ARE YOU WITH US? (Editorial)

We are keeping the nominal Sept.-Oct. name for this issue, even though it didn't even make 1981!   But we intend to make it up. V2:5, completing this volume, will also be sent under this subscription probably in February.   Then we hope to get back on schedule with V3:1 in March.

We're late but happy, catching up on routine work after some very good Forth meetings in California - and Jill from a remarkable month-long research cruise from Boston to Bermuda to Nassau in the Bahamas.   She did this on the Regina Maris, a 144-foot barkentine owned by the Ocean Research & Education Society. A barkentine is a three-masted sailing vessel with a square-rigged foremast; equipped with a TRS-80 Model III and THE DATAHANDLER, it becomes a fine platform for organizing data on over 1,000 identifiable humpback whales in the North Atlantic! Jill and I both joined the Regina for an 8-day preliminary cruise on the fishing banks off Cape Cod, back in October. Who says computer programming is a sedentary lifestyle?

We are sending this issue to all MMSFORTH licensees. If you didn't subscribe in 1981, we hope this copy will inspire you to step up your activity with Forth.   MMSFORTH Version 2.0, our hot new environment for better and more enjoyable computer programming, is much more powerful, incorporates the common word subset of 79-STANDARD Forth, and is even easier to use. We have improved or added over 100 routines, and it even comes with a mini word processor (THE NOTEPAD) as one of the demo programs! MMS also added interesting and useful applications software this year, and we and others are adding major new books to the Forth library at a gratifying pace. It's a good time to get back aboard!

We have some new information for our regulars, also. FORTHWRITE, our major wordprocessor, is now composing this Newsletter. It and our General Ledger program are with many users for final testing. Also, we are moving MMSFORTH onto the exciting new IBM Personal Computer! See the "Inside MMS" section for more details.

THE DATAHANDLER is better than ever running in MMSFORTH Version 2.0, and has been selling much more quickly since user Allyn Richardson's BYTE Magazine article first announced it to an unsuspecting world in November 1981, only 14 months after he submitted his draft! Magazine editors tell MMS that Forth articles are now in demand.   So why not learn some and then share the knowledge with others, while being paid back for the cost of your MMSFORTH or MMSFORTH application program?

Our custom assignments have been even more interesting, and you can be sure they will continue to generate more good standard products.   Perhaps most important of all, we have a brand new MMSFORTH USERS MANUAL and a super Forth text, STARTING FORTH, to go with it. Our MMSFORTH Newsletter continues to teach, to share, and to keep our users in touch. This issue is going to past users as a reminder that all these activities have been building while you've been away. For starters, $10.00 per year plus your MMSFORTH Serial Number will get you the rest of the MMSFORTH Newsletter issues for 1980, 1981, and/or 1982. We're doing all we can to make Forth your strongest and most enjoyable computer environment - are you?

-- A. Richard Miller, Editor 4th Class

SETTING FORTH (for beginners)

DO-IT-YOURSELF ARRAYS - SORT OF..

While updating a reader's contributed code into V2.0, I found myself playing with enough routines to have some sharing value for Forth beginners.   Follow along through these maneuvers and see what's to be learned. (Other than not to expect error-free magazine articles!)

Just for the challenge, we are going to create a set of ten one-byte values called FLAGS, so that one could store a 55 into the fourth box with 55 FLAGS 3 + C! (we are counting from zero, right?). Then we will define a word called PUT to put them there, and a fancier word called LOOK to display the present status on screen. Finally, we will define a word CHANGE to do both at once.

You could edit all this into a Forth block for later use and modification, but it is "throwaway" code and I just entered it at the keyboard as it developed.

Set up the 10-byte set with CREATE FLAGS 10 ALLOT

Then you can check the present settings with FLAGS 10 DUMP.

Let's zero out all values, with FLAGS 10 ERASE, then look again with FLAGS 10 DUMP. See, Forth works!

These experiments could be less awkward if we had some better manipulation words, so let's define them. We can put a 55 into Box 4 with 55 FLAGS 3 + C! so we can define a word PUT to do the same: : PUT   FLAGS + C! ;

Use it with   55 3 PUT and then test the result with FLAGS 10 DUMP. Okay, it works, but we could use another single word to take that look:

: LOOK   FLAGS 10 DUMP ;
That was easy, and will greatly facilitate further experimenting. Try putting some values in with PUT, and displaying the results with LOOK. Also experiment with FLAGS 10 BLANK, and with FLAGS 88 10 FILL, to see what these multi-byte Forth words can do.

Because we always seem to take a LOOK after doing a PUT, it makes sense to define one more word: : CHANGE PUT LOOK ;

Get the idea?   Debugging in MMSFORTH can be fun.   Do it by analyzing what kinds of actions you will be doing, then find easy words to test as you go.

Now for a challenge: can you modify LOOK to insert a new line (neatly arranged above its present one), counting from 0 to 9 to label each FLAGS box? This is not too easy, and will require your trying and adjusting until you get it right. The solution will be in our next issue...

GET-TOGETHER

Share your questions and answers with a MMSFORTH User Group! Contact MMS for help to start one in your region, or to revive one which seems inactive. Here is our present list of contacts for local MMSFORTH User Groups:

CA: Earl Mortensen, 974 Pleasant Hill Road, Redwood City 94061 (415/367-9882).
CA: Ken Nonomura, 416 Duncan Street, Apt. 5, San Francisco 94131 (415/285-5062).
CA: Morris Herman, 503 Rosario Drive, Santa Barbara 93110 (805/964-7144).
CA: Rich Royea, 6456 Lubau, Woodland Hills 91367 (213/704-6859).
FL: Bob Vest, 64 NW 111th Street, Miami Shores 33168 (305/751-7511 eves.).
IL: Walter Cooper, 5112 West 30th Place, Cicero 60650 (312/656-6183).
LA: Ed Laughery, 1222 Jason Drive, Denham Springs 70726 (504/665-7537).
MA: Jim Gerow, 22 Crestwood Drive, Framingham 01701 (617/443-9521 x3562 days, 872-1882 eves.).
MI: Kim Watt, Box 1013, Berkeley 48072 (313/288-9422).
MI: Bob Zwemer, 6408 South Washington, Lansing 48910 (517/393-9287).
NH: Gregg Reed, RR2, Box 167, Dumbarton 03301 (603/774-5311 eves.).
NJ: Paul Zucchino, 148 Bertrand Drive, Princeton 08540 (609/452-3585 days, 921-7629 eves.).
NY: Bernie Bergman, c/o Eagle Jewelry, 201 Canal Street, New York City 10013 (212/966-3414 days, 201/339-5575 eves.).
TN: Cliff Fiedler, 1908 Belcourt Avenue, Nashville 37212 (615/327-9123).
TX: Larry Goforth, 10203-J Golden Meadow, Austin 78758 (512/836-0981).
TX: Jim Shepard, 16210 Arbor Downs Drive, Dallas 75248 (214/661-9702).
TX: Dan Healy, 11511 Katy Freeway, Suite 150, Houston 77079 (713/496-4660 days).
WA: Rod Proctor, 13520 N.E. 29th Place, Bellevue 98005 (206/453-0635 days, 883-1923 eves., and MicroNet 70110,402).
AUSTRALIA: Peter Wragg, 2 Jilba Street, Indooroopilly, Queensland 4068 (07/378-1623, and CL1641 on The Source).
AUSTRALIA: Dave Dartnall, 20 Eldon Street, Dianella, Western Australia 6062 (09/446-8100).
CANADA: Kalman Fejes, 1149D Meadowlands Drive East, Ottawa, Ontario K2E 6J5 (613/225-2443).
ENGLAND: John Newgas, 1 Philip Court, 89 Hornsey Lane, Highgate, London N6 5LN (01/539-7071 days, 348-6518 eves.).
JAPAN: Akira Akutsu, M.D., 2-176 Issha, Meito, Nagoya, 465.
WEST GERMANY: Nigel Head, Birngartenweg 93, 6100-Darmstadt

NOTE: Program trading is one popular facet of these meetings, but NOT commercial programs and WITHOUT MMSFORTH SYSTEMS aboard! Promote legitimate sharing, discourage pirating, and take care not to jeopardize your own MMSFORTH serial number.

RECENT MODS TO DH V1.2

MMS thanks Wynne Keller of Solon, Maine for suggesting a few improvements to THE DATAHANDLER. She notes that the PAGE commands which look so good on screen waste lots of paper and time in the PRINTER mode. We want to conserve too, Wynne, so here's some code from Tom Dowling, to change it. Just substitute the following new Lines 10-14 in Block 19 and Lines 13-15 in Block 46 on your DATAHANDLER Source Diskette:

```
10 VARIABLE #P#    0 CONSTANT #P?                    ASSEMBLER
11 HERE HL PUSH #P# LHLD XTHL RET
12 HERE ' #P? !
13 PSW PUSH 14 CPI NC  IF 32 CPI CY  IF 10 A MVI  THEN  THEN
14 12 CPI =0 IF 10 A MVI THEN CALL PSW POP RET ( PRINTER: PAGE->CR)

13 ' PCRT 1+ @ 1+ CONSTANT PADR
14 : PRINTER PADR @ #P? <> IF PADR @ #P# ! #P? PADR ! THEN  PCRT ;
15 : NO-PRINTER  #P# @ PADR ! CRT ;
```

Loading this new routine will cause PRINTER to convert PAGE to a CR on the way to the printer buffer, solving the problem. What's that, Wynne? How will you get a new page when you really want one? Why, by using PCRT and CRT instead of PRINTER and NO-PRINTER, of course!

While you're in there, change QUIT to ABORT in the definition of $C# on Block 22 Line 15 of any DATAHANDLER V1.2.

Wynne also requested an absolute test for oversize record entries. Without such a test one might conceivably hang the system while ADDing or CHANGEing a record, by extending it beyond the available bytes above the file buffer in RAM. We've considered this rather unusual problem and decided against adding total protection to all systems, since the additional code is a poor trade-off in the present design. But we have two options for those who don't stay within their allotted bytes.

First, in early December MMS revamped THE DATAHANDLER's PRECOMPILE and DIR-INIT routines to make them much easier to use and to flag the exact file and record size trade-offs during compilation. If this is important to you, our usual $10.00 rewrite (plus $2.00 shipping/handling) is available. At the same time we also added V2.0 versions of SUMMARIZE and MERGE, featured in earlier Newsletter issues, as Blocks 84 and 85.

If you'd rather do it yourself and don't mind losing 68 bytes of RAM for greater protection, the following changes by Jill Miller will reject your verbose record entry with a warning:

```
Block 23, add Line 14:
14 : FULL ." Record full" $C# ;

Block 25, rewrite Lines 1-7:
 1 : #CK NUMBER C@ >R #PT C@ DUP 1 MAX #PH ! 0= IF HI# @ THEN #HOLD
 2 2! R> 32 = DUP 0= IF CR ." ## Enter numeric information only ##"
 3 " DELAY BACK    ." ?" THEN ; : ?STOP DUP $" STOP" $COMPARE 0= ;
 4 : #CK1 TFIELD C@ 78 = IF DUP  #CK  ELSE 1 THEN ;
 5 : GLF OVER LRC @ SWAP FIELD 8 EMIT DUP $. OVER $! ;
 6 : AIN DUP 1+ 'S OVER - 265 MIN 10 - DUP NOT IF FULL THEN
 7   EXPECT DUP 1+ #CHRS OVER C!
```

Block 39, move Lines 2-14 down one by inserting a blank line ahead of Line 2; then redefine GOF ("get-old-field") on Lines 1-2:
```
 1 : GOF  FIELD OVER OVER C@ 1+ OVER OVER 'S ROT - >
 2   IF FULL THEN CMOVE  DUP C@ + 1+ ;
```

FUN & GAMES

DOUBLE-PRECISION FACTORIAL NUMBERS

Last issue, we presented a recursive solution for single-precision FACTORIAL, as follows:

```
: FACTORIAL   DUP 2 < IF DROP 1 ELSE DUP 1- MYSELF * THEN ;
```
Were you able to define the double-precision version yourself? Here is our solution:

```
: DFACTORIAL  2DUP 2. D< IF 2DROP 1.
                   ELSE 2DUP -1. D+ MYSELF D*
                   THEN ;
```

CRYPTOQUOTE PUZZLE, by Jill Miller

The solution to last issue's cryptoquote was:
PLATEN: A SUPPLEMENTARY PRINT SPOOLING DEVICE WHICH CAN RETAIN, TYPICALLY, 20 LINES OF PRINT IN THE ABSENCE OF PAPER. - THE DEVIL'S DP DICTIONARY

(THE DEVIL'S DP DICTIONARY, by Stan Kelly- Bootle, is the funniest computer book we've seen in a long time! 140 pages of whimsical definitions for professional programmers, it's in stock at MMS for $7.50 plus S/H.)

Here is a new cryptoquote to solve using the MMSFORTH GAMES DISKETTE:

```
NPV HFXJN NPXVV QUXRAXUEVJJUXJ QVXV JU-JU,
MWN QV QXUNV NPV HUXNPQXFNV!          - LLJ
```

BANNER, by Michael K. Cook

These blocks from Britain are a neat routine to print a word of up to eight letters in super bold print on your printer. Each big letter is composed of many normal-size images of that letter. It's fun to make a banner for each of your friends, but Mike developed it in MMSFORTH for a professional application: his company produces a TRS-80 hardware interface for commercial television studios, to convert photographs to a high-resolution dot-plot printout, complete with these "banner" captions!

Block 141:

```
0 ( BANNER, by M.K.Cook G8HBR, 1 of 2 )  : TASK ; BLK @ 1+ LOAD
1 VARIABLE MESSAGE 12 MESSAGE ! 12 ALLOT  VARIABLE PS1 127 ALLOT
2 VARIABLE #ROW    VARIABLE #CHR    VARIABLE #BIT
3 : CLRMSG  MESSAGE 12 ERASE ;
4 : INPMSG  MESSAGE 8 EXPECT ;
5 : 3LF  3 0 DO  10 EMIT  LOOP ;
6 : EVEN/2  DUP 2 / SWAP DUP 2 / 2 * = ;
7 : ASCCVT  MESSAGE + C@ DUP #CHR  ! DUP 57 > IF 55 - ELSE 48 -
8          THEN 7 * ASCTBL + ;
9 : STBUILD  C@ 7 0 DO EVEN/2 PS1 #BIT @ + SWAP IF 32 ELSE #CHR @
10          THEN SWAP C! 1 #BIT +! LOOP DROP ;
11 : CHRLN   0 #BIT ! 8 0 DO I ASCCVT #ROW @ + STBUILD LOOP ;
12 : BAN     13 EMIT 7 0 DO I #ROW ! CHRLN   56 0 DO PS1 I + @ EMIT
13          LOOP 13 EMIT LOOP ;
14 : GETMSG CLRMSG CRT CR ." Enter 8-character message: " INPMSG ;
15 : BANNER  GETMSG PCRT 3LF BAN 3LF CRT ;
```

Block 142:

```
0 ( BANNER, letters & figures on a 5X7 matrix block, 2 of 2 )
1 VARIABLE ASCTBL 252 ALLOT  HEX
2 3E 02 04 08 10 20 3E  08 08 08 08 08 14 22 22 22 22 14 08 14 22 22
3 22 36 2A 2A 22 22 22  08 14 22 22 22 22 22 1C 22 22 22 22 22 22
4 08 08 08 08 08 08 3E  1C 22 20 1C 02 22 1C 22 12 0A 1E 22 22 1E
5 2C 12 2A 22 22 22 1C  02 02 02 1E 22 22 1E 1C 22 22 22 22 22 1C
6 22 22 32 2A 26 22 22  22 22 22 2A 2A 36 22 3E 02 02 02 02 02 02
7 22 12 0A 06 0A 12 22  1C 22 20 20 20 20 20 1C 08 08 08 08 08 1C
8 22 22 22 3E 22 22 22  3C 22 32 02 02 02 3C 02 02 1E 02 02 02 3E
9 3E 02 02 1E 02 02 3E  1E 22 22 22 22 22 1E 1C 22 02 02 02 22 1C
10 1E 22 22 1E 22 22 1E  22 22 3E 22 22 14 08 0E 10 20 3E 22 22 1C
11 1C 22 22 1C 22 22 1C  04 04 04 08 10 20 3E 1C 22 22 1E 02 04 38
12 1C 22 20 20 1E 02 3E  10 10 3E 12 14 18 10 1C 22 20 18 10 20 3E
13 3E 02 04 18 20 22 1C  1C 08 08 08 08 0C 08 1C 22 26 2A 32 22 1C
14 DECIMAL
15 : TBLLOAD  252 0 DO ASCTBL I + C! LOOP ;  TBLLOAD
```

KALEIDOSCOPE SPEED-UP, by Dave Huntress

Block 164:

```
0 ( 08/03/81 FKSCOPE, fast KSCOPE by D.Huntress)      : TASK ;
1 RANDOM GRAPHICS ARRAYS  0 CONSTANT DR
2 0 CONSTANT X    0 CONSTANT Y   0 CONSTANT LENGTH
3 8 ARRAY   DX    8 ARRAY   DY
4 : CDR 8 RND ' DR ! ;  : CLE 40 RND ' LENGTH ! ;       : 4DOTS
5   Y X ESET 47 Y - X ESET Y 127 X - ESET 47 Y - 127 X - ESET ;
6 : RESTART PAGE 64 ' X ! 23 ' Y ! 1 ' DR ! ;
7 : GOX -1 -1 -1 0 1 1 1 0 ; : GOY -1 0 1 1 1 0 -1 -1 ;
8 : INIT GOX 9 1  DO I DX ! LOOP GOY 9 1 DO I DY !  LOOP ;
9 : ?FIT X LENGTH DR DX @ * + 1 < IF    X 5 - ' LENGTH ! THEN
10   X LENGTH DR DX @ * + 62 > IF 60 X - ' LENGTH !  THEN
11   Y LENGTH DR DY @ * + 1 < IF  Y 5 - ' LENGTH !  THEN
12   Y LENGTH DR DY @ * + 20 > IF 18 Y - ' LENGTH !  THEN ;
13 : FKSCOPE RESTART INIT  BEGIN 200 0  DO CDR CLE ?FIT  LENGTH 0
14   DO DR DX @ X + ' X ! DR DY @ Y + ' Y ! 4DOTS LOOP
15   LOOP RESTART 0       UNTIL ;        FKSCOPE
```

INSIDE TRACK (for intermediate users)

CUSTOMIZE A NOTEPAD SYSTEM

CUSTOMIZE is more than a SYSGEN (System generating) utility. Advanced programmers also use it to combine their already customized MMSFORTH with their, or our, specific add-on source blocks to create a new and more complete precompiled system. To demonstrate this idea with a practical example, here is how you can create a precompiled NOTEPAD diskette.

Our game plan will be to remove the DIRectory (it's wasted code on a disk that always runs THE NOTEPAD), to load the source code blocks for THE NOTEPAD, and to precompile the final product by using

CUSTOMIZE. However, we have several special problems to consider. How will we load THE NOTEPAD and then CUSTOMIZE, having lost DIR? What special word(s) must be loaded to support the planned additions? What word(s) will be modified or forgotten by the additions, and should other steps be taken in view of this?

Forgetting the DIRectory (as redefined on Blocks 40 and 41) is as simple as entering FORGET DIR; this leaves us with the lower definition of DIR: DIRBLK LOAD.

At this point the system no longer will know which block numbers to load for NOTEPAD and CUSTOMIZE, but we can look these up beforehand on those blocks or in a printed disk index such as the one at the back of Appendix 1 of your MMSFORTH USERS MANUAL. Then we can load them aboard by keying in appropriate commands. For example, 100 6 LOADS will load THE NOTEPAD for Model III users. Because all NOTEPAD blocks except the last happen to be completed with -->, 100 LOAD also would load all six blocks.

CUSTOMIZE can be loaded with 86 LOAD, but if this is done immediately after loading THE NOTEPAD a problem will result. CUSTOMIZE does a FORGET DIR which, in the absence of the DIRectory in its normal position at the top of the dictionary, will forget the early "DIRBLK LOAD" definition of DIR and thus will forget THE NOTEPAD, as well! Why does CUSTOMIZE want to forget DIR? Because that is a desireable feature in the common (but not general) case of adding System Extensions such as STRINGS; for each extension added, the directory is designed to remove itself, add the extension, and then replace itself on top. But our application is not an Extension in that sense, and the DIRectory cannot properly handle it automatically. Once the problem is understood, the solution becomes available. Insert a dummy definition of DIR: : DIR ;. Now when you CUSTOMIZE, instead of forgetting NOTEPAD it just forgets the dummy definition which was set up for that purpose. (For further information on this operation see Appendix A-8 of your MMSFORTH USERS MANUAL, and use CATALOG to display your present MMSFORTH dictionary status.)

Answering the CUSTOMIZE prompts, you can reply zero for directory block number - one won't be used anyway. When the CUSTOMIZE operation prompts you for Auto-command:, again the normal response, DIR, will be a mistake. Instead just press Enter, to boot into the MMSFORTH front-screen until the user enters 128 NOTEPAD or the equivalent. Or if you prefer, insert that prompt upon boot by answering the Auto-command prompt with Enter n NOTEPAD to continue.

Now press Enter, and swap a formatted diskette into Drive 0 when prompted. After CUSTOMIZE completes writing its material, you can reboot the new diskette to enjoy an instant-loading version of THE NOTEPAD!

Advanced assignment: You probably can start your new NOTEPAD text area on Block 16. For a still more elegant version, define yourself a new NOTEPAD definition to load by page number instead of block number, where Block# = (page# * 4) + 16. Then use Page 0 as a Table of Contents of your NOTEPAD pages. Use NOTEPAD to edit it with numbered lines describing each of 60 pages. For a finishing touch, have Auto-command do a 0 NOTEPAD to present this information upon start-up!

PERIPHERAL TALK

TYPE-'N-TALK CABLES - GETTING IT STRAIGHT

Which came first, the program or the cable? We were wondering that ourselves, as we belatedly discovered that last issue's Type-'N-Talk program and Dave Lindbergh's cable design are incompatable as printed. Our program runs fine with the simple three-wire cable described, and Dave maintains that his fancier cable also works fine - but not with our source code.

MMSFORTH QUICKIES

KEEP IT CLEAN!

The looseleaf binder for your MMSFORTH USERS MANUAL, that is! The cover vinyl (and we are specifying the best!) has a tendency to pick up Xerox "ink". Where possible, avoid leaving Xerox type and newsprint pressed against your binder surfaces. If it's too late for that, here's how to clean the resulting smudges. Rub lightly on the smudges with a clean rag dipped in common lacquer thinner until the ink is removed; then "rinse" with a water-wetted rag. To be sure, test it on an inconspicuous surface, first!

LOWERCASE SELF-SHIFT

Did you ever try to enter a standard Forth command such as DIR while actually in lowercase mode, and discover that "dir" only provided an error message, instead? Bernie Bergman of New York City asked if we couldn't provide a way to have the lowercase response automatically shift itself back to the expected uppercase mode. This might be a good idea for some common mistakes, and here's a way to do it in MMSFORTH:

```
: dir   0 CURSOR 6 + C!   DIR ;
```

As you may have guessed, storing a 32 instead of a 0 will move Forth back to lowercase mode. Now that you've got the idea, you can use it where it fits.

MODEL III VIDEO-SUPPRESSION, by MMSFORTH author Tom Dowling

Here's a little-known fact of TRS-80 Model III hardware. To "clean up" the interference patterns which can streak Model I graphics displays during CPU processing, the Model III's video display raster is normally suppressed during CPU operations. This looks good, but sometimes you would prefer to trade that suppression feature for quick processor response on screen updates. Well, with the software switch routine given below, you can!

```
HEX
: SUPP-OFF   4210 C@ 0DF AND DUP 4210 C!  0EC OUTP ;
: SUPP-ON    4210 C@ 020 OR DUP 4210 C!  0EC OUTP ;
DECIMAL
```

One useful application of this feature is the (direct to video RAM) disk drive test we shared in Issue 1:1 of this Newsletter. It visually monitors the real-time effects of a faulty sector-read, and so is an important diagnostic tool for the user or service personnel. Until now we have said this test was for Model I only, because the Model III's double-density disk operations couldn't transfer to video RAM fast enough while blanked out part-time. Now, with our screen-suppression switch off, you have the disk test; with it back on, you have your crisp video displays.

```
: DISKTEST   SUPP-OFF  179 * 15360 SWAP
  BEGIN  OVER OVER RBLK  OVER OVER 178 + RBLK  ?KEY
  UNTIL  DROP DROP SUPP-ON ;
```

To test Drive 1, for example, put a formatted diskette into it and enter 1 DISKTEST. Isn't that nice?

If your Model III is souped up with non-standard disk drives, you will have to modify the above routine: its values 179 and 178 presume 179 blocks (40 double-density tracks) per drive and 178 as the highest relative block number on each drive.

INSIDE MILLER MICROCOMPUTER SERVICES

FORTHWRITE

Our fancy word processor, FORTHWRITE, is now in beta test sites and earlybird MMSFORTH users are invited to inquire. The preliminary version temporarily lacks the ability to use DATAHANDLER file information (although it can use its own file-like system). It CAN drive letter-quality printers with constant-pitch printwheels in this Newsletter issue's "proportional mode" (like WordStar), and can drive proportional printwheels in TRUE proportional mode. It already provides just about all the functions of SCRIPSIT with SuperScript, plus over a dozen more, and it does it faster and better. Model I or III FORTHWRITE will cost $175. If you want to shake it out with MMS, the draft version is ready now!

GENERAL LEDGER

We have been releasing some MMSFORTH GENERAL LEDGER drafts to beta test sites, as well. And getting very good feedback while our users are getting their work done. It will cost $350 on Model I or III. Early bird clients can start now; others can place orders against availability of draft documentation.

AUTOCODER

We are still improving our MMSFORTH AUTO-ASSEMBLER, which we now call an autocoder (because that's what it is, and we understand that IBM hasn't used the name for a generation or so). Expect this to become an advanced professional product in mid-1982.

IBM PERSONAL COMPUTER

Speaking of IBM, guess which computer will be the next to get a standard version of MMSFORTH? We have been enjoying the IBM Personal Computer and expect to introduce a remarkably Model-III compatible version of MMSFORTH for it. For example, we intend to pop diskettes back and forth between it and the TRS-80's! The answers to those two questions you just asked are: $250 and April 1982. Beta test site candidates can contact us immediately.

MMSFORTH GLOSSARY ON QUICK-REFERENCE DISKETTE

The MMSFORTH Users Group of Eastern Massachusetts announces the V2.0 Glossary on disk, an update of its previous Quick-Reference Glossary Diskette for MMSFORTH V1.9 (see V1.4, p.2). It contains the QGLOSS file, plus a READ-ONLY program to display it or other DATAHANDLER files without requiring THE DATAHANDLER itself. QGLOSS rearranges the MMSFORTH V2.0 Glossary for look-up by functional grouping, by word-name, etc. To get a single-density copy of this disk, send $11.00 with your name, address and MMSFORTH serial number to Jim Gerow (see Users Groups listing).

MMSFORTH MODIFICATIONS

DISK I/O CODE CHANGE (MODEL I)

Our MMSFORTH Users Group in England has reported strange goings-on resulting in disk I/O malfunction on all early copies of MMSFORTH V2.0, when run on "new-ROM" TRS-80 Model I's (the ones that display "R/S" instead of "Radio Shack" on the BASIC front screen). Supersleuthing by Group Chairman John Newgas, Victor Saleh and others has revealed that, despite reports to the contrary, most if not .all recent Model I's sold in England have had their clock circuit "tuned" for more satisfactory 50-Hz operation - except in the case of our original V2.0 disk-driver routine! As a result, FORMAT mistimed enough to miss a bit of the sector header. It looked good, but the following BACKUP would fail to find the sector, giving a WRITE? error instead. Case closed, with a copy of STARTING FORTH to John Newgas, a free Newsletter renewal to Victor Saleh, and the following upgrade by MMS. To modify your own V2.0, bring up MMSFORTH with DIR, LOAD this block, and complete the CUSTOMIZE routine.

Block 60:

```
0 ( Disk driver fix - slow systems 10/30/81 TBD ) HEX
1 ( MODEL 1 only                                 )
2 EC01 53D5 !    0037 53D7 !
3 1 0C MMS C!
4 ( Read )     : !T OVER ! 2+ ;    53E9
5 0A00 !T       300F !T      0F03 !T      F930 !T      7EF3 !T
6 1312 !T       0F0A !T      0830 !T      300F !T      7EF9 !T
7 1312 !T       F418 !T      E60A !T      FE81 !T      2801 !T
8 0AF9 !T       C9FB !T      DROP
9
10 ( Write )    5422
11 0A00 !T       300F !T      0F03 !T      F930 !T      7EF3 !T
12 2312 !T       0F0A !T      0830 !T      300F !T      7EF9 !T
13 2312 !T       F418 !T      01C3 !T      0054 !T      DROP
14 FORGET  !T    CUSTOMIZE
15 DECIMAL
```

CHECKBOOK PATCH

Martin Smith of Houston, Texas gets a 1-year Newsletter renewal for first-class bug-swatting! If the production write-protect tab on your diskette is earlier than 01/18/82, it may need this easy change. In Block 4 of the CHECKBOOK program (that's Block 115 on the Model III System Disk, Block 68 on the Model I Programs Disk, and Chapter 8 in your MMSFORTH USERS MANUAL), two words in from the left edge of Line 8 change the OVER to a DUP in order to avoid occasional input errors. As Marty correctly points out, OVER returns a negative for an amount over $327.67!

HOT PATCHES AND INSIGHTS FOR V2.0 USERS MANUAL

We've been patching some more minor pot-holes in the early copies of our new MMSFORTH USERS MANUAL. Here's what was done, and why.

In Section 3.2, we did not adequately explain that --> will override any LOADS command which is presently underway. Thus, if you say 50 4 LOADS and Blocks 50 and 51 have -->'s, only the first three blocks will load! We also made mention of this under LOADS, both in Appendix 4.5.3's Table of Class Two and Three Words, and in the MMSFORTH Glossary (Appendix 9). This can become a significant problem every once in a while, in which case you should replace all or at least the sensitive occurrences of --> with a LOADS command. Or you might consider calling several sequential LOADS operations to load the entire group(s). Although MMS used --> in the source code blocks called by our DIRectory, you can edit them out when it becomes desireable. Choose the best way to load multiple blocks for each specific task.

In the Special Cases Table of Appendix 4.5.3, we've also noted an until-now unspecified change of definition caused by the move to 79-STANDARD Forth: in MOD, /MOD, */MOD and the rest, the result (remainder) now has the same sign as the numerator, not the resultant as in MMSFORTH V1.9. This is specified in the Glossary, but the fact that it is a change was not emphasized. The TRANSLATE Utility will not flag this change because it doesn't matter anyway unless you are taking the remainder of a division using at least one negative number - a rather unusual circumstance for a MOD operation.

The CUSTOMIZE write-up in Appendix 4.7 has been amended, also. Under Auto-command:, we now note that the proper reply for a standard MMSFORTH System Diskette is DIR .

Several of you have called concerning the May-June issue's reference to a pink error sheet (dated 07/17/81). All earlier V2.0 users should have received it, but your Editor belatedly realized that the first run of these sheets was on white paper, not pink (making my face pink, not white!). So don't worry if you were in this group, you still received the same information. And, of course, newer copies of our V2.0 software already incorporate those various patches.

NEW AT MMS

THREE NEW BOOKS: TRS-80 ASSEMBLY LANGUAGE, by Howard Howe
TRS-80 DISK INTERFACING GUIDE, by Bill Barden
THE 8086 PRIMER, by Stephen Morse

We're mentioning these books together, because we think the same people will like them. You don't need them to learn Forth, but Forth is such a good tool for digging deeper into your microcomputer and using more and more of the low-level goodies that these books are welcome new additions to the "software hacker's" library. All are stocked at MMS, and at good prices!

Howard Howe has produced TRS-80 ASSEMBLER LANGUAGE from a series of articles he wrote for the COMPUTRONICS Newsletter. It will teach you the Z-80 instruction set, with heavy emphasis on how to use it in the TRS-80 Model I environment. This is an important difference, and you will value his insights into what's what inside your computer. Just $9.95 plus shipping and handling.

Bill Barden first wrote the TRS-80 DISK INTERFACING GUIDE back when disks were a very new option for the TRS-80, and we sold many copies back then for $4.50. We also sold a bunch of source listings of his companion Assembler program, DISCIO, at $2.50. Here they are together, in better print and with quite a bit of improvement, all for $5.95 plus S/H. If you want to understand how the Model I handles disk input and output (much of which also is valuable for Model III), get it now!

THE 8086 PRIMER is a good book for MMSFORTH Assembler users who are eyeing the new IBM Personal Computer: 16-bit internal processing, 8-bit I/O, direct addressing of over 1 million bytes of RAM via memory segmentation, whee! Its 8088 CPU is nearly identical to the 8086 - only two different commands, and they are also covered in this book by one of the designers of the 8086 chip. It's $10.95 plus S/H.

As usual, remember to add shipping/handling: $2.00 for the first book, plus $1.00 for each additional book; overseas, please include well over your estimate and we will return the surplus with your order.

THE LAST WORD: "Let us go FORTH and lead the land we love."
- Inaugural Address of President John F. Kennedy
(submitted by Dr. C. Kuznia of West Germany)

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