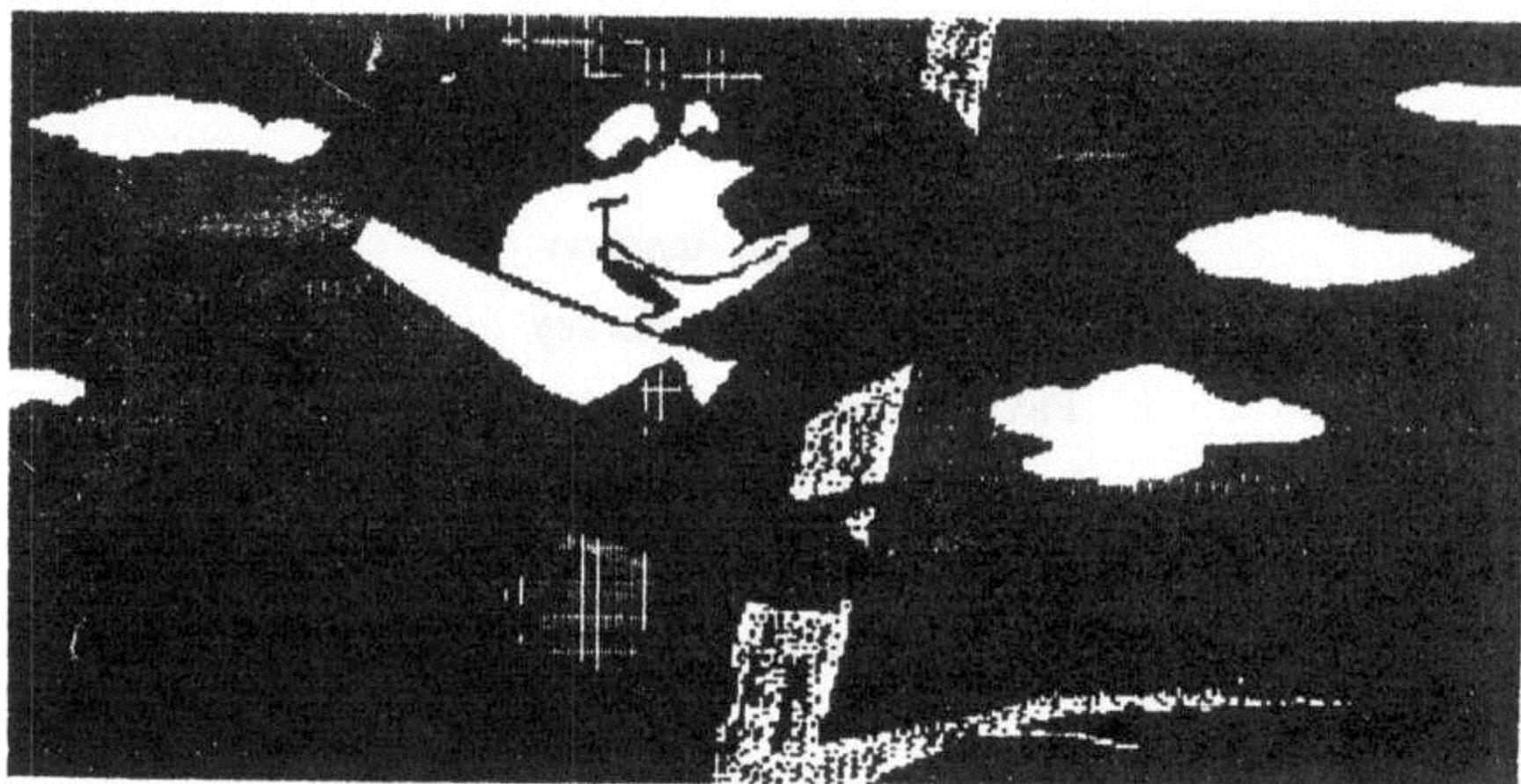


Memotech MTX World



Whadda ya mean The Software Source don't sell pic-a-nick baskets???

Issue Number Three

The journal of The Software Source

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"Memotech MTX World"

The Journal of The Software Source

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Editor's Page

Welcome once again to another issue of MTX WORLD. Since the last issue a number of changes have taken place connected with The Software Source. To start with Memotech Owners Club announced its closure as of the end of this year, leaving us in the sole role of supporting the MTX. It cannot be stressed enough how important it is now for YOU to support YOUR club if it is to continue to grow and provide a useful and decent service to all members.

To this end Alan, due to the amount of work a degree course entails, has allowed myself to take over the Editorial control of the magazine. I am by the way Andy Fox, introduced last month as commercial software coordinator (or something like that anyway). Rest assured Alan is still here, taking the role of Treasurer, and overall director of operations within TSS. I hope to keep the standard of the Journal up and to try and get your orders out as quickly as possible.

So the "TEAM" carries on, with a minor cabinet reshuffle in order to lighten the load on overworked shoulders. On that point can I please emphasise the point that ALL corres-

pondence to Brian be by POST ONLY.

As it is YOUR club can I make a request for anyone and everyone to sit down and write an article for publication. Grammar / spelling etc don't worry about, my English is terrible as you can tell, we can turn any offering into a literary masterpiece given the chance. It may not make the next Journal but we will make the effort to print all worthy articles given time. Here ends the 2nd lesson.

Between now and the next Journal, DEADLINE is 1st December, the chance to all meet occurs with THE ALTERNATIVE MICRO SHOW. Yes I know we keep going on about it, but be there or be a IBM user for life. So put faces to names, give us your contributions, opinions and see the demos we hope to have on show for you. For more info see the main ad latter. All being well you should be able to enjoy the contents of the next issue with your Christmas Dinner, falling that New Year.

Andy Fox

My Memotech Can Be Fun ...

Some years ago I built a computer called a MICROBOX2 and used a parallel keyboard that I made. Well after a lot of use the keyboard started to give errors, so I looked around for a replacement. Then I saw an advert from UK Home Computers for these Memotech machines at really silly low prices so I bought one to use solely as a keyboard. Well I was so impressed I bought a second one secondhand.

My first task was to get one of them to work as an intelligent keyboard. A public domain program by Paul Woods (I think) for a terminal emulator looked a good starting point, it certainly worked from tape and allowed me to use function keys for whole phrases, like "Yours Sincerely" etc, but it soon became a bore to keep loading tape on one machine to use the other disc system. (I'd decided I couldn't afford to go Disc on the MTX as they were tied up in the Microbox). So after a lot of thought I decided to use the games port as a dedicated keyboard emulator...BUT HOW ??

Again a fellow user, John Hodgson, came to the rescue and told me how to set up EPROMS to be recognised as ROM 7 (thats the decode for the games port). So after a lot of help from John I burnt in an EPROM and.. it didn't work.. I'd made an error in the machine code on the MTX, fixed it and it works. In theory I can also download NEWWORD files via the serial link, but there is still a problem as my code overwrites part of the space reserved for text from NEWWORD. (one day I'll fix it)

So thats one of the MTXs in use. The other is destined for use as an automatic weather station, plotting the temperature, Dew point, pressure and hopefully wind speed and direction (if I get all the sensors working).

I must admit that playing with the MTX is fun. I like the inbuilt assembler, it works. The system is well thought out and it is a pity that the original did not catch on for educational use as it was hoped. It is built as a nice engineering job. Perhaps too well for this day and age. Before using the MTX I hated the Z80 microchip, now I admire it almost as much as the 6809, and better than the 6502 on the other 8 bit micros I've played with.

I've become engrossed in the 68000, of which the most usable example, in my view, is the STEF Atari. But I still come back to the MTX, its so nice to use and its cheap enough to be used as a control machine for many jobs, one person I know uses one as a burglar alarm system, I suppose the tasks are endless, greenhouse controller, automated tea maker even! (Or control a nuclear power station - alla ZX81)

The serial port is a worthwhile purchase, as it can give access to the Microbox and Atari for data interchange or even a BBS if you have a MODEM.

Software.

Yes welcome to yet another set of pages I've hand my grubby hands in. The commercial software side has even taken a sub split from here , MTX software and CP/m software. This makes it easier for us to administer, you to find the software you want and me to write these leaders as I can think about one section at a time. With the number of 'new' editions for this issue and the overall size of the library now, I think we aren't doing to badly.

By the way as we forgot to mention it last edition, due to trying to make it clear how to order, what you have to pay to receive an offering from the MTX commercial library. The tiny sum of #4.50 per copy on tape or disc. So dig deep and get me busy (If I'm not already) churning out orders.

Some new editions really worth a mention are SPEECH, which can sample sound input, digitise it and store it away to be 'spoken' back by the MTX at a later date. In the short time I've tried it I think some interesting projects could come out of it. NO extra bits required (apart from microphone to record the sounds to tape to play into the program) Also whilst converting WORDS & PICTURES and FIRST LETTERS I discovered these programs really are worth a look. Educationally they are aimed at the 3- 5 age group I think but the presentation is very good indeed. (Just a kid at heart)

And now a couple of pleas before the list,

Has anyone got instructions for the following we could borrow as we don't have master copies, and like to send out all the software 'COMPLETE':
Extended basic , Tournament Snooker , EDASM , Attack Killer Toms , Memosketch

Software we would like to get hold of: (latest hit list) LEVEL 9 adventures except SNOWBALL (someone must have them) USER BASIC SDX version DATAFILE If you have copies of these PLEASE can we borrow them, it takes only a few days to a week before you should have them back, and you get FREE software on 1 for 1 basis back as well. (Send own media or state how you want it and send cost of blank media) Also any programs we don't have listed we would love to know about. Don't think someone else will do it, as no doubt they won't either I'd rather have 2 copies to work from than none !

On the subject of FREE, you can have your own copy of the review / preview document that has been prepared to help you determine what to buy. It gives guidelines as to memory requirements, and if its cpm or non cpm systems only, and general outlines of the programs be they utility, adventure, maze game etc. To get this just ask with your next order and it can be put in with it. On disc it comes as a NEWWORD file and a ASCII text file, so no cost unless you need another disc to fit it on, but for tape users I'm stuck so printed version available for #1 which is for photocopying and 1st class postage (postage because its heavier than standard order)

MYSTAKES

OH Dear We did it again!!!

Sorry but in Issue 2 a couple of blunders turned up.

Highway Encounter conversion: Reference to file H1.COM should be HIGH1.DAT The bit at the bottom of page 19 column 1 about choice of ROM etc need not be there as it references a development program not listed.

Commercial Software: What a list to start with and I bet you all wanted to rush out and buy some then .. WHAT no prices .. YES we forgot them. See this editions section for full details (I hope)

Hints For The MTX

I was having regular problems with my series 2 and 3 1/2" disc drive, it "played up", refusing to budge and forcing a re-set. The answer I found to be a weekly head clean, plus seperating the drive from the computer for a few moments and then replacing it, and this seems to ensure a further weeks trouble free operation of Newword. I assume it is condensation or static that clears itself. A rock steady table for the equipment avoids many problems, so does hard wiring pushfit connections.

If for any reason you need to work silently, a smooth rolling action can be developed that eliminates keyclicking. The only problem is it sets off the auto repeat. There is a system variable FD5E whose functions are in the manual. Auto repeat can be disabled assuming only that is required to be different from normal on power up by POKE 64862,11, either as required or in a program.

The display may refuse to scroll up when input reaches the bottom of a created virtual screen. Any key will make it move and that is easy enough. However if you are working on an automatic input application without operator intervention, byte 15 of virtual screens governs scrolling. For example on VS 6 if you want it to scroll without intervention the POKE 65417, any no. enough to cover the total lines you are likely to want, thus 240 provides for entry of 120 move pairs in a chess game which is plenty.

Machine code is not difficult. Once you grasp it you are then working closer to what the machine actually does and things can be worked out in a more positive way demonstrably step by step. Much that is published is quite unhelpful, as if the experts do not really want you to understand, but Graysoft's "MTX Assembly Language Reference Manual" is a joy to treasure and keep by you always. It comes with his instruction tape, or used to. The other thing to get really started on Assembler is to take some simple little routine of a half-dozen lines and see what it does. One such is on Page 387 Issue 1 Vol 3 of Memopad and shows how to use CALL 00BCh to print to the screen. Then you just need to grasp that you can point a register at a location to say "Look at that number" - LD HL,64000 - and use brackets to say "Fetch what is in that location number to where I can use it" - LD A,(HL). Very elementary stuff to many members, but some of us need help, and a lot of clever people at Memotech and elsewhere in the computer world did not what to know that. There is a brilliant little pamphlet given away with "Practical Electronics" a few years ago called "Machine Code Made Easy" which really does, which I would be pleased to photocopy for anyone who wants, as well as the short program referred to.

New Software !!

A newline of products from The Software Source.

Further to the commercial software library launched last issue, we are now in the situation to extended this to have a CP/M section. These are programs which will run on any MTX CP/M system, and may with modification run on other CP/M installations, we will try and advise you if that is what you want as to its suitability. Each product is priced individually and will be available in any MTX disc format and in SENTINAL Tape format if required.

The ordering system is the same as per MTX commercial software, ie state reference number, membership no etc

So without further addo here comes the new entries: .pa Sentinal - Disc backup program to tape with full instructions. Load and save files to tape to ensure data security should you ever suffer from a disc crash or worse. ORDER CODE = C8001 Price = # TBA

Highway Encounter - The MTX game which runs as a CPM .COM file ORDER CODE = C8002 Price = #5.00

Soul of a Robot - Another MTX conversion ORDER CODE = C8003 Price = #5.00

Attack of the Killer Tomatoes - The 3rd conversion ORDER CODE = C8004 Price = #5.00

Pictures - A few pictures which can be TYPEd to the screen and demonstrate the use of 80 column graphics. ORDER CODE = C8005 Price = #4.50

MTX Logo - After strenuous testing by the resident CP/M guru the excellent learning language is now available for the MTX, utilising both the 40 column MTX screen and 80 column CP/M screen at the same time. Basic instructions provided, but it would be recommended to get a book about LOGO to use it to its upmost. ORDER CODE = C8006 Price = # TBA

We are currently trying to get hold of more good CP/M software for commercial sale. If you have any please contact Andy Fox so we can look into the possibility of launching it. Again COPYRIGHT laws have to be watched but we will try or hardest to get licences for as much as possible then pass them on to you the members.

CLASSIFIED !!!!!

THE FINAL WORD

Word processor for ATARI ST. Converted from IBM version. This is a serious program for the Pro. writers. List price - #150.00 Offers around - #45.00 to:-PAUL TRAINER 1 Montagu Gardens, Oakwood, Leeds, LS8 2RN 0532 498985

Amstrad

DMP2160 Printer (see review TSS Iss 2) Dot Matrix, 160 CPS/40 NLQ mode Tractor/Friction Feed, includes 2 new ribbons. Only #120 + P & P. This is in Very good condition ALAN HAMILTON, 12 Roebank Rd. Belth, Ayrshire, KA15 2DX, 0505 52491

64K Memory Expansion

Internal card for MTX 500. #30 O.N.O + P & P.

Extended length MTX case top. Will enclose Motherboard, 80 column card and memory extension card. Requires an extra length base plate. #2 O.N.O. + P & P

Andy Fox,

WANTED (Alive or better)

Reviews of commercial and public domain software. Send to The Software Source

pal VDP Chip Manual

Fully explains the details of the TEXAS series chips. 70 + pages A snip at #2.50 inc P+P

Apply The Editor

Is anyone interested in a meeting near Nottingham. Exhibition planned in December with Einstien Users (similar machine to MTX) . More details from MIDLANDS EINSTIEN USERS GROUP 0602 215505 (Scott Huxley)

Dear Ed

Dear Ed.

Could someone please tell me who this guy ED is as his name crops up everywhere. A new member of the TSS team? Has that DUCK from Childrens BBC finally heard about the MTX and joined the ranks? Could that mean national T.V. exposure for the MEMOTECH and also CP/M. My only other suggestion is that he's a friend of SID.

Yours Confused of Digglydell. (address withheld)

Ed-> No, No, No. And we don't have to be serious all the time !!!

Dear Ed..

Can any of the members think of a way to get digitised sound from memory to be heard on the T.V. , alot of programs now adays have digitised sound in them, and it would be nice if we MTXers could have the same. So if there are any sound chip experts out there or assembler programmers who know how to go about this PLEASE Help.

John Raybould

ED > Well this issue sees the release of SPEECH for the MTX which goes some way to doing just what you want. See Commercial software for more details.

Dear Ed,

What sort of articles do you want us, the members to contribute. Any chance of some guidelines for style, content suitable media to send it in on. Perhaps a standard info sheet available on request which could highlight areas which have shortfalls or proliferations.

(A montage of letters on the same subject)

ED > Well for your pleas my answer could be short and sweet, so it will be. A sheet is being prepared and will be sent to any inquirers (SAE please), but anything any how. (within reason)

Memotech MTX, SDX & FDX Series

AFW Software Manuals - the next step forward in Programming

-000000-

Advanced Reference Manual £ 15

The Software Source Journal (v1 i1) say that "its a gigantic book ... it is a friendly book, it is clear & concise & where possible avoids the excessive use of computer terminology. The listings are complete modules, which you could slot in easily to any program. Another point so often overlooked is that all such programs have been tested on a CP/M system. This book is the sort of technical publication that has been lacking from the bookshelves of many a MTX programmer.... you should be able to enhance your programming capabilities dramatically."

MOC (v5 i4) say that "the first thing that struck them about this creation was the professional manner in which it was layed out. The bulk of the manual concentrates on MTX graphics. Covering every aspect in detail, assembler routines run riot in this manual. It is of good quality."

The 120+ page Laser printed manual also covers: RAM and ROM page switching, screen dumps to the printer, keyboard and joystick control, and MTX Sound. The assembler subroutines are modular in design and adhere closely, in many cases, to the MTX BASIC commands like PLOT x,y; MOVSPR ; INK i ; PAPER p ; etc. By the end of the manual you will have built up a comprehensive & powerful library of assembler subroutines. The graphic subroutines will be suitable for MSX & Einstein users, who share the same VDP & CPU as the MTX.

-000000-

Tape to Disc Conversion Booklet £ 5

Not only does this 37 page, Laser printed manual guide you through the ins and outs of Tape to Disc conversion, with the help of 9 worked examples - Sepulcri, Agrovator, Quazzia, Toado, Qogo, etc - but as MOC (v4 i4) say in their review of the product " it makes good use of assembler & Front Panel. The booklet has plenty of useful routines & explains many of the differences between the different MTX disc systems".

"AFW Software, aka Alan Wilson, has been responsible for the other really handy reference book, ' MTX Tape to Disc Conversion ' which revolutionises the conversion of many commercial games to Disc " say the Software Source Journal.

AFW Software

24 Blenheim Place , Larbert , Stirlingshire , FK5 4PP

NEW
MSX Technical Appendix £ 2

This exciting new addition to the AFW Software Catalogue, details the main Hardware & Software information , needed for MSX users to get the best from the Advanced Reference Manual.

Q. Where will you find

DATABASE, B&H COMPUTERS, MFM SUPPLIES, CASPELL COMPUTERS
TAMSOFT, DIGITAL PRECISION, UK HOME COMPUTERS, N.I.P. CO
KOBRAHISOFT, MIRACLE SYSTEMS, MEMOTECH USERS GROUP
PAGE 6 NEW ATARI USER MAG, SECTOR SOFTWARE, R&AJ PRESTON
SCON PERSONAL COMPUTER PRODUCTS, SYNCLAVIA SOFTWARE
MSX CENTRAL USER GROUP, MPA ASSOCIATES, LYNX USER GROUP
B&P ATARI USER GROUP, MILES BETTER SOFTWARE, U.K.E.U.G.
HOME & GENERAL COMPUTING, QL SUPER USER BUREAU
MIDLANDS EINSTEIN U.G., SURREY SOFTWARE SERVICES
'THE CITY' BULLETIN BOARD, JUPITER ACE USER GROUP
ADVENTURESOF UK LTD, FRONTIER SOFTWARE, BUG(ATARI)
MSX PD SOFTWARE, SOFTWARE CITY, HILLARDS, HILTON PLANT
MERLIN SYSTEMS, G.A. COMPUTERS, THE SOFTWARE SOURCE
AND OTHERS

PLUS A PACKET RADIO DEMONSTRATION
BY

THE WYTHALL AMATEUR RADIO CLUB

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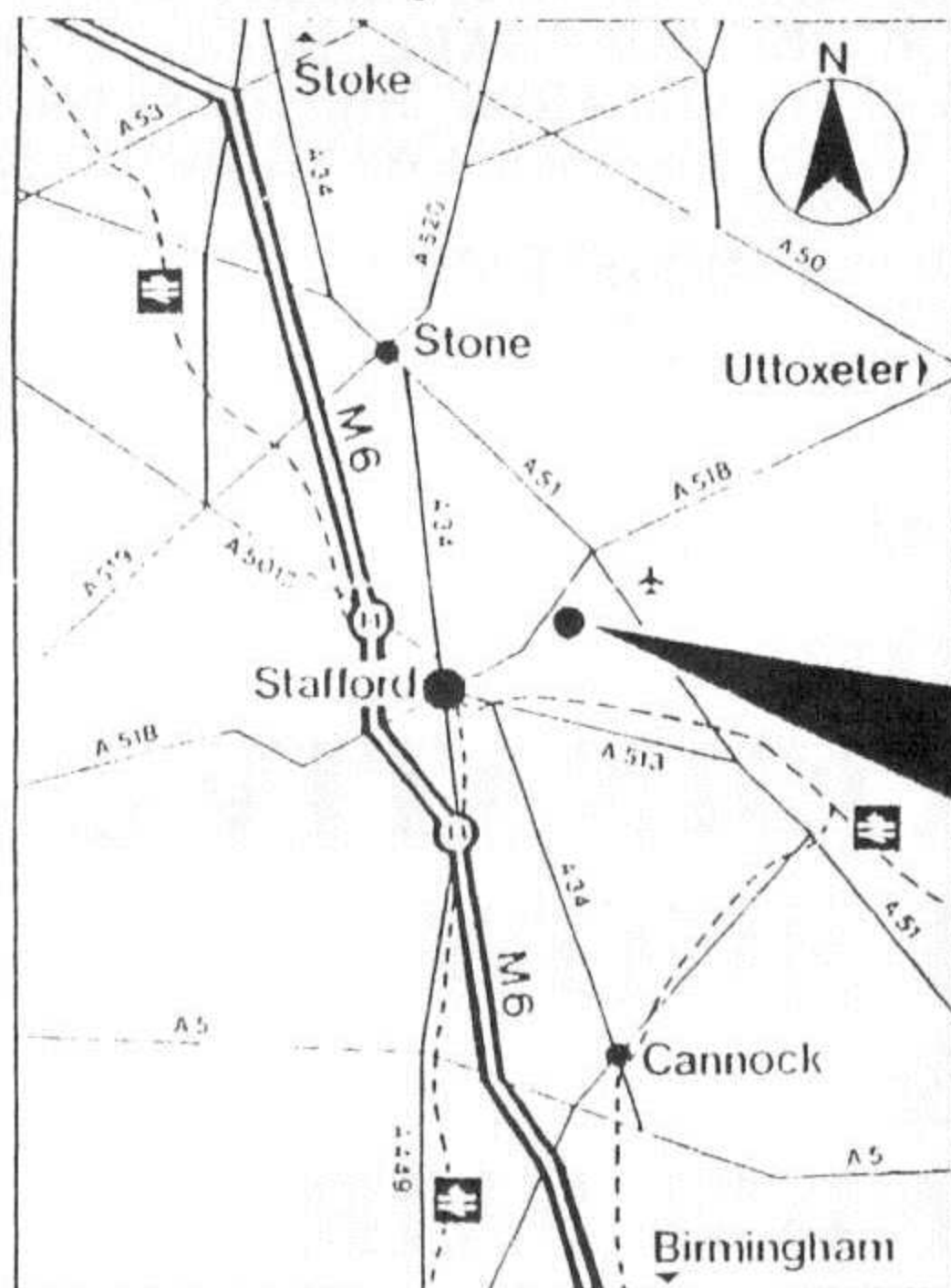
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Spots in Space

Here's a little something that's a bit of fun. It plots a series of nine different three dimensional graphs. I have not included a graphics dump in the listing as most MTX mags past and present have carried a variety of these. If you've a mind to mess around with this program once you've typed it in then here are a few tips:

The variable HY in line 210 governs the height from the bottom of the screen that your points start to be plotted.

Introducing a STEP command of less than 1 at the end of line 360 makes the points get plotted very much closer together and produces solid lines at about 0.2 usually. As this means the design will take an hour to plot you might like to have some means of saving the thing once plotted (Ed-> and something lined up to do in that hour!).

Reducing the figure multiplying the variable S in the STEP command of line 450 (presently 10*S) results in more lines being plotted. If you make the figure very low (say around 2) so many lines are plotted that the gaps between them are more noticeable!

Changing line 1020 to read ATTR 3,1: PLOT U,V causes point to unplot

each other where they overlap. This produces some strange effects by itself but you will find that the screen won't clear as usual and you can plot the design all over again, say, two pixels lower (by altering HY in line 210) and get some strange interference patterns - though I don't guarantee you'll like all of them. To clear the screen for re-use use the direct command VS 4: ATTR 3,0: CLS.

```
150 LET SX=240: LET SY=190
180 LET RATIO=0.76
210 LET HX=120: LET HY=90
240 LET S=SQR(2)/2
270 LET AA=HX*S
300 INPUT "PATTERN NUMBER (1-9)";N
330 VS 4:CLS
360 FOR A=-AA TO AA+5*S
390 LET MAX=-HY
420 LET BB=AA+A-10 * S * INT ((A + ABS (A)) / (10*S))
450 FOR B=-BB TO BB+4*S STEP 10*S
480 LET X=S*(A+B)
510 LET Y=S*(B-A)
540 LET Z=B
```



```
570 LET R=SQR(X*X+Y*Y)
600 IF N=1 THEN LET Z=10*COS(R/5)+B
630 IF N=2 THEN LET Z=100*EXP(-R*R/600)+B
660 IF N=3 AND R<>0 THEN LET Z=125*SIN(R/5))/R+B
690 IF N=4 AND R<>0 THEN LET Z=400*(-SIN(R/5))/R+B
720 IF N=5 THEN LET Z= 25 * COS ((X/25) * (Y/25)) + B
750 IF N=6 THEN LET Z=10*COS(X/10)*COS(Y/10)+B
780 IF N=7 THEN LET Z= 60 * COS (EXP*X/50))*COS(EXP(Y/50))+B
810 IF N=8 THEN LET Z= 80 * COS (LN(R/20)) +B
840 IF N=9 AND R<>0 THEN LET Z=350*(2*SIN(/9))/R+B
870 IF Z<MAX THEN GOTO 1050 900 LET MAX=Z
930 LET U=HX+A
960 LET V=HY+Z*S/RATIO
990 IF V<0 OR V>SY THEN GOTO 1050
1020 PLOT U,V
1050 NEXT
1080 NEXT
```


Classified Advertisements

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+++++

The Software Source Classified Advertisement Form

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Address: _____

Please insert my advertisement for (delete as appropriate)
1 2 3 4 5 6 more than 6 issues.

Here is the wording of my advert:

Signed: _____ Date: _____

Merge Printing in Newword

Undoubtedly the best feature of Newword, in my view, is its incredible ability to turn out very complex merge-printed documents full of customer-specific data. Indeed, it is a program such as Newword that these companies use to produce personalised letters enticing you to their products.

However, after trying, somewhat in vain to sort out a problem for a member who had just upgraded to a CP/M system, I started to apply a little grey matter to the aspect of turning Newword into an invoicing system. I have to say that the eventual program, although incorporating no parts of anyone else's program, was inspired by the program in a recent Personal Computer World entitled "WordStar - The database".

Merge printing is based on the somewhat unintelligible dot commands that come with Newword and WordStar which, although totally foreign to the majority of people using the programs, are about the single strongest aspects of the whole word-processors since it breaks the boundaries of the "rigid word-processor". For once, you can make Newword do what you want!

My program is entered just like a

normal document (press D from the opening Menu) and the dot commands are entered with the dot in the first column. Type it in exactly as you see it.

It works by setting up a whole series of variables with the .rv command which means "reserve variable". I believe the newer versions of WordStar don't require this command but we need it. It then uses .av (ask for variable) to ask for the code of the customer you are preparing the invoice for. If you have a regular customer you can create a small document with their name and address as you want it to appear and should, when creating it, call it by the code you are going to use in this program. e.g. If your customer was Joe Bloggs, you might want to create a file called BLOGGS and having opened it type:

Joe Bloggs 123 Any Street Anytown
Anyshire AB12 3CD

Save this with ^KD and when asked by my program for the customer code, type BLOGGS.

If you want to just enter the details of the customer manually, enter NONE and it will ask you all the pertinent details.

The program seems very long for the simple thing which it does but this is due to the very primitive IF...THEN structures which Newword creates. The number of items which can be invoiced can be increased or decreased depending on your needs, but the present number of 15 fits nicely onto an 11" sheet of paper.

You'll notice the program has a command: .FI LTRHEAD This command (File Include) calls a separate file with your own letterhead for the invoice. This means that instead of having

to wade through this program if you need to change the letterhead for some reason, you can just open LTRHEAD and do it easily. You'll notice that I have provided a sample letterhead to get you started.

To actually run the program, get to the Opening Menu of Newword or WordStar and select option M (Merge Print). Type in the name of this program, INVOICE.MRG, and press RET. You might as well press ESCAPE after this unless you want to go through all those questions after it. The program will then run and print out to any printer installed in Newword.

Have fun. Alan Hamilton

.pl 66

.. Invoicing system by Parallax Systems (c) Parallax Systems 1989

.. version 1.03 By Alan Hamilton

.rv NAME,ADDR1,ADDR2,ADDR3,ADDR4,ADDR5,POSTCODE

.rv ITEM1,COST1,ITEM2,COST2,ITEM3,COST3,ITEM4,COST4,ITEM5,COST5

.rv ITEM6,COST6,ITEM7,COST7,ITEM8,COST8,TOTAL,DATE,INVOICE

.rv COST9,ITEM9,COST10,ITEM10,COST11,ITEM11,COST12,ITEM12

.av "Customer Code (type NONE to enter new customer) :",CODE

.if &CODE&="NONE"

.av "Customer's Name :",NAME

.av "Customer's Address Line 1:",ADDR1

.av " Address Line 2:",ADDR2

.av " Line 3:",ADDR3 .av " Line 4:",ADDR4

.av " Line 5:",ADDR5

.av " Postcode :",POSTCODE

```
.av "Invoice date :",DATE
.av "Invoice number :",INVOICE
.cs
.av "Description of item 1 :",ITEM1
.av "Cost of item 1 :",COST1
.av "Description of item 2 :",ITEM2
.av "Cost of Item 2 :",COST2
.av "Description of item 3 :",ITEM3
.av "Cost of Item 3 :",COST3
.av "Description of item 4 :",ITEM4
.av "Cost of Item 4 :",COST4
.av "Description of item 5 :",ITEM5
.av "Cost of Item 5 :",COST5
.cs
.av "Description of item 6 :",ITEM6
.av "Cost of Item 6 :",COST6
.av "Description of item 7 :",ITEM7
.av "Cost of Item 7 :",COST7
.av "Description of item 8 :",ITEM8
.av "Cost of Item 8 :",COST8
.av "Description of item 9 :",ITEM9
.av "Cost of Item 9 :",COST9
.av "Description of item 10:",ITEM10
.av "Cost of Item 10 :",COST10
.cs
.av "Description of item 11:",ITEM11
.av "Cost of Item 11 :",COST11
.av "Description of item 12:",ITEM12
.av "Cost of Item 12 :",COST12
```



```
.av "Description of Item 13:",ITEM13
.av "Cost of item 13 :",COST13
.av "Description of Item 14:",ITEM14
.av "Cost of item 14 :",COST14
.av "Description of item 15:",ITEM15
.av "Cost of item 15 :",COST15
.cs
.av "Total cost of job :",TOTAL
.cs
.dm PRINTING INVOICE
.FILTRHEAD
Invoice Invoice to: &NAME&
                        &ADDR1&
                        &ADDR2&
                        &ADDR3&
                        &ADDR4&
                        &ADDR5&
                        &POSTCODE&
.El
.if &CODE& <> "NONE"
.av "Invoice date :",DATE
.av "Invoice number :",INVOICE
.cs
.av "Description of Item 1 :",ITEM1
.av "Cost of Item 1 :",COST1
.av "Description of Item 2 :",ITEM2
.av "Cost of item 2 :",COST2
.av "Description of item 3 :",ITEM3
.av "Cost of item 3 :",COST3
```

.av "Description of item 4 :",ITEM4
.av "Cost of item 4 :",COST4
.av "Description of item 5 :",ITEM5
.av "Cost of item 5 :",COST5
.av "Description of item 6 :",ITEM6
.av "Cost of item 6 :",COST6
.av "Description of item 7 :",ITEM7
.av "Cost of item 7 :",COST7
.av "Description of item 8 :",ITEM8
.av "Cost of item 8 :",COST8
.av "Description of Item 9 :",ITEM9
.av "Cost of item 9 :",COST9
.av "Description of item 10:",ITEM10
.av "Cost of Item 10 :",COST10
.cs
.av "Description of item 11:",ITEM11
.av "Cost of item 11 :",COST11
.av "Description of item 12:",ITEM12
.av "Cost of Item 12 :",COST12
.av "Description of item 13:",ITEM13
.av "Cost of Item 13 :",COST13
.av "Description of item 14:",ITEM14
.av "Cost of item 14 :",COST14
.av "Description of item 15:",ITEM15
.av "Cost of Item 15 :",COST15
.cs
.av "Total cost of job :",TOTAL
.FI LTRHEAD
Invoice to:

.fl &CODE&

.ei

Date:&DATE&

Invoice Number:&INVOICE&

DESCRIPTION

PRICE

+-----+

&ITEM1&

&COST1&

&ITEM2&

&COST2&

&ITEM3&

&COST3&

&ITEM4&

&COST4&

&ITEM5&

&COST5&

&ITEM6&

&COST6&

&ITEM7&

&COST7&

&ITEM8&

&COST8&

&ITEM9&

&COST9&

&ITEM10&

&COST10&

&ITEM11&

&COST11&

&ITEM12&

	&COST12&
&ITEM13&	
	&COST13&
&ITEM14&	
	&COST14&
&ITEM15&	
	&COST15&

TOTAL COST OF JOB	&TOTAL&
=====	
.PA	

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Comment

I think it is quite an impressive example of the rate of change of information technology to consider that my first (and very discouraging) contact with computing was a dismal and doom-laden attempt to learn FORTRAN in a batch-processing environment on Birmingham University's KDF-9 Mainframe in 1978. The introduction over the next few years of multiuser systems, mini-computers and micros changed this out of all recognition. People who suddenly realised that at last they could write programs that didn't take a week to crash generated an explosion of popular journals, of which "Byte", "Creative Computing", "Personal Computer World" and "Dr. Dobbs Journal of Computer Callisthenics and Orthodontia" were possibly the most important.

Byte and PCW are still with us, but have become largely outlets for reviews of commercial software and hardware. I recently had, however, the opportunity to look at a pile of very early magazines in a local bookshop.

The striking thing about these early publications is the enthusiasm they convey for programming and the amount of space they devote to

articles on it and to listings of the results. By contrast, modern journals either pay lip-service to it with 10-liners to put labels on disks, or publish articles on large (and often very obscure) programs and expect you to pay for the listings separately.

The average present day publication seems designed to prove that its readers spend their time doing serious things with their systems, such as running expensive commercial applications. Is this what the public wants?

Apple's experience with the Macintosh, now redesigned with an open architecture and full hardware and firmware data suggests that the public emphatically did not want to spend several thousand pounds to run only those applications which the makers thought a good idea.

The quality of programs from the early '80's is frankly not high, and I very much doubt that an unrecognised masterpiece is lurking in a box in someone's attic, but their creativity and ingenuity was considerable. Most of the fundamental algorithms for searching, sorting and graphics were developed in such an environment and many commercial best-sellers first saw the light of day as

amateur attempts to fulfill some specific need.

Most of the 20 or 30 journals which once loaded newsagents' shelves disappeared for obvious reasons. The decline of "Creative Computing", "Dr. Dobb's" and so on is more difficult to explain. These publications provided a knowledge base for new ideas which effectively no longer exists. The sort of work which they made available to anyone is now distributed to small closed groups via bulletin boards and user-group journals. Their contents go into no public archive, so that new ideas are seldom exchanged and have a limited life.

Only the large software houses can possibly benefit from

computer programming of a professional standard once again being seen as an arcane specialty best left to experts. Events such as the Alternative Micro Show may - just possibly - do something to help.

Also the remaining public journals must be susceptible to reader pressure if only there were enough of it. Enough letters and articles over a long enough time might just encourage them to publish listings other than for topics such as handling windows under OS/2, and to take CP/M and ZCPR (which were, after all, the basis of their current prosperity) more seriously than to

represent them and their users with icons of dinosaurs riding pogo sticks.

Dr BL Houghton

If you have a viewpoint on the computer world in general, the Memotech or CP/M worlds in particular or would like to say something about computing, then now is your chance. The Comment section of the journal is your arena to air your views in public.

If you have something to say, send it to Alan on disc, tape or paper and it will be considered for inclusion in the journal.

**THE SOFTWARE
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BASIC Programming 3

In the last two issues, we have gone from simple arithmetic through loops and variables and included such devices as imbedding loops.

This issue, I want to cover briefly the concept of decision making and move onto arrays. Firstly though, the IF statement.

One of the mainstays of computing and computers as a whole is the ability of a computer to make repetitive decisions many millions of times which would bore a human to death. In BASIC, as in just about every other programming language that claims to be high level, the IF command will be found. To use computer jargon, the syntax diagram is listed below, which, in plain English means "this is how you use it".

IF condition THEN action [ELSE something else]

"condition" could be something like `A>10` or `A$="GOODBYE"`. "action" could be just about anything from another IF command or, more usually, something GOTO or GOSUB. Here are some examples.

```
IF NAME$="ALAN" THEN PRINT "Hello there!"
```

```
IF NAME$<>"ALAN" THEN PRINT "I don't know you!"
```

```
IF NAME$="THE SOFTWARE SOURCE" THEN IF A=40 THEN LET B=40
```

```
IF A=10 THEN GOTO 40 ELSE GOTO 50
```

The first three of these examples are only gone through if the first condition is met. I.e. if NAME\$ happens to equal "ALAN" then the computer will print the message on the screen. In the case of the third example, the second IF command will only be reached if the first one is satisfied. However, the last example contains the ELSE command which forces the computer to go through the condition and do something different if the condition is not met. Many early BASICs do not have ELSE and you were forced to resort to:

```
IF A=10 THEN GOTO 40 IF A<>10 THEN GOTO 50
```

which obviously is more cumbersome and uses more memory. However, ELSE should be used with caution as there can be a dreadful mess if you use it too much:

IF A=10 THEN GOTO 40 ELSE IF B=30 THEN GOTO 20 ELSE IF F=54 THEN GOSUB 50 ...and so on.

This type of condition nowadays will not be accepted by new BASIC interpreters because it is too complex. It hardly needs to be said that the time the computer takes to go through this is long and slows a program down remarkably if you persist using this sort of instruction.

You can also add into the IF command additional conditions which probably speak for themselves:

IF U=65 AND H=65 THEN PRINT "U AND H EQUAL 65"

IF U>60 AND U<66 THEN PRINT "U IS BETWEEN 60 AND 65"

IF NAME\$="MEMOTECH" OR NAME\$="MTX" THEN PRINT "A MEMOTECH."

IF A=10 AND NAME\$="ALAN" OR G=50 AND NAME\$="ANDY" THEN PRINT "Pass" ELSE IF A=13 AND NAME\$="GORDON" OR X=1 AND NAME\$="STEWART" THEN PRINT "Fail"

Here is an example password protection program using what we have just learned:

```
10 REM PASSWORD PROTECTION PROGRAM
20 CLS : REM "CLS" CLEARS THE SCREEN
30 PRINT "PASSWORD PROTECTION PROGRAM."
40 PRINT "=====
50 PRINT
60 PRINT
70 INPUT "Please enter your name >";NAME$
80 IF NAME$="ALAN" OR NAME$="ANDY" THEN GOTO 90 ELSE PRINT
  "You are an Intruder. Go away":STOP
90 PRINT
100 PRINT
110 INPUT "Please enter your password >";PASS$
120 IF NAME$="ALAN" AND PASS$="FRED" THEN GOTO 130 ELSE IF
  NAME$="ANDY" AND PASS$="GEOFF" THEN GOTO 130 ELSE PRINT
  "Password is wrong. Aborting.":STOP
```



```
130 PRINT "Hello friend."
```

Arrays

An array is a variable of a certain length which is split up into little boxes, of a certain length or size which can hold information. The reason for arranging information like this is so that the computer can work through a series of data automatically and requires very little programming. First of all, the command which invokes the array function is DIM which really means DIMension, in other words giving the dimensions of the array.

It is here that I should digress for a moment to bring in a Memotech specific point. In MTX BASIC, unlike many others, when you are using DIM to dimension string variables, say A\$, you must always give the maximum length of each element. The length will always be the last item in the dimension.

e.g.

```
DIM A$(10)
```

would make the variable A\$ a maximum of 10 characters long. DIM A\$(5,10) would split A\$ into five parts, each of which is ten characters long.

An array such as the one above can be thought of like this:

```
+++++++  
A$(1)  
+++++++  
A$(2)  
+++++++  
A$(3)  
+++++++  
A$(4)  
+++++++  
A$(5)  
+++++++
```

Here is illustrated the five parts of A\$, each of which is ten characters in length, each of which take up ten bytes of memory. To insert data into the array, you simply treat each part of the array like a separate variable. For

instance,

```
LET A$(3)="HELLO"
```

Could be thought of as:

```
+++++++
A$(1)
+++++++
A$(2)
+++++++
A$(3) HELLO
+++++++
A$(4)
+++++++
A$(5)
+++++++
```

If you filled each of the five parts with a word, such as is listed below, the computer would be able to print out a message for you.

```
10 DIM A$(5,10)
20 LET A$(1)="THIS"
30 LET A$(2)="IS"
40 LET A$(3)="A"
70 FOR X=1 TO 5
80 PRINT A$(X); " ";
90 NEXT X
```

This program would display THIS IS A MEMOTECH COMPUTER on the screen. But what is the use of this? Well, in conventional BASIC, the above program would have to be written like this:

```
10 LET A$="THIS"
20 LET B$="IS"
30 LET C$="A"
```

```
40 LET D$="MEMOTECH"  
50 LET E$="COMPUTER"  
60 PRINT A$;  
70 PRINT B$;  
80 PRINT C$;  
90 PRINT D$;  
100 PRINT E$;
```

which is a very cumbersome way to go about something. This problem is compounded when dealing with numbers. Here, however, we do not obviously have to stipulate the maximum length of the array, so:

```
DIM A(5)
```

Would simply set up an array of five boxes.

Say you had a list of numbers which you wanted to total. With an array, you might go about it this way:

```
10 DIM A(5)  
20 LET TOTAL=0  
30 FOR X=1 TO 5  
40 INPUT "Enter the data >";A(X)  
50 LET TOTAL=TOTAL+A(X)  
60 NEXT X  
70 PRINT "TOTAL IS ";TOTAL
```

In conventional BASIC,

```
10 INPUT "Enter the data >";A  
20 INPUT "Enter the data >";B  
30 INPUT "Enter the data >";C  
40 INPUT "Enter the data >";D  
50 INPUT "Enter the data >";E  
60 LET TOTAL=A+B+C+D+E  
70 PRINT "TOTAL IS ";TOTAL
```

which is somewhat repetitive, and can you imagine the work involved for 100

items of data

More computing jargon: The number indicating the part of the array you are working on (the bit inside the brackets) is called a subscript.

Arrays can be more than just single dimensional. For example,

`DIM A$(5,5,6)`

Would set up an array like this

`A$(1,1) A$(1,2) A$(1,3) A$(1,4) A$(1,5)`

`A$(1,1)`

`A$(1,5)`

`A$(2,1)`

`A$(2,5)`

`A$(3,1)`

`A$(3,5)`

`A$(4,1)`

`A$(4,5)`

`A$(5,1)`

`A$(5,5)`

`A$(5,1) A$(5,2) A$(5,3) A$(5,4) A$(5,5)`

So, to insert an item of data into the middle box in this array, we have to use the following syntax:

`LET A$(3,3)=`

Note that the order of using arrays must be done in the same way. Usually this is ROW then COLUMN. In the above example, count three rows down and three columns across.

3, 4, 5 & 6 dimensional arrays are all possible if you really wanted to use them, but anything over 2-dimensions (one of which is above) become horribly complicated to work with. To finish off this time, an example of the use of arrays

`10 DIM MARK(10,4)`

`15 DIM TOTAL(4)`

```
20 FOR X=1 TO 10
30 INPUT "Enter pupil's maths result >";MARK(X,1)
40 INPUT "Enter pupil's physics result >";MARK(X,2)
50 INPUT "Enter pupil's chemistry result >";MARK(X,3)
60 INPUT "Enter pupil's English result >";MARK(X,4)
70 NEXT X
80 PRINT "Totalling the marks..."
90 FOR X=1 TO 4
100 LET TOTAL(X)=0
110 FOR Y=1 TO 10
120 LET TOTAL(X)=MARK(Y,X)
130 NEXT Y
140 NEXT X
150 PRINT "Averaging..."
160 FOR X=1 TO 4
170 LET TOTAL(X)=TOTAL(X)/10
180 NEXT X
190 PRINT "Averages are:"
200 PRINT "maths :";TOTAL(1)
210 PRINT "physics :";TOTAL(2)
220 PRINT "chemistry :";TOTAL(3)
230 PRINT "English :";TOTAL(4)
```

A Poem

POETS CORNER (Or Much a do about nothing computing)

Our second submission, (first printable though) , so for persistance here goes: Observations on the second Journal

So the Software Source saga continues, this Issue blows away the Memotech blues's.

The second one's GREEN for that topical look. There's a picture of Alan on the front of the book.

The contents tells you its so full of stuff and there's plenty inside for the CP/m buff.

All through this Journal, supprises within, my only gripe is that the cover's too thin.

The PD library is increasing with each edition, MEGALINER is added, a Nigel Cooper rendition.

There's a charge on the software but only 45p, yes, a Scotsman is in charge of the bank balance you see

And again MTX FONTASTIC gets a good mention, #5.00 to the author , and it's in your collection.

Paul Wood is still fixing for the MTX mob, Send him your faults for the Worcester Source job.

A Leeds lad called FOX has joined

the forum, He knows his stuff this future Bradfordian.

Mr Ed, he gets a mention, you know the talking horse, no mean club this, It's the Source of course.

A BASIC listing of a sprite editor, your editor has typed it on a text editor.

There's a section on compilers, Forth and Pascal Even a news desk in this Source Journal.

MTXer's are shouting throughout the land this is the thing that beats the bland.

Throughout the mag the cries for input are true, an article, a review even a poem from PAUL will do.

Input is needed from the membership too, a pound for a page, may the SOURCE BE WITH YOU.

I leave you with a line from poem last, will the next be better than editions past?

By Paul Trainer - resident poet and part-time maggot wrestler

Programmer's Notebook

AUTHOR : John Raybould REQUIREMENTS: LANGUAGE : MTX BASIC

This small program prints M\$ in the centre of the screen , from the centre of the string in both directions. So in this case it will print 'TO' first in the centre of the screen then put a space either side and so on until the whole string has been printed.

5 LET M\$= "M\$= WORDS TO PRINT OUT"

```
10 LET L = LEN(M$): IF L/2 = INT(L/2) THEN LET M$=M$+ " ":LET L=L+1
20 LET X=INT((40-L)/2)
30 FOR P=(INT(L/2)+1) TO 1 STEP -1
40 CLS:CSR (X+P-1),0:PRINT MID$(M$,P,((INT(L/2)+1)-P)*2+1)
50 PAUSE 100
60 NEXT P
```

Glossary

GAMES PORT - The expansion sockets at either end of the MTX. One is inside the case, the other outside , enabling you to attach devices such as Disc units, ROMPAKs etc directly to the CPU.

EPROM - Acronym for Erasable Programmable Read Only Memory. Programs can be 'burnt on' to the chip and they then stay there and are treated as if they were ROMS the same as the ones which hold BASIC etc. The programs can be deleted via submitting the chip to a large dose of UltraViolet light.

6502,6809 - Central Processor Units (CPU) code numbers of other computers such as the BBC and COMMODORE 64.

68000 - Another CPU but this one can handle 32 data and address lines and has many more built in commands. Hence it is more powerful and quicker than a 8 bit CPU like the Z80.

MOUSE - Input device which sits on the desk and is moved around by hand , usually attached by wire to the computer and looks like a mouse!

OPTO ISOLATOR - Electronic device which acts like a switch but keeps any unwanted signals away from sensitive equipment such as computers by using a tiny light to turn the switch on and off.

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ASTROPAC	D	D	0002
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BLOBBO	T	TD	0097
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DRAUGHTS		TD	0100
DRIVE THE CEE-5	T	TD	0083
DRIVE THE CEE-5	D	TD	0084
EDASM	T	T	0082
EDASM (SDX)	D	D	0101
EXTENDED BASIC	T	T	0079
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FIG FORTH	T	D	0065

SOFTWARE LIST

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POTHOLE PETE	T	TD	0028
POTHOLE PETE	D	TD	0029
PRINTLINER	T	TD	0071
PRINTLINER	D	TD	0072
PROWORD	T	T	0073
QOGO	D	TD	0030
QOGO	T	TD	0109
QOGO 2	T	TD	0116
QOGO 2	D	TD	0117
REVEAL	D	D	0046
REVERSI	D	D	0127
ROLLA BEARING		T	0042
RUTHLESS B.....D		T	
SMG	D	D	0047
SNAPPO	T	TD	0024
SNAPPO	D	TD	0025
SNOWBALL	T	D	0031
SNOWBALL	D	D	0032
SOUL OF A ROBOT	T	TD	0063
SOUL OF A ROBOT	D	TD	0064
SPEECH	T	TD	0137
SPEECH	D	TD	0138
STAR COMMAND	D	TD	0033
STAR COMMAND	T	TD	0111
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SUPERBIKE	T	TD	0122
SUPERBIKE	D	TD	0123
SURFACE SCANNER	T	D	0008
SURFACE SCANNER	D	D	0009
TARGET ZONE	D	TD	0035
TARGET ZONE	T	TD	0113
THE CAVES OF ORB		T	0080
THE WALL	T	TD	0120
THE WALL	D	TD	0121
TIME BANDITS	T	D	0051
TIME BANDITS	D	D	0052
TOADO	D	TD	0036
TOADO	T	TD	0114
TOUCH TYPIST	T	TD	0059
TOUCH TYPIST	D	TD	0060
TOURNAMENT SNOOKER		T	0087
TRAMP	T	DT	0058
TRAMP	T	TD	0115
TRANSFER	D	D	0134
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WORDS AND PICTURES	D	D	0136

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POTHOLE PETE	D	TD	0029
PRINTLINER	T	TD	0071
PRINTLINER	D	TD	0072
PROWORD	T	T	0073
QOGO	D	TD	0030
QOGO	T	TD	0109
QOGO 2	T	TD	0116
QOGO 2	D	TD	0117
REVEAL	D	D	0046
REVERSI	D	D	0127
ROLLA BEARING		T	0042
RUTHLESS B.....D		T	
SMG	D	D	0047
SNAPPO	T	TD	0024
SNAPPO	D	TD	0025
SNOWBALL	T	D	0031
SNOWBALL	D	D	0032
SOUL OF A ROBOT	T	TD	0063
SOUL OF A ROBOT	D	TD	0064
SPEECH	T	TD	0137
SPEECH	D	TD	0138
STAR COMMAND	D	TD	0033
STAR COMMAND	T	TD	0111
SUPA CODER		T	0069
SUPER MINEFIELD	D	D	0129
SUPERBIKE	T	TD	0122
SUPERBIKE	D	TD	0123
SURFACE SCANNER	T	D	0008
SURFACE SCANNER	D	D	0009
TARGET ZONE	D	TD	0035
TARGET ZONE	T	TD	0113
THE CAVES OF ORB		T	0080
THE WALL	T	TD	0120
THE WALL	D	TD	0121
TIME BANDITS	T	D	0051
TIME BANDITS	D	D	0052
TOADO	D	TD	0036
TOADO	T	TD	0114
TOUCH TYPIST	T	TD	0059
TOUCH TYPIST	D	TD	0060
TOURNAMENT SNOOKER		T	0087
TRAMP	T	DT	0058
TRAMP	T	TD	0115
TRANSFER	D	D	0134
TURBO	D	D	0037
USER EXTEND	T	T	0076
USER UTILITIES	T	T	0081
WORDS AND PICTURES	D	D	0136

Machine Code Made Easy

John Hodgson

Often you hear the cry, "How can I convert my Basic programs to machine code", or "I know how to write in machine code but how do I access the screen facilities like COLOUR, SPRITE, LINE, CLS etc."

The aim of this article is to show how you can write quite complicated screen output with just one machine code instruction. We will start with a simple Basic program, convert it line by line into machine code, and further convert it so that the whole program is written with just one machine code instruction. The Basic program we are going to use as an example is as follows.

```
10 VS 4
20 CLS
30 COLOUR 3,1
40 LINE 15,0,15,191
50 LINE 15,191,250,191
60 LINE 250,191,250,0
70 LINE 250,0,15,0
80 COLOUR 3,15
90 LINE 45,30,45,161
100 LINE 45,161,220,161
110 LINE 220,161,220,30
```

```
120 LINE 220,30,45,30
130 CSR 10,2
140 PRINT "THIS IS A TEST"
150 CSR 13,10
160 PRINT "MEMOTECH"
170 CSR 12,13
180 PRINT "MTX SERIES"
190 CSR 9,21
200 PRINT "COMPUTER PROGRAM"
1000 GOTO 1000
```

The one machine code instruction you will learn to use is RST 10. The format of this instruction is :-

RST 10 DB #n,n,n,n,n,n

where #n,n,n,n,n,n is a string of data, the length of which will depend upon the screen output desired. We will look at two forms of the instruction.

The first form is used to select and clear virtual screens.

The format is RST 10 DB #n

To select a virtual screen the value of n is formed as follows.

Bit position	7	6	5	4	3	2	1	0
Data value	0	1	0	0	0	0	<---	>

Bit positions 2 to 0 are used to enter the virtual screen number. The data

value for a virtual screen 4 will be.

Bit position 7 6 5 4 3 2 1 0

Data value 0 1 0 0 0 1 0 0

Hex value 4 4

So to select screen 4 the instruction will be

RST 10 DB #44

To clear the screen all you have to do is to do is set the bit at position 3 to the value of 1. So to select virtual screen 4 and clear the screen the data value will be

Data position 7 6 5 4 3 2 1 0

Bit value 0 1 0 0 1 1 0 0

Hex value 4 C

The complete set of virtual screen data values are.

VS No	Scrn Selct	Selct & cl scrn
0	#40	#48
1	#41	#49
2	#42	#4A
3	#43	#4B
4	#44	#4C
5	#45	#4D
6	#46	#4E
7	#47	#4F

All the other commands have the following format.

Bit position 7 6 5 4 3 2 1 0

Data value 1 0 0 <----->

Bit positions 4 to 0 are used to

indicate the number of bytes that follow. This gives a maximum length of 31, (#1F), bytes.

Now let us look at some examples of the RST 10 instruction.

The COLOUR command in Basic is
COLOUR p,n

The RST instruction is

RST 10 DB #83,16,p,n (the value 16 is the control code for COLOUR)

The only data bytes you need to change are the last two, (p,n).

The LINE command in Basic is

LINE x1,y1,x2,y2

The RST instruction is

RST 10 DB #85,2,x1,y1,x2,y2 (the value 2 is the control code for LINE)

The only data bytes you need to change are the last four, (x1,y1,x2,y2).

The CSR command in Basic is

CSR x,y

The RST instruction is

RST 10 DB #83,3,x,y (the value 3 is the control code for CSR)

The only data bytes you need to change are the last two, (x,y)

The only instruction that does not have a fixed length is the print option. The first byte has the same format but you will have to calculate the value to use, depending upon the length of the string to be printed.

This is followed by the string to be printed, enclosed in quote marks. Do not include the quote marks in the calculation of the string length. For example, to print the text "PRINT STRING" the RST instruction is

```
RST 10 DB #8C,"PRINT STRING"
```

The value C in the first byte is the length of the string to be printed in Hex, (12 decimal). To add a carriage return or line feed the control code is added to the string at the point you want them to take effect. The control codes are

Line feed = 10 (#0A) Carriage return = 13 (#0D)

```
RST 10 DB #8E, 13, 10, "PRINT STRING"
```

will give a carriage return and line feed followed by the text string "PRINT STRING"

```
RST 10 DB #8E, "PRINT STRING", 13,10
```

will print the text first, followed by a carriage return and line feed.

```
RST 10 DB #8D, "PRINT", 13, 10, "STRING"
```

will print the text "PRINT", followed by a carriage return and line feed and then the text "STRING". Note that the length of the string has been reduced by one because the space has been removed from the text string. You now have enough information to convert the Basic program to machine code. The following list-

ing shows the Basic program converted line by line to machine code. The only exception is that line 10 and 20 have been merged into one instruction.

```
10 CODE
```

```
8007 RST 10
```

```
8008 DB #4C
```

```
8009 RET
```

Symbols:

```
30 CODE
```

```
801A RST 10
```

```
801B DB #83,16,3,1
```

```
801F RET
```

Symbols:

```
40 CODE
```

```
8034 RST 10
```

```
8035 DB #85,2,15,0,15,191
```

```
803B RET
```

While this will work, it is not a good way to write machine code. It is better to have all the machine code contained within one line number. The next program listing has the same RST commands but they are all contained in line 10.

```
10 CODE
```

```
8007 RST 10
```

```
8008 DB #4C
```

```
8009 RST 10
```

```
800A DB #83,16,3,1
```

800E RST 10
 800F DB #85,2,15,0,15,191
 8015 RST 10
 8016 DB #85,2,15,191,250,191
 801C RST 10
 801D DB #85,2,250,191,250,0
 8023 RST 10
 8024 DB #85,2,250,0,15,0
 802A RST 10
 802B DB #83,16,3,15
 802F RST 10
 8030 DB #85,2,45,30,45,161
 8036 RST 10
 8037 DB #85,2,45,161,220,161
 803D RST 10
 803E DB #85,2,220,161,220,30
 8044 RST 10
 8045 DB #85,2,220,30,45,30
 804B RST 10
 804C DB #83,3,10,2
 8050 RST 10
 8051 DB #8E,"THIS IS A TEST"
 8060 RST 10
 8061 DB #83,3,13,10
 8065 RST 10
 8066 DB #88,"MEMOTECH"
 806F RST 10
 8070 DB #83,3,12,13
 8074 RST 10

8075 DB #8A,"MTX SERIES"

8080 RST 10

8081 DB #83,3,9,21

8085 RST 10

8086 DB #90,"COMPUTER PROGRAM"

8097 RET

Symbols:

1000 GOTO 1000

We saw earlier that the first byte of data following the RST instruction was either

Bit position 7 6 5 4 3 2 1 0

Data value 0 1 0 0 0 <--->

or

Bit position 7 6 5 4 3 2 1 0

Data value 1 0 0 <----->

Now if the Bit at position 5 is set to 1 this has the effect of saying, after the current string of data has finished executing then treat the following data as if it had been preceded by a RST 10 instruction. We can now re-write the previous program by taking out all but the first RST 10 instruction.

10 CODE

8007 RST 10

8008 DB #6C

8009 DB #A3,16,3,1

800D DB #A5,2,15,0,15,191

8013 DB #A5,2,15,191,250,191


```

8019 DB #A5,2,250,191,250,0
801F DB #A5,2,250,0,15,0
8025 DB #A3,16,3,15
8029 DB #A5,2,45,30,45,161
802F DB #A5,2,45,161,220,161
8035 DB #A5,2,220,161,220,30
803B DB #A5,2,220,30,45,30
8041 DB #A3,3,10,2
8045 DB #AE,"THIS IS A TEST"
8054 DB #A3,3,13,10
8058 DB #A8,"MEMOTECH"
8061 DB #A3,3,12,13
8065 DB #AA,"MTX SERIES"
8070 DB #A3,3,9,21
8074 DB #90,"COMPUTER PRO-
GRAM"
8085 RET

```

Symbols:

```
1000 GOTO 1000
```

This article is not intended to teach you to write programs in machine code but the following examples will show how you can extend the above examples. In your programs you will often assign values to variables and use these variables in a subroutine. The Basic program has now been changed so that the first four calls to LINE are called with a GOSUB command.

```
10 VS 4
```

```
20 CLS
```

```

30 COLOUR 3,1
40 LET N1=15: LET N2=0: LET
N3=15: LET N4=191
45 GOSUB 3000
50 LET N2=191: LET N3=250
55 GOSUB 3000
60 LET N1=250: LET N4=0 65
GOSUB 3000
70 LET N2=0: LET N3=15
75 GOSUB 3000
80 COLOUR 3,15
90 LINE 45,30,45,161
100 LINE 45,161,220,161
110 LINE 220,161,220,30
120 LINE 220,30,45,30
130 CSR 10,2
140 PRINT "THIS IS A TEST"
150 CSR 13,10
160 PRINT "MEMOTECH"
170 CSR 12,13
180 PRINT "MTX SERIES"
190 CSR 9,21
200 PRINT "COMPUTER PRO-
GRAM"
1000 GOTO 1000
3000 LINE N1,N2,N3,N4
3010 RETURN

```

To be continued

Noddy, DSI, And Other Tips

NODDY , DSI and other Tips.

As far as I know there is no documented mention of the similarities between Noddy and DSI. Not being one of those buffs who can tell you all about which chips are used for what I will simply point out that the two functions appear so closely related to each other that you can use <CTRL> and <ESC> sequences in appendix 2 of the manual (PG 175). These include the duplication of a line, Inserting a blank line and erasing a line.

Setting up nice menus can be a right pain but noddy offers the opportunity of setting them up as they will be seen. Further, you can still make the noddy page any colour you like by giving the appropriate PAPER and INK commands BEFORE the PLOD command and then returning to BASIC.

EG. 10 INK 1:PAPER 15:PLOD "INST"

20 IF INKEY\$="" THEN GOTO 20

INST

*D INST2. *R

INST2

TEST PAGE

The INKEY\$ statement at line 20 could just as well be a Y/N decision gate or an ON K-1 GOTO type multi-choice option. I used this type of menu in quite a bit of PRINTLINER.

Nigel Cooper

FDXB Help . . .

I've recently had several phonecalls from people having problems with FDXB on the 3.5 inch CPM systems. It would appear that in the selling of second hand systems, the following piece of information has been lost, it was originally supplied as a separate sheet to the manual and reads as follows.

FDXB AND THE SILICON DISC

FDXB, the disc based version for the original FDX CPM computer was written to be compatible with the MTX tape based computers and because it is fatally incompatible with the normal and you can't make use of the silicon disc while running FDXB. However all files created by FDXB are fully CPM compatible and other BASICS such as BBC CPM, M BASIC, CBASIC etc etc are fully compatible with CPM and hence the silicon disc. Because of the incompatibility mentioned it is necessary to make a special disk for use with FDXB, it must be 54K system disc with at least the following files resident.

1. FDXB.COM
2. NCPM.COM

A 54K system disc can be created as follows :-

Make a complete copy of the system disk including the system tracks

Execute the SUB files

A>SUB CPMGEN 54 B:<RET>

Alter the startup screen to exclude SIDISC.COM

A>STARTUP CONFIG B:07<RET>

Erase the files you don't need using ERAQ.COM

Hopefully this will solve a number of problems people have been contacting us about.

Thanks to Paul Wood for bringing this to light.

Contacts

General

For general information, membership renewal, journal contents, marketing, advertising, constitution, commercial software, 3.5" to 5.25" to 3.5" conversions contact: **THE SOFTWARE SOURCE, 12 ROEBANK ROAD, BEITH, AYRSHIRE, KA15 2DX. TEL: 0505 52491**

PD Software

For all public domain software orders, latest updates, and general enquiries about the PD Library: **THE SOFTWARE SOURCE PD SOFTWARE LIBRARY, 1 SAXON DRIVE, ROWLEY REGIS, WARLEY, WEST MIDLANDS, B65 9RD, TEL: 021 559 8345.**

Hardware Problems

For all hardware repairs / reconfigurations, communication difficulties or hardware problems, contact: **PAUL WOOD, 12 BISHOPS AVENUE, WORCESTER, WORCS, WR3 8XA. TEL 0905 24260.**

Hollines

If you have a programming problem, we are here to help: (Please phone between 7pm and 9pm on weekdays and in the afternoon and between 7pm and 9pm at weekends)

BASIC - A Hamilton 0505 52491

Assembler - P Wood 0905 24260

CP/M - B Houghton 021 559 8345

Pascal - A Hamilton 0505 52491

All others - B Houghton 021 559 8345

No phone?

If you cannot get to a phone to contact us about anything, we are pleased to receive your letters on any computing problems you may have.

Can you help us?

Do you have any ideas on anything that The Software Source could provide for its members? Can you help to provide something which we can't? We want to hear from you if you can help us! Please!!!

News Desk ... News Desk

With me taking over Editorship of the journal I felt I'd best let you all know a bit about myself. I've just completed a four year degree course at Leeds Poly in Computing and Operational Research. (Of that I won't bore you with the details) I work (II) for a large holiday company as a computer programmer. My original MTX500 has been converted to series 2 with 3.5" CP/M system , DMP2000 printer and a modem I don't use as yet.

Anyone who has tried contacting me by phone I do apologise as I am never in early evening (normal Hotline times) usually still at work. The best thing is to write with SAE if possible, or try after 9pm or weekends. This applies to me only!!!

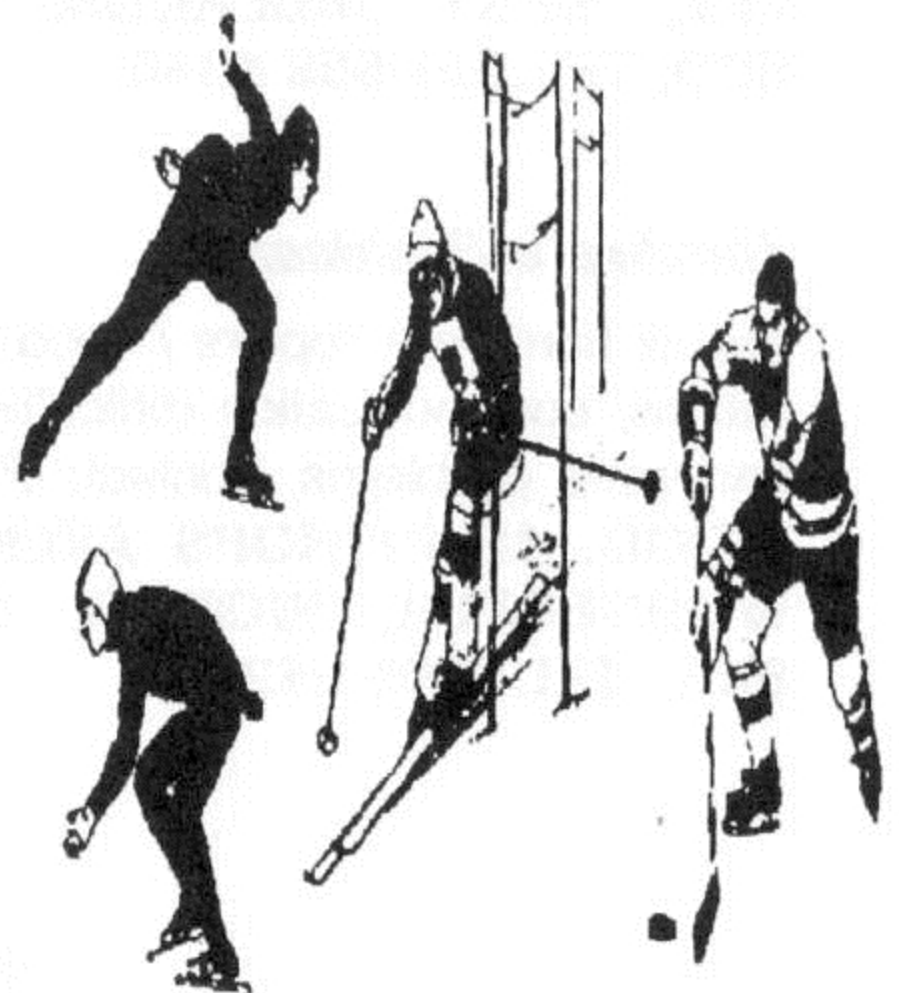
The Alternative Micro fair draws nearer and for those who are going here a some rough directions as supplied to us:

BINGLEY HALL IS LINKED BY FAST BY-PASS VIA SHOWGROUND TO J14 ON THE M6 , A DISTANCE OF THREE MILES. PUBLIC TRANSPORT SERVES THE SHOWGROUND FROM THE CENTRE OF STAFFORD.

Take the family / friends and have a fun day out with a chance to see all these famous faces in one place. Alan has details of the Scottish show the following weekend at the LIVINGSTON FORUM

NOTE:- Please use the following address for all general correspondence ,

commercial software orders etc .
Andy Fox THE SOFTWARE SOURCE
56 Rochester Street Bradford West
Yorkshire BD3 8ED Phone 0274
668765 (1 line)



LOOMING PR SPIRIT 28