll throw down the gauntlet: send those articles in and we'll print them if space and Martin permits.

5)ZAT is discontinuing its policy of "7 for the price of 6" for subscription..alternatives have been suggested. Do you have any opinions on its replacement?

When we posed this question, we had though that circumstances in the near future wouldn't change: obviously we presumed to much! At it is, the idea of a joint subscription between ZAT and David's disc-zine SAM Quartet is in doubt, what with David's commitment to the new Samco Newsdisc. As it is, David is planning to release a second issue, with the possibility of releasing future SQ discs as demo compilations / Although David is trying to find

or find an alternative disc mag to replace it. More on this soon.

The other suggestion was to have a newsletter for readers, in-between issues of ZAT. This is an idea that we may persue (quite a few of you liked the idea) if the above fails to appear.. If it was to go ahead, it would be a seasonal publication, 4 A4 pages in size, with a small cost included within the subscription price. Speaking about subscriptions, this issue marks our re-subscription drive: details elsewhere in the issue.

6) Do you have any general comments or criticisms to make?

These are just a few of the comments and the occasional dis-remark that we received:

"Try for half and half coverage for both computer"...Although we strive to keep the content for the SAM and Spectrum 50/50..it's not always possible to do so. On most occasions, one side always ends up with a majority over the other. All we can say is that we'll try to make ZAT's content as varied, and as equal for both machines as we can..even if it proves to be difficult at times..

"Try to appeal for all ages": As it is I think we've already succeeded. Our youngest reader is 13, our oldest is in his 80's..That's some age gap..

"Printing can be small and hard to read": This I hope will be fixed..is 10pt text large enough?

"ZAT is the Crash of the 90's..I mean the Crash of the mid-80's: it's ground breaking style and the general "user group" atmosphere"... make it one of the best..sorry, I did add that line..but all of us who do ZAT were very appreciative of the fanzine being given the above praise..Anyway thanks again to all of you who entered the Poll, and lets hope we get even more comments for this year's Poll, which appears in Novem-

NEWSFLASHES

Compiled by D. Ledbury
& D. Blackburn

The Wanderer Returns

Last month we reported that Mr David Ledbury had left for a sabbatical in Swansea: now though the wanderer has returned, to stay for good! Even so, David is still in the "hotseat", compiling the SAM Newsdisc in Telford for Samco.

He will still manage to scribble the odd program or article for ZAT, as well as remain as ZAT's Acting Technical Editor. As it is, we hope soon to announce the two "new" Tech Editors soon.

SAM's SOFTWARE SURPRISE

SAM owners who have bought the first SAM Newsdisc, will have read the section entitled "Software Policies". Here Alan Miles talked about Samco's decision to keep-an-eye-open for "unpublished" good quality Spectrum software for Samco to release. For those who have not read the article, here are the reasons why.

As many SAM owners will appreciate the SAM was designed initially as an advanced machine which would offer owners of the "Spectrum family" of computers an ideal, low cost, up-grade that would also maintain a high compatibility with Spectrum software that they had already purchased. Therefore, you could say that SAM is the Spectrum's "big-brother".

Hence the reason that Samco, seeing the severe lack of software available for the Spectrum at the present time (a point emphasised by Your Sinclairs recent launch of their Save Our Spectrum campaign), they have decided to offer a helping hand

been "cast" for willing volunteers to search for sources of unpublished Spectrum material. Obviously, Samco are NOT abandoning SAM: indeed if the software is of a very high quality then it will be enhanced to run on SAM in the future.

So since a large slice of ZAT's readership are Spectrum programmers of a variety of abilities and talents, we would like to hear from you if you have ANY unpublished titles that are either good, very good, fantastic, or have potential to be any of these with a bit of careful nurturing on the sound or graphical front.

The games can be almost any type, adventure, arcade, etc. Utilities maybe considered if they are unique: but games are needed more than anything else. Any potential offers can be forwarded to either Samco, Phoenix Way, Lakeside, Swansea Enterprise Park, Swansea, SF7 9EH or to David Ledbury, 10 Westerkirk Drive, Telford, Shropshire, TF7 5RJ.

The Spectrum's 10th Birthday Party by Simon N. Goodwin

This Spring the ZX Spectrum will celebrate its 10th birthday at ZX 92, a party in Cambridge organised by Spectrum enthusiasts. ZX 92 will be a meeting place for the friends of the Spectrum - users, programmers, publishers, editors, writers and artists - and will also attract interest from local and international press, TV and Radio. ZX 92 is a positive event to promote an extraordinarily successful British invention.

The name and themes have been chosen by an independent group of enthusiasts who have been involved with the Spectrum since 1982. The Spectrum was known as the ZX 82 when developed from Sinclair's earlier ZX 80 and ZX 81 micros; thus the name ZX 92.

Last summer FORMAT SHORT SPOT compiler John Wase mentioned the coming anniversary in a letter to myself: since then they have teamed

land Sean Sanderson of the Spectrum Music Group, to organise ZX 92, at 2pm on Saturday 2nd May 1992.

This is a non-commercial event, independent of any manufacturer, publisher or magazine. It will bring together famous names from the 80s and the new generation of Spectrum enthusiasts, to share their experience and look forward to the future.

Something like 7 million Spectrums have been sold around the world. Sinclair production in the first 4 years alone reached 4 million, including some 'stock' left when Amstrad took over, and 'improved' the range with the +2, +3 and +2A. The purchase of Sinclair's computer brands earned Amstrad £161,000,000 in 1987 alone. Many early Issue 1 Spectrums are still in use ten years on, and will probably carry on into the next century, as long as vital spares like keyboard membranes remain available.

Mass produced compatibles have appeared, including TS-2068, SAM, and Russia's Hobbit. The UK market is saturated, and sales are growing in Eastern Europe and the developing world. The Spectrum family has been manufactured in Scotland, Wales, England, Brazil, Portugal, Russia, Spain, Hong Kong, Taiwan and India (at least). Spectrum Emulators exist for Archimedes, Amiga, QL, ST (via Qdos), Memotech and Einstein, as well as several for PC.

The Spectrum has had a tremendous influence upon the lives of many people, providing a creative outlet as well as a hobby or job. Its success has brought us all a myriad of offshoots, add-ons and applications, and created a world-wide community of enthusiasts. ZX 92 will celebrate that success, bringing together lots of people who have shared in it in the past decade, plus the sounds and images we know and love.

ZX 92 events include a talk on the early days of the Spectrum development, a projected video display

speech, MIDI sequences and odd Automata B sides! Best of all ZX 92 will be a chance for people to meet and talk.

Montages and pictorial displays will reflect the variety of applications for the Spectrum. We are encouraging eager users to bring custom systems, software and all sorts of Spectrum variants, by arrangement, to demonstrate and share in the fun. We will feature a wide range of Spectrum spin-offs and emulators not forgetting 16K, 48K, Spectrum +, Spectrum 128K, +2, +3, +2A, SAM, microdrives, the ZX printer, and disk systems, home brew machines and specialised set-ups.

We have some classic programs and peripherals and welcome ideas, more machines and monitors. Please let us know if you can arrive an hour early to set up and demonstrate an interesting machine, with a monitor and reliable software.

The venue is Cambridge University Centre, Mill Lane, from 3pm till 7pm. It is right in the centre of Cambridge, the Spectrum's birthplace, near the main Bus and Railway stations. People from throughout the Spectrum scene have been invited, including Uncle Sir Clive, former Sinclair staff, and fine programmers, artists, writers, designers and publishers. Even the Piman is hoping to return from tax exile to celebrate the great day. Refreshments will be served, and there will be a ticket draw with prizes of Spectrum goodies, among other diversions.

A limited number of tickets is available, for true Spectrum enthusiasts. We want to encourage people who have made an unique contribution to the scene. The venue's capacity is only 200, so we must limit tickets to 2 per application, subject to availability. ZX 92 will be an exclusive event not to be missed. Tickets are available by post, from ZX 92, 24 Wyche Avenue, Kings Heath, Birmingham B14 6LQ, U.K.

payable to ZX 92, at £7.50 per ticket. Please place your order as soon as possible, to avoid possible disappointment, and give some indication of your interests and involvement in the Spectrum scene since 1982.

S.N.G.

CRASH ON THE MOVE (again!)

In an ironic move, it seems as though Crash has decided to change hands yet again! Europress Impact, the publishing firm created from the ashes of Newsfield - with funds from Europress, has sold off the magazine to one time bitter publishing rivals EMAP - publishers of Sinclair User!

However, it remains yet to be seen if either SU or Crash will disappear for good, or whether the 2 titles will merge. Let us hope that whatever the result is, the magazine is better than either are currently at present.

Nick Roberts, the current Assistant Editor, has decided not to move on with Crash. Europress Impact still publish ZZap! and Sega Force magazines.

Multi-Coloured SAM Shock!

No, SAM is not having a change of colour case, as some magazines have reported recently. However, SAMCo have announced details

of a new piece of equipment that will boost SAMs impressive 128 colour palette, to an even more impressive palette of a mere 32,768 colours!

To put it in perspective, this is 8 times the colour range of the basic Amiga, 64 times the colour range of the the ST, 256 times the colour range of a standard SAM, and 2048 times the colour range of the Spectrum!

The device will allow 256 * the current palette range of any normal mode, so Mode 4 is boosted to about 4096 colours, and Mode 3 is a mere 1024 colours! Just imagine a game with 512 x 192 resolution with 1000+ colours; not so far-fetched now is it! More details, including cost, availability, etc, are in the March SAM Newsdisk!

SAMCo Software Releases

Resulting from SAMCo's campaign to aid the ailing Spectrum Software market, details of the first release have been "leaked".

The first title is Astro-Ball. An original title, which can be described as "Wiz-Ball meets Impossaball". Sounds great!

The game features 128k enhanced sound, and of course a SAM version is under way. For more details, contact SAMCo on 0792 700300.

The Manic Miner Competition!

With the release of the new version of the classic game on SAM, here's a simple competition to win an autographed copy of the game, by its programmer and original Tech Editor of ZAT: Matthew Holt. The first prize winner will win the game, a runner-up will win 5 blank discs. To win either of these prizes, answer the following multi-answer questions...

- 1) Who wrote the original Spectrum version of Manic Miner?
a) Matthew Smith. b) Matthew Holt. c) Matthew Davies.
- 2) Which of these "screen titles" doesn't appear in the Spectrum version?
a) The Menagerie. b) Return of the Alien Kong Beast. c) Dante's Inferno.
- 3) Which of these 3 games did the author of MM not write?
a) Manic Miner. b) Jet Set Willy. c) Jet Set Willy 2.

Send your answers on a postcard or sealed envelope to Manic Miner Competition, 103 Chiltern Gardens, Telford, Shropshire TF4 2QJ. Entries to



We are already a few months into the new year, and a number of interesting, and some-what varied range of utility software is on the way for both SAM and the Spectrum, although SAM is clearly leading the field as I speak. At the Birmingham All-Format's Fair, in February, several new packages were released. These included: SAM Print - a new poster/leaflet/card designer from Chris White, and an Astronomy fact-finding program called Star Atlas. Both of these will be reviewed in future issues.

However, first **Daniel Cannon** has handed in another detailed review, this time of David Wornhams' system, **Flexipage** ...

Flexipage is advertised as 'the viewdata / graphics authoring system'. It allows you to make teletext like displays (text and big chunky graphics which use very little memory) and use them to create picture demos, databases, interactive programs, or adventure games. Anybody who has used Communitel (a sort of BBC version) or Prestel will know what I'm on about here. As an example from the demo mini-adventure game:

You have to walk home alone, on a dark rainy night. You must choose: A short dark footpath (3), a well-lit busy road (4), or hitch-hiking a lift in a car (5).

Pressing 3 would get you lost, cold, and wet, 4 would take you home, and 5 would put you in traction at the local

hospital. As you can see, it's not of the 'Go north and take lamp' variety, but more in the line of the Steve Jackson / Choose Your Own Adventure type of book ('Turn to page 123 to drink the potion or 456 to leave it').

The 80 page A5 manual is well written and includes an index. Also provided are various upgrade sheets which explain any new additions to the program since the manual was written, some flowcharts and planners, and an offer of free upgrades to later versions - quite a lot for your money. The manual is designed to be read whilst you are using the program, something which I'm not used to at all. I just wanted to load it up and mess around, but after five minutes of getting nowhere fast, I dragged myself, kicking and screaming, back to the manual.

FlexiPage is split into 6 main parts - Menu (here you can sort out your files and load other programs), Authoring system (create your text screens and string them together), Graphic designer (create character sets, UDGs, graphic grabs, and screen displays of any mode), FLASH screen convertor (into the format used by Flexipage), Palette generator (take the palette from screen displays or create your own and save it for later), and Loader (if you want to market your creation you must use this to run it so no copyright laws rear their ugly heads).

To create your screens you must choose your page format (single / double height, 5 / 10 / 20 lines deep), and type them out using either the alter function (which is a bit touchy to type with) or the normal SAM editor. When a screen is displayed you can then tell the computer to change colours, play a tune or sound effect, jump to another screen (eg. for demos of various screens strung together), or ask the user to choose from a list of options to decide the next screen (this

is the interactive part). You can also own - who knows?

get it to display animated (if you have enough memory) or still screen displays of any mode, which raises it above just simple teletext.

Next the graphic designer: The UDG generator and grabber work quite well, but the screen editor is not exactly FLASH (the manual does admit this though). It's there to position text and user defined graphics more than anything else. One major gripe is that if you move the cursor over a highly coloured screen it leaves a trail of cursor coloured squares behind it, so to write some text at the top and the bottom of the screen and leave a coloured graphic in the middle is almost impossible. Another problem is that the manual neglects to mention that you must load up palette colours before you can do anything else in the graphic section (at least on my version), otherwise you can cause a messy crash.

This is probably not everybody's cup of tea, but if you want to do what it can do then it's fairly good at doing it (if you see what I mean). The program is around the 15 pound mark, but I believe there are reductions for ZAT readers. There's also a Spectrum version available. For more info send an SAE to:

The program can be used with all SAMs (any ROM, any memory, any DOS). If you have Master DOS the spare RAM can be used to store screens, UDGs, colours, anything - which is very useful. Tape only SAMs (are there any left?) can even use this program. It's written in BASIC, but it's none the worse for that, perhaps better, because you can customize it.

Flexibase Software,
20 The Parklands,
Droitwich Spa,
Worcs, WR9 7DG.

Ratings

Usefulness	70
Presentation	75
Compatability	SAM
Overall	73

Although the author of the program clearly has one of it's uses as crime prevention in mind (there's a crime quiz supplied with it), it can be used to write adventures, databases (not the 'normal' 500 address type database, more like descriptions which can be chosen by going through a number of options), slide shows of screen displays, and for education (the kids can explore the database and find things out for themselves, or write their own). There are programs being marketed which use this system, and if you write your

On receiving the above review from Daniel, we forwarded a copy to David Wornham, from FlexiBase Software, to hear his comments. David says...

The review is, overall, a fair summary of Flexipage and very useful for future upgrades, but the following are sent as clarification of some points, which may otherwise be misleading.

1. "The manual is designed to be read whilst you are using the program" - true initially, but when used once or

twice, the improved screen prompts (Paper) / CONTROL. I (Ink or pen), then should mean the manual can be put the colour number required. One slight aside except perhaps for the control disadvantage of this is the use of extra code summary. bytes which appear as spaces at the end of the page when displayed, but this can be disguised when necessary. I will now include this in the booklet.

2. The "major gripe" on the Graphics Designer omits to mention that it works well in MODE 1, for which it is intended, being a Spectrum conversion. The trail of coloured squares is only left in other modes as the OVER command works differently from MODE 1. The coloured squares CAN be removed by careful use of differing cursor directions! I must try to overcome this in future, as although Flash is a good MODE 4 designer, which I saw no point in attempting to re-invent, it cannot add double height text, design characters and design, use and grab UDGs which Flexigraph can.

3. The version reviewed did have a problem with colour block loading with Flexigraph, for which I apologise. This has been corrected in later updates as enclosed.

4. Regarding the "few programming glitches causing weird error reports", whilst accepting 3 above, I wonder if your reviewer means the carefully designed "ERROR" report which occurs WITHOUT stopping the program when the user attempts an impossible task, such as loading a non existent UDG set, etc. and gives the error number, referring to the relevant page of the SAM manual for its explanation.

5. Is Amend mode a bit touchy to type? I agree that it's a little slower than the Replace (standard INPUT) mode as it's doing more work but since your review edition it has been speeded up slightly with the optional omission of the cursor x/y position display.

6. Suggested improvement a) Differing paper / pen colours to highlight words CAN be done in Correct-Replace mode (standard SAM INPUT) by CONTROL P

7. Suggested improvement b) Overlaying words onto pictures CAN now be partially done as on the demos. by replacing the lower half of a screen\$ picture with an "added" 5 or 10 line page. True overlaying of words on pictures is a good suggestion which I shall attempt in a future edition.

8. Additions now include block move of any part of a line within a page in Correct mode, two screen\$ magnifiers, modified by courtesy of "ENCELADUS" and "FRED", and the use of sound produced with Paul Angel's excellent SOUND MACHINE. When I have obtained SAM Computers' agreement, I will include this, with some demos. on future FLEXIPAGE sales and updates. (One included as sound A in Flexipage Author).

Thank you Daniel for the review, and David for your comments.

A point that has been raised a number of times in ZAT - both via the letters page, and the recent ZAT Readers Poll, was the need for a technical help section. Well, already in the past we have printed a number of short articles of this nature, but to continue this trend in a new section, is **David Ledbury**: ZAT's very own

MICRODOC

As mentioned above, this issue sees the launch of another new section to ZAT - well, at least a new sub-section!

"Micro-Doc", as this section is so-titled it comes to providing valuable (well, I did want to call it "So Hard", information to anyone wanting to reffering to the problems I hope to get progress to any reasonable level - in, but the Pet Shop Boys beat me with either with advanced BASIC, or that title!) is designed to help out any elementary Machine Code ... it just readers with technical difficulties. If doesn't cut it!

you have any problems - be it BASIC, Machine Code, FORTH, PASCAL or even I actually bought my SAM about 2 LOGO - send in the details to ZAT, care years back, and ordered the the of M.D. and I'll do what I can to cure ORIGINAL Technical Manual at the your complaint! same time. For some reason, my Users Guide did not arrive with the computer (that merely took a phone call, and a couple of days and MGT sent it on), so

Documentation is a funny thing...

When the Spectrum was first launched during this time the Technical Manual in its original 48K incarnation, it had become MY users guide! I am actually an excellant manual. It detailed almost everything you would ever need to know - from detailed introductions to more use to on of my "dabbling" nature BASIC, understanding the keyword - due to the variety of information it held.

system, Character Set listings, Machine Code advice, Z80 Nmeumoni listings, The new Technical Manual, although etc. Indeed, one of the first Spectrum holding much more technical material, games, "Spectres" (a VERY novel holds no information about SAM BASIC Pac-Man, from Bug-Byte) was at all. However, for those SAM owners apparantly written with just the who get the Newdisk, I may well information in the manual! re-cover some of this material in due course on the Newdisk.

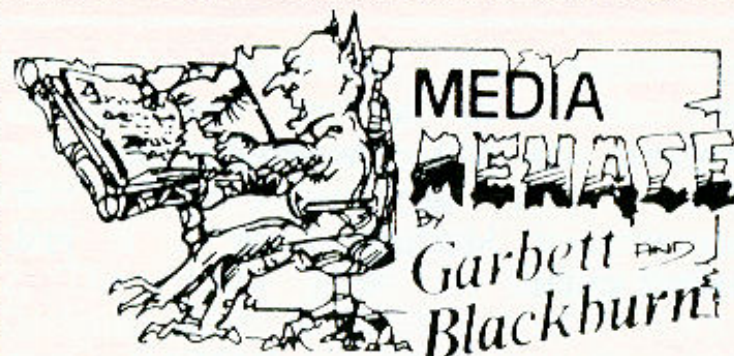
However, when Sinclair launched the "Spectrum 48K +" (the original machine The point of all this though, is to show in a slightly better keyboard) and the that many Spectrum and SAM owners Spectrum 128, they abandoned the may be looking at problems caused by affore mentioned manual, which they the same thing - lack of detailed replaced with a nicely coloured book, information. So, if you are totally which apart from the sense of being a bamboozled (always wanted to use that "basic" introduction to Sinclair BASIC, word!) you know who to write to! was pretty ... useless!

Fortuanatly, Amstrad has done at least All questions will be answered via ZAT one thing right in my eyes - all their - and if you want to be anorninous - Spectrums (or should that be Spectra?) then that is fine by us!

have come complete with a detailed manual - based on the original one. Thanks again David. Well another MB Indeed, the Plus 3 manual even supplies comes to an end. If you have any information regarding accessing the comments or problems, write to us via drive through machine code! Although the NEW main address, which is: this is probably due to lack of drive commands in BASIC!

SAM owners get a well written, quite amusing, guide by Mel Croucher with their computers. However, although Mel's book is a near work of art, then

ZAT
103 Chiltern Gardens
Dawley
Telford
Shropshire
TF4 2QJ



Pick any subject...and you can bet that someone, somewhere, is publishing a magazine, fanzine...or runs a club that supports that subject in all myriad of ways. ZAT of course caters for users of the SAM and Spectrum...but it seems that most computer users (whatever machine they own) have other hobbies and interests. Well it's only natural isn't it? While attending the All-Formats Fair on the 23rd of February, it was not surprising to find that many of its regular-supporters have one other particular favourite interest...or should I say interests. I refer to the boundry-less and fascinating worlds of Science Fiction, Fantasy and Adventuring.

SF, Fantasy and Adventuring have always been an enduring part of the world populace, since time first began. In recent years though, especially in the area of new talent being allowed to see their "words" or "pictures" in print, it has been curtailed...especially in the U.K. For this reason, and for the fact that there is a "legion of fans" who appreciate SF, Fantasy and Adventuring, a new "magazine" is being put together to highlight these two statements.

Square One has been created by Mick and Polly: both of whom are fellow collaborators on this fanzine. Together with several other dedicated fans (myself included)...S1 is a quarterly publication that aims to cover SF, Fantasy and Adventuring in 3 ways.

Foremost, S1 will be printing short stories or serials...written by individuals who enjoy scripting tales of mankind being threatened by hostile aliens, barbarians and wizards, mysterious going-on's and the like

sections that deal with aspects of the 3 genres. Among the topics covered are books, films, videos, television programmes, radio...there's also comics, and several types of Adventuring including Live Role Playing, Fantasy Simulations, Play By Mail and also Computer Adventure/SF games for all computer formats including the Spectrum and SAM Coupe. Also there's an equivalent of Soapbox...where individuals with rival opinions can battle it out to see which side, if any, is supported or not.

Lastly there's my own speciality: Comic Strips and Artwork. As mentioned in the Poll, I have an announcement regarding Sentinel which is directly tied as a result of conspiring with the creation of S1. Put simply: with the results concerning the strip from the Poll: I've decided to give the strip a rest. A) because I done it for 3 years on the trot, and B) I and Polly want to do a new strip for S1. Doing 2 strips, editing 1 fanzine, and, doing game covers for Samco is too much to handle. As it is I'm not abandoning John Paris altogether. I'm planing to do a text story in S1, and both Polly, myself and Andy Davis are planning to do a computer adventure game based on it in the near future.

The first issue is slated to appear in May...with a cover price yet to be announced. Although we have a number of contributors, and readers, already...we need more! So if you have an interest in SF, Fantasy or Adventuring and want to help, or reserve an issue when the time comes, then drop either the Editor: Mick Garbett, Assistant Editor: Polly Sheppard or Art Editor: that's me, a line to: S1, C/O THE ZAT ADDRESS, which is 103 Chiltern Gardens, Dawley, Telford, Shropshire, TF4 2QJ.

Considering that S1 will cover all these genres in depth, this marks the last appearance of Media Menace: as written by myself (and Mick). But worry not, new replacements are in hand, so join them whoever they are.



Welcome to another Pain Palace! I've puzzles by the skip-load this issue so lets get straight down to it!

MATHEMATICAL

Complete the following equations by adding four mathematical symbols so that the answer to each equation is the same. Bear in mind that each symbol should be used only once.

$$\begin{aligned}4 & ? 6 = ? \\31 & ? 7 = ? \\120 & ? 5 = ? \\15 & ? 9 = ?\end{aligned}$$

SUGAR AND SPICE

Poor old Albert the Grocer! He's only gone and dropped his two delivery bags, one filled with flour and the other with sugar! How will he separate them to get his orders out on time?

ONE LUMP OR TWO?

There are three cups of tea and fourteen lumps of sugar. Using all the lumps, sweeten all three cups, making sure you put an odd number of lumps into each cup.

PRIZE PUZZLER 4

This issue's Prize Puzzler should really get the grey matter soaked up!

Four girls, Michelle, Claire, Susan and Joanne, have an average age of twenty-five years. Susan is nine years older than Michelle and fourteen years older than Joanne. The sum of Michelle's and Susan's ages is fifty five years, while the sum of Susan's and Joanne's ages is fifty. How old is Claire?

Done that? Then write your answer on a postcard or sealed envelope and bung them off to the address at the foot of this page.

ANSWERS

MIME TIME

The blind man didn't do a mine at all, he simply asked for it!

COMMON GROUND

There is no soil, just a very large HOLE!

MORE ANAGRAMMATICS

W, E, S, U, I, O, N, R, O, J, and D can be re-arranged as:

J, U, S, I, O, N, E, W, O, R, D. In other words: JUST ONE WORD!

That's all for this issue, mes amis. If you're well and truly stuck, tune in next issue for the solutions. Until then, I can't stress how much I'd like to see your work in ZAI's hallowed pages; we offer good prizes, you know! So why not write me a puzzle for this page.

The address is a bit different this and every other issue, so listen up. Send everything to ZAI, Pain Palace, 103 Chiltern Gardens, Dawley, Telford, Shropshire, TF4 2QJ, and I'll see you all next time around. Bye!

INTERGRATED LOGIC

STEPHEN WILSON 41 WARRIX AVENUE IRVINE Ayrshire SCOTLAND, KA12 0DW.

IFF Converter £8.00 Converts AMIGA IFF screens to SAM. Easy to use, has icon and pointer system.

MADONNA NUDE SLIDESHOW £3.50 Over 18's only!

NIGHTBREED SLIDESHOW £3.50 All above 100% M/C!

ZAT PD DISC LIBRARY

MIKE A. J. DEMO DISCS

SAM Sample Demos

DISC 1: "Touch Me" by 49'ers (1.2.) "Blue Monday" by New Order (1.2.)

DISC 2: "Punp up the Volume" by Marrs (1.2.) "The Race" (1.)

DISC 3: "Things that Dreams are Made Of" (1.2.) "Don't You Want Me" (1.2.)

DISC 4: CURRENTLY UNAVAILABLE

DISC 5: "Popcorn" "We Will Rock You" by Queen "Dragonsfunk" (2.3.4.)

DISC 6: "Numero Uno" by Starlight. (2.) "Hard Rockin'" (2.3.4.)

DISC 7: "Always On My Mind" by Pet Shop Boys (2) plus Programs.

1. Needs SAMPLER attached
2. 512K ONLY.
3. 256K version included.
4. Full STEREO Demo!

DISCS COST £1.50 EACH
INC POSTAGE (U.K. ONLY)

Please make cheques
payable to

MICHEAL J. ANDREWS.

ZAT/FRED DISC

A sample of goodies from the top selling SAM Disczine, especially created for ZAT by Colin Mc Donald.

PRICE £1.00

Please make cheques
payable to
D. LEDBURY

SAM QUARTET 1

The first issue of ZAT's sister disczine, created for SAM users. Goodies from most of the ZAT team.

PRICE £1.50

Please make cheques
payable to
D. LEDBURY

SEND ALL ORDERS TO:

ZAT
103 CHILTERN
GARDENS
DAWLEY
TELFORD
SHROPSHIRE
TF4 2QJ.

All orders will be despatched
to their suppliers within
14 DAYS.