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Nov & Dec 1983

....

Well here we are at the end of another year for the newsletter

One of the common questions we hear is "what will you be doing and where will you be next year? Well we'll be in the same place and doing just about the same things.

Geo*Grafix will be putting out the newsletter for 1984 but we will still be handling the maintenance, APF programs ,periperals, and just about anything else you can think of. Still no word by the way on the FI-100 replacements.

Geo*grafix will do a fine job For 1984 and we look foreward to their first issue just like you do.

It's really amazing how you members have grown during this last year, Fish out some of the old NICC.'s and read some of the questions you were sending out at the time and compare them to the questions in this months issue - see what I mean.

!!!

To show our appreciation to all of the 1983 MEMBERS I have written a LUNAR LANDER program which is in machine language and I think is a good one, so it you want it all you have to do is pay postage and handling of 2.95 for it or if you send in your 1984 membership dues before Dec 31,1983 it is free. **So hurry and get that membership fee in.**

Here are some other things that have been sent in by members and you can get them just for the cost of printing, shipping & handling.

1. From Louis Bolduc, all you need to know about the **DOS**, (DISC OPERATING SYSTEM) just $2.00
2. From Thomas Fairbairn, instructions for modifing the IM-1

for use with a monitor.... just $2.00

3. From Thomas Fairbairn, a very detailed explanation for the use of the APF Assemblier and Editor programs (appx 30 pages) just $7.00

4. Also for those out there that are serious about learning how the IM-1 does its thing here are the orginal MACHINE LANGUAGE ASSEMBLY listing for only $19.95.........

You will notice that the issue is a lot bigger than normal, well for those that missed it we are combining the Nov & Dec issues because of postal problems. You will see that the pages 11 - 20 are the Dec issue and they are all programs, just for your Christmas gift.................

FROM LOUIS SABO

I have a question about choosing a disc drive for my computer. Can the FI-1ØØ work with a SS\DD disc? I am not worried about unused capacity, but whether it can store and retrive data. A computer I am building is going to be formatted for double density and I would like to get a disc now and use it with the APF until the other is finished.

ANSWER:: If the drive you want to use is compatable with the SHUGART 4ØØL drive it will work. This is a very common type of drive and most of the 4Ø track 5 1/4 inch drives are compatable with it..... Be sure to check with the dealer on this or check the schematics yourself for the compatability

GOOD LUCK ON YOUR COMPUTER!!!! Let us know how it turns out.

##

FROM RONNIE CARTHAN

I would like to know if yo have any info as to how to access the GRAPHIC portion of the GEMINI 1Ø-x printer? can you help?

ANSWER: Here are 2 simple programs that demonstrate how to use the Block & Hires ability of the GEMINI 1ØX printer.

```
1 REM HERE IS A SIMPLE PROGRAM TO PRINT BLOCK CHARACTERS ON THE
2 REM GEMINI 1ØX PRINTER
5 PRINT=1:REM TURN ON PRINTER
1Ø PRINT CHR$(27);"A";CHR$(6): REM THIS SETS LINE SPACING TO 6/72
15 FOR K = 1 TO 3
16 PRINT CHR$(27);"B";CHR$(K): REM THIS SETS THE 'CPI'
17 RESTORE
18 PRINT CHR$(27);"": rem this sets the 8th bit in the printer
19 REM BECAUSE THE IM-1 CAN ONLY SEND 7 BITS
2Ø FOR J = 1 TO 9: FOR I = 1 TO 12: READ A
45 IF A > 127 THEN A = A - 128
5Ø PRINT CHR$(A);: NEXT I : PRINT : NEXT J
9Ø DATA 224,224,224,224,224,224,224,224,224,245,224,224
91 DATA 224,224,224,224,224,224,224,224,252,245,224,224
92 DATA 224,224,224,245,224,224,224,252,239,245,224,224
93 DATA 224,224,252,245,224,224,252,239,239,245,224,224
94 DATA 224,252,239,245,224,252,239,239,239,245,224,224
95 DATA 252,239,239,245,252,239,239,239,239,245,224,224
96 DATA 241,241,241,249,241,241,241,241,241,249,224,224
97 DATA 239,175,239,175,239,175,239,175,239,175,239,251
98 DATA 253,239,239,239,239,239,239,239,239,239,251,224
99 PRINT: NEXT K: PRINT CHR$(27);"@": REM CLEAR  PRINTER
1ØØ PRINT=Ø: END

1 REM THIS PROGRAM WORKS IN HIRES MODE ON THE GEMINI 1ØX
5 PRINT=1: RESTORE: PRINT CHR$(27);"@": REM CLEAR PRINTER
2Ø PRINT CHR$(27);"1": REM SET PRINTER TO 7/72 LINE SPACE
3Ø FOR CHAR = 1 TO 5: FOR LINE = 1 TO 2
4Ø PRINT CHR$(27);"K";CHR$(114);CHR$(Ø): REM SET PRINTER TO 6Ø
41 REM DOTS PER INCH
5Ø  FOR SPACE =1 TO 1ØØ: PRINT CHR$(Ø);: NEXT SPACE
6Ø FOR COLM = 1 TO 14: READ C: IF C > 127 THEN C = C-128
7Ø PRINT CHR$(C);: NEXT COLM: PRINT : NEXT LINE : RESTORE
75 NEXT CHAR
8Ø DATA 14,16,34,64,12,12,Ø,Ø,12,12,64,34,16,14
9Ø DATA 96,16,1Ø4,68,34,18,18,18,18,34,68,114,16,96
1ØØ PRINT CHR$(27);"@": PRINT : PRINT =Ø
12Ø REM CHANGE LINE 4Ø TO PRINT CHR$(27);"L";CHR$(114);CHR$(Ø)
122 REM TO GET DIFFERENT RESULTS.....
```

These are 2 very simple programs which you can expand to do more difficult things. To get more information write to the STAR people and ask for the GEMINI USERS MANUAL.....

??

MAINT BOX MAINT BOX

Here is a list of the most common Hardware problems & fixes...

1. Only trash on the screen after turning unit on.

a.Usually due to bad power supply (broken wire in the connector on back of MPA-1Ø or bad voltage regulator (IC1 OR IC2) in the tape unit, or bad BASIC INTERPRETER)....

2. After hitting EN key only trash on screen.

a. This is usually a bad memory chip in the MPA-1Ø and I usually find it by substitution. It can also be a bad 'j' conn., or it can also be the same as 1.a. above.

3. The tape unit will not load or save.

a. Most common failure is IC4 (4Ø53) on the tape unit. Another failure is the multy contact switch on the AUDIO RECORD button, this switch will become sticky and will not open fully. It needs to be cleaned.

FROM SCOTT RICH

I called you about Wednesday and asked you about machine language. You told me to look up a bookstore called B DALTON, well, we do have a B DALTON bookstore...but...they don't have "6800 ASSEMBLY LANGUAGE" the lady told me they have a number of assembly language books for the Commodore Computers and she said they have 6500 assembly language 8086 assembly language 8080 assembly language Could you write back and tell me which one of the books can I get? If neither of the books will work, will you buy one there and send it to me?

ANSWER.... No Scott, those other books are for an entirely different chip and won't hely you working on your IM-1. Most bookstores are happy to order for their customers but if your local outlet doesn't do that then here is the address of the publisher.

OSBORNE & ASSOCIATES , P.O. BOX 2036 , BERKELEY , CA. 94702

Ask for 6800 Assembly language programming, by Lance A Leventhol.

What other functions does the "ESC" key have (do)??

ANSWER... The "ESC" key can be used with a printer or a modem to generate the charactor CHR$(27). This is a special code used to control the functions of the printer.

Is there a monitor I can buy?

ANSWER.... APF had a monitor at one time, but there don't seem to be any left. Most folks have been satisfied to connect their computer to a standard television set. We don't carry any monitors through the club.

****

FROM WE LOST THE NAME

I have a Gorilla Banana printer with a data length of 1 start bit, 8 data bits (fixed amount), no parity and a 1 or more stop bits. The APF SI-232 uses a 7 bit sata word, even parity and 2 stop bits, is there any way I can modify one so they could be used together?

ANSWER.. First off you need to be sure that the printer cannot changed to 7 bit. At this moment the only thing you could do is write a machine language program to use the printer.

;;

from name lost

Did you ever receive an order from the veterans administration medical center here in ashville. The hospital has a couple of IM-1's used in nursing education and therapy departments. The computers at the VAMC are used by the patients as part of their therapy programs. I teach them how to program. I am a volunteer there volunteering my services thru the disabled American Veterans. Do possibly have any software available that would be usefus in this program?

Right now there aren't any programs I know of that would work in your favor specifically for the rehabilitation of he veterans or the nurses except the basic tutor. But there might be some CLUBMEMBERS out there that could help you by writing some programs for the Veterans Center. If there ever was a worthy cause then it. GOOD LUCK

++;;

FROM H A MORGAN

My IM-1 package (RS-323, FI-100, R8K et.) has been a real pleasure. It works with an elderlt Baudot teletype for a printer and receives ASCII from a receiver. It plays chess and backgammon (chess translated from an 8080 based machine ----Interact)

And until last week, it performed all basic chores. It no longer likes strings. Unles, of course, I change to another BASIC catrage.

Nice thing about having TWO IM:1's is the redundancy factor beats the hell out of sending a malfunctioning machine for service.

In any event, my VERY elderly interpreter works in both machines.

The question is : since only ONE routine is out in the BASIC cartrage then either the 4K or the 8K ROM chip is bad---or (unlikely) a circut board trace is open\shorted. In the latter case my FUNCTION\ROM tape check shall have shown "tilt".

QUESTION: Do you sell ROM chips seperately?

QUESTION: How much does it cost to have my cartrage serviced assuming ONE bad ROM?

Note: ALL my computer equipment runs on 98 volts AC and massive "spike" protection. It is entirely removed from house wiring when not in use--and unplugged from the communication receiver.

ANSWER... Yes we do have the chips and they are $14.95 each with no guarentee. If you send it to us it is $29.95 +$2.00 p&o to fix.

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FROM GUY MILLER

As you have been requesting more input from the clubmembers, here is something that should have been included in my answer to yoor survey. Some of us out here are not computer experts, but bought the IM=1 and jouned clubs to learn BASIC and as much as we are capable of learning. I feel that programs should be documented, with operating instructions where needed annd REM statements to give us dummies an idea of what iis doing what in the program structure. While on the subject, I will quallify my key\switch cleaning tip. I specified freon TF as it is an electronic degreaser\solvent, made for the later TV tuners with plastic parts. Some of the tuner & pot cleaners are made with petrolium distillates which will melt plastics, and oil which is a residual that will collect dust and make it almost impossible to clean this type switch short of dissassembly which is a chore on this type keyboard.

"""

FROM DON SCHMIDT

Howdee Jim! Hi there Milly! Well this looks like the last time I may be writting to you, but I have some information I'd like to share with you and fellow clubmembers.

The enclosed program listing is yet another solution to the problem\question posed by Bill Bowman in the Sept. '83 issue of the newsletter (pg2), comcerning the "loss" of data in diminsoned variables. Your sosutions are certainly workable for some, but not all IM-1 owners : 1) I don't have a disc drive unit; 2) there may be problems trying to read back from tape; 3) limited amount of space on low core.

I have a solution which provides for use of all the space from the end of the program to the end of memory, regardless of how much memory a given machine has on it. Whatever you have is what you get. You correctly pointed out that arrays are "shifted" in memory as program statements are added and\or deleted. To re-establish array pointers in the pointer table, it is necessary to "RUN" the program following any changes before it can be saved. Also, when a program following any changes before it can be saved. Thus "RUN" only clears the variables in the machine while the program is still resident (no power off or "reset"). If power is turned off or the "reset" button hit, and program re=loaded, all simple variables in the progam will be zero.

The pointers to the variables used by any program are not established until the initial "run" of the program and at the time the variable label is encountered. This is no real problem so long as the variable labels do not change with each invocation of the program. Hardly!! So much for the minor details. On to the important part. What is critical if a program is trying to use arrays to save data for reuse by the by the program is certain SYSTEM VARIABLE POINTERS . These pointers must be saved by th program before a "csave" and restored after a "cload" if it is to work at all. See lines 800-815 and 900-915. Also, the program required 2 simple variables to be able to execute following a "cload" and "goto 75". These simple variables are saved in a small single area called "VS" and restored in the subroutine beginning at 800. See also lines 125 and 155.

The enclosed "VIDEO-GRAM", is based on the "letter program" submitted by Guy Miller of California some months ago. It was undertaken solely in an attempt to solve the above mentioned problem ------and it does------- and intended to be taylored by the individual user. The "printer setup" routine is a dummy to be filled in by users with printers. the "scroll\correction" routine has a minor bug in that sometimes it scrolls one line too many. The program function is to allow two or more APF owners to communicate, VIA tape and their computers WITH EACH OTHER AT THE SAME TIME SWAPPING PRGMS, notes or whatever.

As an example of its use I offer the following: "VIDEO-GRAM" is first copied to a single small tape, to be used as a "stub" . Programs to be passed to another are loaded on a tape, starting at 20 the counter. When done, tape is rewound to 0 and removed. Next "stub" is loaded, RUN, write letter. "Stub" may be "csaved" at this point if desired. Next, remove stub tape and insert re:wound tape to be sent. Csave to tape just inserted. You now have a letter, with programs to send recipient, who can do the same thing.

PS IF CURSOR APPEARS BUT NO "OK" AFTER CLOAD, type goto 75 anyway.....

FROM EDITOR... From the sounds of the above DON has put a lot of research into the information. You will find the program he refers to listed in this newsletter. THANKS FOR THE INFO DON.....

FROM LARRY GRANNIS

I have a question, the answer to which you might include in the newsletter: Lewis Buldoc, in his article, and Hexmart Software, in their ad, both allude to a 34 track format for the dixc drive; however, in my FI-100 instruction book it quite clearly states on page 5 ,"The Imagination Machine formats diskettes as follows: 36 tracks are formatted. Each with 8 sectors. Each sector contains 256 bytes of data. Total storage of a diskette is therefore 73,728 bytes." I understand from the Buldoc articles that Track 0, sectors 1 and 2 are set aside for GAT and Directory, but this is not the same as two whole tracks with 4K of storage!! What is this discrepancy?

ANSWER.. Sorry to say it but the FI-100 book is wrong. There are only 34 (0 to 33) tracks set up for use by the IM-1 with te DOS program......

Perhaps some of the members might like to take advantage o a seemingly overlooked paragraph in the Technical Referance Manual in regard to cursor control. Many programs by the members which yoo have printed, and yourself, on page 2 of the February '83 issue program the following routine (A= the position and can be any ber from 512 to 1023 inclusive.)

```
10 POKE 40960,int(A/256)
20 POKE 40961,A-int(A/256)*256
```

This is apparently quite a common for many of the APF programs call for he same routine.

However, on page 1 of the chapter VI of the Reference Manual in the paragraph beginning "Line 25-" it is explained that Into 40961 we have to POKE the remainder of dividing 256 into CV or A, in our example above. It says, "The POKE instructions AUTOMATICLY does this". Therefore, instead of programming all of the mathematics in line 20 above, taking up unnecessary memory, one only has to program: 20 POKE 40961,A

Line 10 remains as is.--------Hope that might be of interest.

I'd like to be counted in the Lonely Computers group. I have an IM-1, BB-1, 8K exp., SI-232, FI-100, and single drive. I have an employment service for programmers and analysts from mainframes to micros.

By the way, I have the Product Manusl for the MPI-B51 driveused by APF and it states on page 2-3, "The motor should be turned off if no activity is required... after 10 revolutions of the diskette. A minimum of 1.0 second is required before performing a read or write after a MOTOR ON command is transmitted to the device." So you may want to program a 1sec. delay loop:

```
      10 POKE26112,4FORX=0to120:NEXT
```

Thanks for the info LARRY

%%

Anyone wishing to contact Larry can reach him at:

1311 E. Washington Pl. #J-1
Santa Ana, Ca, 92701

****

FROM WILLIAM HOM

I would like to ask you about your assembly listings offered in the Sept issue of the newsletter. I presume that the more than 50 page listing is of the BASIC monitor, but I would like to know wheather every line is commented and wheather every or most referenced locations are labaled with mnemonic names.

ANSWER.. The listings are the orginal ASSEMBLY listings from APF and they have several comments which give reasonably good descripitions of the program..........

```
5 :SAVE AREA:AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
10 :
15 :  VIDEO-GRAM  (VER 1.3)
20 :       BY DON SCHMIDT 9-20-83
25  GOTO 75
26 :
30 R$= KEY$ (0): IF R$="" THEN 30
35  RETURN
36 :
40 :  CHANGE \ TO ,
45 BL= LEN (B$)
50  FOR B=0 TO BL
55  IF B$(B)="\" THEN B$(B)=","
60  NEXT : RETURN
65   :
75  GOSUB 800: REM   RE-SET SYS PTRS
80  POKE 24578,38: CALL 17046
85 :
90  IF R$="" THEN 115: REM   STRT W/ RUN
95  PRINT "HIT 'P' FOR PRINTER OR 'V' FOR  SCREEN VIEWING.": GOSUB 30
100  IF R$="P" THEN  GOSUB 500: REM   SET-UP FOR PRINTER.
105  GOTO 160
110 :  GET HEADING DATA
115  POKE 8193,60
120  INPUT "WHAT IS THE DATE",D$: PRINT
125  INPUT "HOW MANY LINES IN ADDRESS",H:VS(1)=H
126 :
130  FOR HL=1 TO H: PRINT ;"LINE#";HL;: INPUT T$(HL,0)
135  NEXT : PRINT NULL$
136 :
140  INPUT "SALUTAION",S$: PRINT NULL$
141 :
142 : GET LETTER
145 L=L+1:B$=NULL$: INPUT B$: IF B$="%%%" THEN 155
150  GOSUB 40:L$(L,0)=B$: GOTO 145
155 L=L-1:VS(2)=L
156 :
160  PRINT "ENPRESS 'R' TO REVIEW"
161  PRINT "PRESS 'S' TO SCROLL"
165  GOSUB 30
200  POKE 40960,2: POKE 40961,0: CALL 17046
205  PRINT  SPC (31)
210  PRINT  TAB (16);"DON SCHMIDT"
215  PRINT  TAB (16);"19 SCHOOL HSE RD"
220  PRINT  TAB (16);"NEPTUNE N.J."
225  PRINT  TAB (16);"07753"
230  PRINT  SPC (31): PRINT  TAB (16);D$: PRINT  SPC (31)
240  FOR HL=1 TO H: PRINT T$(HL,0)
245  NEXT : PRINT  SPC (31)
250  PRINT S$: PRINT  SPC (31)
255 :
260  FOR X=1 TO 700: NEXT : POKE 40960,2: POKE 40961,0: CALL 17046
265  PRINT  SPC (31):X=2
270  FOR HL=1 TO L
275  IF L$(HL,0)="*" THEN  PRINT  SPC (31): GOTO 290
280  IF R$="S" THEN  GOSUB 400: GOTO 290
285  PRINT L$(HL,0)
290 X=X+1: IF  LEN (L$(HL,0))=>31 THEN X=X+1
300  IF X<=14 THEN 320
305  PRINT "HIT ANY KEY FOR MORE"
310 M$= KEY$ (0): IF M$="" THEN 310
315  CALL 17046: POKE 40960,2: POKE 40961,32:X=2
320  NEXT : FOR T=1 TO 700: NEXT
321  INPUT "TO CONT. LETTER HIT 'C', RETKY",R$
322  IF R$="C" THEN  GOTO 145
325  PRINT  SPC (31): PRINT  SPC (31)
330  PRINT  TAB (15);"REGARDS,"
335  PRINT  SPC (31): PRINT  SPC (31)
340  PRINT  TAB (15);"DON SCHMIDT"
350  STOP
400  PRINT "LINE#";HL;") ";: PRINT L$(HL,0)
410  INPUT "TO CHANGE LINE HIT 'C',RETKY",R$
420  IF R$<>"C" THEN 450
430 B$=NULL$: INPUT B$: GOSUB 40:L$(HL,0)=B$
440  PRINT  SPC (31):X=X+1
450 R$="S": RETURN
```

```
500 :  ROUTINE TO SET-UP FOR PRINTER COMMANDS.
590  RETURN
599 :
799  STOP
800 : RE-SET SYS PTRS
805  POKE 40973, PEEK (42003): POKE 40974, PEEK (42004)
810  POKE 40984, PEEK (42005): POKE 40985, PEEK (42006)
815  POKE 41007, PEEK (42007): POKE 41008, PEEK (42008)
820 :  RE-ESTAB DIM PTRS
825  DIM VS(5): REM    SIMPLE VARI SAV
830 H=VS(1):L=VS(2)
835  DIM R$(1),M$(1),D$(9),S$(20)
840  DIM B$(63),NULL$(63),L$(40,64),T$(4,20)
850  RETURN
855 :
900 : SAVE SYS PTRS
905  POKE 42003, PEEK (40973): POKE 42004, PEEK (4C974)
910  POKE 42005, PEEK (40984): POKE 42006, PEEK (40985)
915  POKE 42007, PEEK (41007): POKE 42008, PEEK (41008)
920 :
930  CALL 17046: PRINT
935  PRINT "*=*  V I D E O  -  G R A M  *=*": PRINT
936  PRINT " FROM  DON SCHMIDT  ";D$
940  PRINT " TO VIEW MESSAGE, ON 'OK' TYPE    'GOTO 75', RET KEY."
945  PRINT " ENTER 'P' TO PROMPT.  LETTER     WILL BE DISPLAYED ON SCREEN."
950  PRINT " TO MAKE NEW LETTER 'RUN' AND     FOLLOW PROMPT WITH RET-KEY."
955  PRINT " TO SAVE OR MAKE COPY OF THIS     PGM, DEPRESS PLAY/SAVE AND"
960  PRINT " TYPE 'GOTO900'.  PGM WITH NEW    LETTER WILL BE SAVED ON TAPE."
999 :STOP
1000  CALL 34040: CALL 34138: CALL 34061
```

APF IM-1 computer for sale
Includes: Pgm\tech ref. manual
Basic Tutor manual and tapes,
Newsletters from '82 till Dec
'83, tape with programs from
newsletters, Space Dist.,
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WANT ADSS
I would like a tested file
program for cassette system.
also a 200 unit apartment
management program including:
heat, complaints, and problem
tenants. The tested file pgm.
should include a date variable.
Contact Emmet Jenkins.

For sale: IM-1 computer 16K
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L.L., N.M. 87031

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1 1\2 yrs ago and still in
excellent condition. Seller
needs money for college. Asking
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Call 608-362-5900

```
10  REM    'MEMORY GAME BY DANNY LOUIE'
20  POKE 24578,38: CALL 17046
30  POKE 40960,2: POKE 40961,0
40  PRINT  TAB (6);"M E M O R Y   G A M E     "
50  REM    *** YOU DON'T HAVE TO TYPE IN THE INSTRUCTIONS.
60  REM    *** BUT IT WILL MAKE THE PROGRAM LOOK NICER.
70  REM    *** A COLOR TV IS RECOMMENDED, BUT A B/W WORKS TOO.
80  PRINT "IN THIS GAME, THE COMPUTER WILL RANDOMLY FLASH ON THE SCREEN   "
90  PRINT "ONE OF THE NINE COLOR BOXES AND ITS NUMBER, ONE AT A TIME. YOU "
95  PRINT "YOU THEN TRY TO REPEAT THE PAT- TERN BY PRESSING THE CORRECT   "
100  PRINT "KEY ON THE LEFT JOYSTICK. IF    YOU ARE CORRECT, THE COMPUTER  "
105  PRINT "WILL FLASH THE BOX AGAIN AND    ADD ANOTHER BOX. AS THE LENGTH "
110  PRINT "OF THE BOXES INCREASE, YOU WILL FIND THAT IT WILL BECOME MORE  "
115  PRINT "DIFFICULT TO REMEMBER.                    <PRESS RETURN>       "
120  IF  KEY$ (0)="" THEN 120
125  CALL 17046: POKE 40960,2: POKE 40961,0
130  PRINT  TAB (6);"M E M O R Y   G A M E     ": PRINT "
       ": REM    32 SPACES.
135  PRINT "WHEN YOU HAVE CHOSEN THE WRONG  BOX, YOU LOSE AND WILL BE ASKED"
140  PRINT "TO PLAY AGAIN. HOWEVER, IF YOU  HAVE SUCCESSFULLY REPEATED THE "
145  PRINT "PATTERN GIVEN BY THE COMPUTER   AT 15 BOXES BEFORE YOU ARE DE- "
150  PRINT "FEATED, YOU GET A 'EXTRA LIFE.' WITH THIS HELPFUL FEATURE, YOU "
155  PRINT "GET ANOTHER CHANCE TO FINISH UP THE PATTERN. YOU WIN WHEN YOU  "
160  PRINT "HAVE COMPLETED ALL 40 BOXES!!!!"
165  PRINT "                                  <PRESS RETURN>              "
170  IF  KEY$ (0)="" THEN 170
175  CALL 17046: POKE 40960,2: POKE 40961,0
180  PRINT  TAB (6);"M E M O R Y   G A M E     "
190  REM    *** RED BOX ***
200  FOR I=867 TO 872: POKE I,179: NEXT
205  FOR I=905 TO 969 STEP 32: POKE I,191: NEXT
210  FOR I=1000 TO 995 STEP -1: POKE I,188: NEXT
215  FOR I=962 TO 898 STEP -32: POKE I,191: NEXT
220  GOSUB 700
250  REM    *** BLUE BOX ***
255  FOR I=877 TO 882: POKE I,163: NEXT
260  FOR I=915 TO 979 STEP 32: POKE I,175: NEXT
265  FOR I=1010 TO 1005 STEP -1: POKE I,172: NEXT
270  FOR I=972 TO 908 STEP -32: POKE I,175: NEXT
280  GOSUB 750
300  REM    *** AQUA BOX ***
305  FOR I=887 TO 892: POKE I,211: NEXT
310  FOR I=925 TO 989 STEP 32: POKE I,223: NEXT
315  FOR I=1020 TO 1015 STEP -1: POKE I,220: NEXT
320  FOR I=982 TO 918 STEP -32: POKE I,223: NEXT
330  GOSUB 800
350  REM    *** YELLOW BOX ***
360  FOR I=707 TO 712: POKE I,147: NEXT
365  FOR I=745 TO 809 STEP 32: POKE I,159: NEXT
370  FOR I=840 TO 835 STEP -1: POKE I,156: NEXT
375  FOR I=802 TO 738 STEP -32: POKE I,159: NEXT
380  GOSUB 850
400  REM    *** GREEN BOX ***
410  FOR I=717 TO 722: POKE I,131: NEXT
420  FOR I=755 TO 819 STEP 32: POKE I,143: NEXT
425  FOR I=850 TO 845 STEP -1: POKE I,140: NEXT
430  FOR I=812 TO 738 STEP -32: POKE I,143: NEXT
440  GOSUB 900
450  REM    *** WHITE BOX ***
455  FOR I=727 TO 732: POKE I,195: NEXT
460  FOR I=765 TO 829 STEP 32: POKE I,207: NEXT
465  FOR I=860 TO 855 STEP -1: POKE I,204: NEXT
470  FOR I=822 TO 758 STEP -32: POKE I,207: NEXT
480  GOSUB 950
500  REM    *** PURPLE BOX ***
505  FOR I=547 TO 552: POKE I,227: NEXT
510  FOR I=585 TO 649 STEP 32: POKE I,239: NEXT
515  FOR I=680 TO 675 STEP -1: POKE I,236: NEXT
520  FOR I=642 TO 578 STEP -32: POKE I,239: NEXT
530  GOSUB 1000
550  REM    *** AQUA BOX ***
555  FOR I=557 TO 562: POKE I,211: NEXT
560  FOR I=595 TO 659 STEP 32: POKE I,223: NEXT
565  FOR I=690 TO 685 STEP -1: POKE I,220: NEXT
570  FOR I=652 TO 588 STEP -32: POKE I,223: NEXT
580  GOSUB 1050
600  REM    *** ORANGE BOX ***
```

```
605  FOR I=567 TO 572: POKE I,243: NEXT
610  FOR I=605 TO 669 STEP 32: POKE I,255: NEXT
615  FOR I=700 TO 695 STEP -1: POKE I,252: NEXT
620  FOR I=662 TO 598 STEP -32: POKE I,255: NEXT
630  GOSUB 1100
650  MUSIC "     1030*50*10     50*10000":X=100: GOSUB 1150: GOTO 1200
700  : AQUA '1' - RED CENTER
705  POKE 900,128: POKE 901,220: POKE 902,218: POKE 903,128
710  POKE 932,128: POKE 933,128: POKE 934,218: POKE 935,128
715  POKE 964,209: POKE 965,211: POKE 966,219: POKE 967,211
720  MUSIC "100":X=25: GOSUB 1150
725  COLOR =3: SHAPE =15: HLIN 3,8,12
730  HLIN 3,8,13: HLIN 3,8,14
740  RETURN
750  : ORANGE '2' - BLUE CENTER
755  POKE 910,241: POKE 911,252: POKE 912,252: POKE 913,242
760  POKE 942,128: POKE 943,243: POKE 944,243: POKE 945,248
765  POKE 974,245: POKE 975,243: POKE 976,243: POKE 977,242
770  MUSIC "200": GOSUB 1150
775  COLOR =2: HLIN 13,18,12
780  HLIN 13,18,13: HLIN 13,18,14
790  RETURN
800  : YELLOW '3' - AQUA CENTER
805  POKE 920,148: POKE 921,156: POKE 922,156: POKE 923,146
810  POKE 952,128: POKE 953,156: POKE 954,156: POKE 955,146
815  POKE 984,145: POKE 985,147: POKE 986,147: POKE 987,152
820  MUSIC "300": GOSUB 1150
825  COLOR =0: HLIN 23,28,12
830  HLIN 23,28,13: HLIN 23,28,14
835  COLOR =0: HLIN 23,28,12
840  RETURN
850  : GREEN '4' - YELLOW CENTER
855  POKE 740,133: POKE 741,128: POKE 742,129: POKE 743,128
860  POKE 772,133: POKE 773,131: POKE 774,135: POKE 775,130
865  POKE 804,128: POKE 805,128: POKE 806,133: POKE 807,128
870  MUSIC "400": GOSUB 1150
875  COLOR =1: HLIN 3,8,7
880  HLIN 3,8,8: HLIN 3,8,9
890  RETURN
900  : WHITE '5' - GREEN CENTER
905  POKE 750,197: POKE 751,204: POKE 752,204: POKE 753,200
910  POKE 782,196: POKE 783,204: POKE 784,204: POKE 785,194
915  POKE 814,193: POKE 815,195: POKE 816,195: POKE 817,200
920  MUSIC "500": GOSUB 1150
925  COLOR =0: HLIN 13,18,7
930  HLIN 13,18,8: HLIN 13,18,9
940  RETURN
950  : PURPLE '6' - WHITE CENTER
955  POKE 760,128: POKE 761,230: POKE 762,236: POKE 763,128
960  POKE 792,229: POKE 793,225: POKE 794,236: POKE 795,226
965  POKE 824,228: POKE 825,235: POKE 826,227: POKE 827,232
970  MUSIC "600": GOSUB 1150
975  COLOR =4: HLIN 23,28,7
980  HLIN 23,28,8: HLIN 23,28,9
990  RETURN
1000  : ORANGE '7' - PURPLE CENTER
1005  POKE 580,244: POKE 581,252: POKE 582,252: POKE 583,250
1010  POKE 612,128: POKE 613,128: POKE 614,246: POKE 615,128
1015  POKE 644,128: POKE 645,246: POKE 646,128: POKE 647,128
1020  MUSIC "700": GOSUB 1150
1025  COLOR =6: HLIN 3,8,2
1030  HLIN 3,8,3: HLIN 3,8,4
1040  RETURN
1050  : RED '8' - AQUA CENTER
1055  POKE 590,177: POKE 591,188: POKE 592,188: POKE 593,178
1060  POKE 622,177: POKE 623,188: POKE 624,188: POKE 625,178
1065  POKE 654,180: POKE 655,179: POKE 656,179: POKE 657,184
1070  MUSIC "*100": GOSUB 1150
1080  COLOR =5: HLIN 13,18,2
1085  HLIN 13,18,3: HLIN 13,18,4
1090  RETURN
1100  : BLUE '9' - ORANGE CENTER
1105  POKE 600,161: POKE 601,172: POKE 602,172: POKE 603,162
1110  POKE 632,164: POKE 633,163: POKE 634,163: POKE 635,170
1115  POKE 664,128: POKE 665,128: POKE 666,128: POKE 667,170
1120  MUSIC "*200": GOSUB 1150
```

```
1125  COLOR =7: HLIN 23,28,2
1130  HLIN 23,28,3: HLIN 23,28,4
1140  RETURN
1150  FOR I=0 TO X: NEXT I: RETURN
1200  DIM K$(1),S(40)
1210 N=1:T=0:EX=0: REM    EX=EXTRA CHANCE
1250  REM    ADD NEW BOX
1255  IF T=40 THEN 3000
1260 T=T+1
1270 S(N)= INT ( RND (0)*9+1)
1280  IF S(N)=S(N-1) THEN 1270
1300  REM    START PATTERN
1310  FOR N=1 TO T: GOSUB 1500: NEXT N
1350  REM    COPY PATTERN
1360  FOR N=1 TO T:X=0
1370 K$= KEY$ (2):X=X+1: IF X=40 THEN 1460
1380  IF K$="" THEN 1370
1390  IF  ASC (K$)-48<>S(N) THEN 1450
1400  REM    RIGHT BOX
1410  GOSUB 1500: NEXT N
1420  IF T=15 THEN EX=1: GOSUB 2000: GOTO 1250
1430  CALL 17004: GOTO 1250
1450  REM    WRONG NOTE
1455 SUB=S(N):S(N)= ASC (K$)-48: GOSUB 1500
1460  POKE 640,128: POKE 672,128: POKE 704,128: POKE 736,128
1465  POKE 768,128: POKE 800,128: POKE 832,128
1470  MUSIC "-*77-*77-*77-*77-*77-*77-*77-*77"
1475  IF EX=1 THEN EX=0:X=50: GOSUB 1150:S(N)=SUB: GOTO 1300
1480 N=T: NEXT N: POKE 40960,2: POKE 40961,0: INPUT "WANT ANOTHER CHANCE (YES=1)
",A
1490  IF A=1 THEN 1600
1495  CALL 17046: PRINT "     CHICKEN!!!!!!!!!!": MUSIC "/1000000000000000000000"
: STOP
1500  REM    SUBROUTINE TO DISPLAY BOXES
1510  ON S(N) GOTO 700,750,800,850,900,950,1000,1050,1100
1600  POKE 40960,2: POKE 40961,0: PRINT  TAB (6);"M E M O R Y   G A M E     ": G
OTO 650
2000  REM    EXTRA CHANCE ROUTINE
2010  POKE 640,106: POKE 672,69: POKE 704,88: POKE 736,84: POKE 768,82: POKE 800
,65: POKE 832,106
2020  MUSIC "3000005000304050000": RETURN
3000  REM    THIS PART IS FOR THOSE WHO SUCCESSFULLY REPEATED ALL 40 BOXES!!!!!
   CONGRATULATIONS!!!!!!!!!!!!
3010  FOR I=0 TO 15: SHAPE =15: COLOR =I
3020  HLIN 0,31,I: CALL 17026: NEXT I
3030  CALL 17046: POKE 40960,2: POKE 40961,0
3040  PRINT : PRINT : PRINT : PRINT
3050  PRINT "   CONGRATULATIONS!!!!  YOU ARE ONE OF THE VERY FEW WHO HAS    "
3060  PRINT "MADE IT THIS FAR (UNLESS YOU    HAD THE PATTERN WRITTEN DOWN!!)"
3070  PRINT : PRINT : PRINT "  P.S. - MAYBE YOU COULD SEND     YOUR BRAINS TO SC
IENCE????  "
3080  PRINT : PRINT "TO PLAY AGAIN, TYPE IN 'RUN'.  ": END
```

```
1  REM    HERE IS A FUN PROGRAM
10  SHAPE =15
20  FOR I=0 TO 7
30  COLOR =I
35  CALL 17046
40  HLIN 10,20,8
50  GOTO 60
55  CALL 17046
60  MUSIC "2000 "
65  COLOR =I+1
70  HLIN 20,30,10
80  MUSIC "3000 "
85  COLOR =I+3
90  HLIN 0,10,12
95  GOTO 100
100  MUSIC "1000 "
105  COLOR =I+5
110  HLIN 0,10,14
120  MUSIC "/1000"
123  GOTO 125
125  COLOR =I+4
127  CALL 17046
130  HLIN 20,30,12
135  GOTO 140
140  MUSIC "/5000000000  "
```

```
145  NEXT I
147  CALL 17046
150  MUSIC "2"
160  COLOR =I+1
170  HLIN 10,20,4
180  CALL 17046
190  MUSIC "3"
200  COLOR =I+2
210  HLIN 10,20,6
220  CALL 17046
230  MUSIC "1"
240  HLIN 0,10,6
250  CALL 17046
260  MUSIC "/10"
270  COLOR =I
280  HLIN 10,20,14
290  MUSIC "/500"
300  COLOR =I+4
310  HLIN 20,30,12
320  CALL 17046
330  GOTO 150
```

hex Mart Software

1048 Alpine N.W., Grand Rapids, MI. 49504

Hexmart is a newly formed software vendor dedicated to providing the APF computer owner with a new and unique collection of programming. We feel the APF computer is a well built and powerful system which lacks only the software to unlock it's true potential. After a review of this initial collection, we believe you will agree that this is the beginning of what we feel is a powerful group of UTILITY software. HEXMART is not a game company, we prefer to think of ourselves as a company which provides the "tools" to assist you, the user, with your program needs.

SOFTWARE

SUPER BASNUM : The BASIC line renumbering program.
$14.95 on cassette - loads in 8K, runs using no program RAM

Have you ever programmed yourself into a corner? You need a ten line subroutine but have space for only five lines. Don't worry, BASNUM is here! Renumber your entire program from the beginning OR renumber starting from ANY line. You specify the starting point, load your program and CALL BASNUM. It does the rest, including changes to all line references. It's loaded with error checking which makes it easy to use.

SUPER SORT : A machine language string sorting routine.
$14.95 on cassette - loads in 8K, requires less then 1/2 K

If you have ever tried to sort a lengthy list of strings in BASIC, then you know how slow APF can be. No more! SUPER SORT is a machine language sorting routine which can be included in your programs to speed string sorts by over 100 times. A few simple POKEs followed by a CALL is all that's needed. You can include SUPER SORT in your existing programs (it is supplied with an APPEND routine allowing your program to be loaded "behind" the machine code), or you can write a new program behind SUPER SORT. A truly powerful routine.

TAPE ASSEMBLER : A cassette based assembler for APF's Motorola 6800.
$14.95 on cassette - loads in 8K, expandable to 16K

No, you don't need a disk system to write Assembly Language programs. Hexmart's TAPE ASSEMBLER allows you to write those programs using 6800 code. Buy now and receive the following: 1) two programs - screen only and line printer versions, 2) instructions - including how to use and incorporate Assembly code in the APF, 3) 6800 Assembly Language work sheets, and 4) a brief introduction to Assembly Language programming. Learn to make the APF fly!

DISK DIR : A master disk directory filing system.
$12.95 on cassette - loads in 8K, transferable to diskette.

You say you have a house full of diskettes and your not sure which one contains that needed program? DISK DIR to the rescue! Creates a master file of up to 200 titles from the directories of all your diskettes. You name each disk with any three-character code and DISK DIR automatically reads all program names on the disk, sorts them into alphabetical order, and stores them in the master file. Editing allows the master file to be updated as your collection of programs change.

DISK MOD / INIT40 : A two program set. For all serious disk users.
$12.95 on cassette - both load in 8K, transferable to disk

DISK MOD - Numerous features allow the user to read any track and sector from an APF disk, display it on the screen, place it in RAM, modify it, or write it back to disk. Automatic stepping allows work on contiguous or separate sectors. READ/EXAMINE/MODIFY/WRITE. You can even read disks from other popular computers including Radio Shack and TI.

INIT40 - Tired of 34 tracks of 8 sectors? How about 40 tracks of 10 sectors! Yes, you can now INITialize your diskettes beyond APF. These INITialized disks are still compatible with APF's DOS. However when used with DISK MOD, you get an additional 32K of storage. These two programs are a must for any serious disk owner.

****

SPOTLIGHT on SOFTWARE : A closer look at HEXMART's SUPER BASNUM

SUPER BASNUM is a line renumbering program which incorporates the features found in numerous larger computer systems. Below is a review of those features:

#1. TOTAL USER FLEXIBILITY
You specify the conditions... Renumber the whole program with any beginning line number and increment or renumber a portion of the program starting at any line number.

#2. REFERENCED LINE POINTERS AUTOMATICALLY UPDATED
"BASNUM" has been designed to accomodate all of APF BASIC's referenced line "calls". (ON) GOTO, (ON) GOSUB, IF-THEN, and PRINT USING (when referenced to line #). All line number references will be changed.

#3. OCCUPIES NO USER RAM
Since "BASNUM" exists in an area of memory not normally used by BASIC, most any program that will load into memory can be renumbered. Works in 8 or 16K IM-1's and 27K IM-2's.

#4. REM STATEMENTS IGNORED
All code following a REM statement is ignored. As a result, Assembly (machine) language subroutines written under a REM are unaffected by "BASNUM".

#5. UNIQUE ERROR CHECKING
"BASNUM" has been given four (4) error handling routines. If it finds any of these errors, it will abort renumbering and display an error message. These unique checks guard against user and program generated problems.

#6. USER FRIENDLY
"BASNUM" is menu driven. Combined with easy to understand "prompts", error checking, and mistake recovery, even the first-time user should have no trouble.

****

All programs are supplied on quality cassette tape and are transferable to diskette. All will load and run in an 8K computer. Documentation outlines conversion to 16K. Prices include all shipping and handling. Each program is sold with a 60 day replacement guarantee - if it fails, return the original copy to HEXMART for a free replacement.

ORDER FORM:

Send NAME, ADDRESS, and MONEYORDER to:

_____	SUPER BASNUM	$14.95 ea.
_____	SUPER SORT	$14.95 ea.
_____	TAPE ASSEMBLER	$14.95 ea.
_____	DISK DIR	$12.95 ea.
_____	DISK MOD / INIT40	$12.95 ea.

HEXMART SOFTWARE
1048 Alpine N.W.
Grand Rapids, MI 49504

CHECK or

Now Available : SUPERFILE - A data base management program. Totally flexible - You specify field sizes and printout formats. Sort on any field you choose!
Requires 16K memory and a single disk drive. $19.95 on cassette.
Write us if you would like more information.

BUY ONE GET ONE HALF PRICE!

That's right, from now until January 5, 1983 if you buy one game at regular price you may buy a second game of equal or less value for half off the regular price. So now is the perfect time for you to stock up on APF home computer games.

THE GAMES....

FROGGER

Stop! Don't put another quarter in a Frogger arcade machine. Now you can play it on your APF home computer. Just like the arcade game you have to get the frog across the road. Three skill levels and high resolution graphics will constantly keep you challenged... $7.00

ALLIEN DEFENDER

First it was a great arcade game, then it became a great home video game, and now it's a great APF home computer game. You must move your space ship to either avoid or destroy the on coming alliens. Be careful -- they can fire back. A lot of the details from the original arcade game are there in this high resolution graphic game..... $8.00

ALPINE SKIING

Avoid those long lift lines and sore muscles with this fast action game. You have to move out of the way of the on coming trees. Like real skiing except that you have four chances to try again if you hit one. High resolution graphics and many sounds will provide hours of fun..... $7.00

TURBO

Dodge the on coming cars in your turbo charged race car. The road is long and the cars are fast, so be ready for almost anything. But don't worry -- you have four chances to try again if you hit one. This colorful, high resolution graphic game is very challenging and will provide many hours of fun..... $7.00

ASTEROIDS

Another first for the APF home computer. You are flying in a tunnel with asteroids coming straight at you. You have to move or you will be destroyed. But that's not all -- you also have to avoid the walls. High speed action, high resolution graphics and many sounds will provide hours of entertainment..... $7.00

SAILING

Sail your boat between three sets of pylons in a race against time. The computer automatically keeps time and then displays it at the end of the game. Excellent high resolution graphics make this a fun game for all ages..... $5.00

Send check or money order to: Eddie Bednar
11804 Brookwood Rd.
Austin, Tx. 78750

LOOK, UP ON THE HILL!! IT'S A BUG, IT'S A WORM, NO IT'S

CENTIPEED!!! CENTIPEED!!! CENTIPEED!!! CENTIPED!!! CENTIPEED!!!

Your mushroom garden has been invaded by a giant centipeed and a pesky spider. Shoot the centipeed parts before they reach the bottom of the garden. Hit the stationary dragonfly for bonus points before he's squished. Sounds easy, huh? Well it's not! The centipeed breaks in two each time it's shot, and some parts take more than one shot to be destroyed! Three skill levels in this popular arcade type game. 90% machine language for fast high resolution! For Christmas gifts!

ONLY $12.95 (includes shippling costs)

PLUS.....

Low-Res graphics graphic paper. The APF screen is not made of squares, it's made of rectangles. Because of this fact, normal graph paper does not work very well; but now your troubles are over! My graph paper has rectangles that are longer than they are wide, like the blocks on the APF, not squares. Each sheet contains six graphs, and each packet contains twenty sheets, and at $1.75 per packet, it's a steal!! (includes shipping costs.)

To order game or paper
Send check or money order to:
The Program Peddler
c/o John Mechalas
2830 Townway Road
Danville, Illinois 61832

DATACOMP
computer software

introducing

SPELL BINDER - a spelling game for children grades 4 - 6.
This three part spelling program teaches children how to spell fifty different words we use frequently. All words are clearly dictated through the audio speaker and used in a sentence. Three tries are given to spell each word correctly. Tape automatically starts and stops after each word and sentence. Part three gives a final exam over all the words previously learned. Each of the three parts must be loaded separately.
All three parts on one tape for 9K machines. Includes high - resolution animation, text modes, and instruction booklet. **Only $15.50**

****

Safari in Africa - GAME - You are on a mission in Africa to capture a rare species of monkey. This animal is very dangerous and attacks without warning. You must live through many decisions that determine whether it captures you or you capture it! Instruction booklet included. (Low resolution text for 9K machines) **$5.50**

Both SPELL BINDER and SAFARI $17.00 (separate tapes) ALL PRICE INCLUDE SHIPPING

Send all orders check or money order (U.S. funds) to: Russ Needham, 36723 Stanton Point Rd., Ingleside, Il., 60041 *Free Christmas program for anyone buying Spell Binder and Safari.

```
1  REM    HERE IS AN AMORTIZATION PROGRAM SUBMITTED BY
2  REM    BILL BOWMAN
5  POKE 24578,38: POKE 8193,60
10  DIM K$(1)
20  COLOR =6: SHAPE =4
30  GOSUB 500:CU=608: GOSUB 600
40  PRINT  SPC (6);"MORTGAGE AMORTIZATION"
50  PRINT : PRINT  SPC (3);"1-PER THOUSAND RATE KNOWN"
60  PRINT : PRINT  SPC (3);"2-MONTHLY PAYMENT KNOWN"
70  HLIN 1,30,1: HLIN 1,30,9
80  VLIN 2,9,1: VLIN 2,9,30
85 CU=868: GOSUB 600: PRINT "SEE TOT.AFTER ANY MONTH"
86  PRINT  SPC (2);"IF 1-PRESS BREAK.. GOTO  281"
87  PRINT  SPC (2);"IF 2-PRESS BREAK.. GOTO  432"
95  INPUT " SELECT (1-2)",S
100  ON S GOTO 110,310
110  GOSUB 500:CU=512: GOSUB 600
120  INPUT "PRINCIPLE $ AMOUNT",P
125 J=P
130  INPUT "INTEREST (%)",O
140  INPUT "NO.OF YEARS",T
150  INPUT "M.A.R.($) PER THOUSAND",M
152  GOSUB 500:CU=512: GOSUB 600
153  PRINT " ANY KEY TO START"
155 N=P/1000
160  FOR L=1 TO T*12
165 K$= KEY$ (0): IF K$="" THEN 165
170 A=P*O/1200
190 B=M*N
200 C=B-A
220  PRINT L; SPC (1);A; SPC (2);C; SPC (2);B
240 P=P-C
250 X=X+A
260 Z=Z+B
270 Y=Y+C: NEXT
275  PRINT "ANY KEY TO SEE TOTALS"
276  IF  KEY$ (0)="" THEN 276
281  GOSUB 500
282 CU=512: GOSUB 600
285  PRINT "TOTALS FOR"; SPC (1);L-1; SPC (1);"MONTHS:-"
286  PRINT
290  PRINT "INTEREST $ "; SPC (1);X
295  PRINT "PRINCIPLE $"; SPC (1);Y
296  PRINT "TOTAL $"; SPC (1);Y: IF L-1<T*12 THEN  PRINT : PRINT "PRINCIPLE BALA
NCE"; SPC (1);J-Y: STOP
297  IF Y>J THEN  PRINT "PRINCIPLE OVERPAID..ADJUST"
298  IF Y<J THEN  PRINT "PRINCIPLE UNDERPAID..ADJUST"
299  IF Y=J THEN  STOP
300  REM   :ADJUST FOR OVER/UNDER PAY ON PRINCIPLE
301  IF Y>J THEN K=Y-J:Y=Y-K:X=X+K
302  IF Y<J THEN K=J-Y:Y=Y+K:X=X-K
303  PRINT : PRINT "FINAL MO.ADJUSTED TOTALS ARE:-"
304  PRINT : PRINT "TOTAL INTEREST $"; SPC (1);X
305  PRINT "TOTAL PRINCIPLE $"; SPC (1);Y
306 NT=X+Y
307  PRINT "TOTAL $"; SPC (1);NT
308  STOP
310  GOSUB 500:CU=512: GOSUB 600
320  INPUT "PRINCIPLE ($) AMOUNT",P
325 J=P
330  INPUT "INTEREST (%)",O
340  INPUT "NO. OF YEARS",T
345  INPUT "MO. PAYMENT ($)",Q
346  GOSUB 500:CU=512: GOSUB 600
350  PRINT "USE SPACE BAR TO START/STOP"
355  FOR L=1 TO T*12
358 K$= KEY$ (0): IF K$="" THEN 358
360 A=P*O/1200
370 B=Q-A
380 C=A+B
400  PRINT L; SPC (1);A; SPC (2);B; SPC (2);C
```

```
415 P=P-B
420 X=X+A:Y=Y+B:Z=Z+C
425  NEXT
430  PRINT "ANY KEY TO SEE TOTALS"
431  IF  KEY$ (0)="" THEN 431
432  GOSUB 500:CU=512: GOSUB 600
435  PRINT "TOTALS FOR"; SPC (1);L-1; SPC (1);"MONTHS:-"
436  PRINT : PRINT "INTEREST  $"; SPC (1);X
440  PRINT "PRINCIPLE  $"; SPC (1);Y
445  PRINT "TOTAL $"; SPC (1);Y: IF L-1<T*12 THEN  PRINT : PRINT "PRINCIPLE BALA
NCE"; SPC (1);J-Y: STOP
446  REM   :ADJUST FOR OVER/UNDER PAY ON PRINCIPLE
447  IF Y>J THEN  PRINT "PRINCIPLE OVERPAID--ADJUST"
448  IF Y<J THEN  PRINT "PRINCIPLE UNDERPAID--ADJUST"
449  IF Y=J THEN  GOTO 476
450  IF Y>J THEN K=Y-J:Y=Y-K:X=X+K
451  IF Y<J THEN K=J-Y:Y=Y+K:X=X-K
452 Z=X+Y
455  PRINT : PRINT "WITH FINAL MONTH ADJUSTMENT:-"
456  PRINT
460  PRINT "TOTAL INTEREST",X
465  PRINT "TOTAL PRINCIPLE",Y
470  PRINT "TOTAL PAID",Z
476  PRINT "WITH THE FACTS AS GIVEN ...THE": PRINT 'A.R.PER "K" WOULD BE $';C/(Y
/1000)
490  STOP
500  FOR I=1 TO 16: PRINT  SPC (32): NEXT I
510  RETURN
600  POKE 40960, INT (CU/256): POKE 40961,CU-( INT (CU/2556)*256)
610  RETURN
```

```
0  REM  /5RANDOM MUS7C PROGRAM SUBMITTED BY JIM RITTIS
10  MUSIC "/6": GOTO 20
15  MUSIC "7"
20 Z= INT ( RND (0)*18)
25  POKE 24578,54: CALL 34061: CALL 17046
30  IF Z<7 THEN  POKE 41990,47: POKE 41991,(Z+49): GOTO 10
40  IF Z<13 THEN Z=Z-6: POKE 42002,(Z+49): GOTO 15
50 Z=Z-12: POKE 41990,42: POKE 41991,(Z+49)
60  GOTO 10
5000  POKE 40960,0: POKE 40961,0
5010  PRINT "****************************** *   THIS TAPE CONTAINS 4 PROG-* * R
AMS:                          *"
5040  PRINT "*  'RUN'= RANDOM MUSIC        * *  'GOTO 5000'= WRITE INTRO   * *
SCREEN                        *"
5070  PRINT "*  'GOTO 6000'= READ INTRO    * *  SCREEN FOR PROOF           * *
'GOTO 9000'= LIST ENTIRE    *"
5100  PRINT "*  USER PROGRAM WITH CONTROL  * *  OF THE SCROLLING WITH THE  * *
SPACE BAR                     *"
5130  PRINT "*  THE ' GOTO  5000' IS MORE OF * * AN EXAMPLE OF HOW TO....    * *
                                 *"
5160  PRINT "******************************"
5200  POKE 41452,255
5999  STOP
6000  FOR N=0 TO 511: POKE 512+N,( PEEK (N)): NEXT
6001  STOP
9000 N=0:M=0:L=0
9002 L=( PEEK (41986+N))/16:L= INT (L)*10+(L- INT (L))*16:L=L*100
9004 M=( PEEK (41987+N))/16:M= INT (M)*10+(M- INT (M))*16:M=M+L
9006  PRINT : PRINT M:N=N+2
9008  IF  PEEK (41986+N)=13 THEN N=N+1: PRINT : GOTO 9002
9010  PRINT  CHR$ ( PEEK (41986+N));
9012  IF  KEY$ (0)<>" " THEN 9012
9014 N=N+1: GOTO 9008
```

```
10  CALL 17046
20  POKE 24578,32
24  DIM  KEY$ (5)
25  DIM B$(3)
26  DIM C$(10): DIM D$(10)
30  DIM A$(52,3)
40 A$(1,1)="HA"
41 A$(2,1)="H2"
42 A$(3,1)="H3"
43 A$(4,1)="H4"
44 A$(5,1)="H5"
45 A$(6,1)="H6"
46 A$(7,1)="H7"
47 A$(8,1)="H8"
48 A$(9,1)="H9"
49 A$(10,1)="H10"
50 A$(11,1)="HJ"
51 A$(12,1)="HQ"
52 A$(13,1)="HK"
53 A$(14,1)="DA"
54 A$(15,1)="D2"
55 A$(16,1)="D3"
56 A$(17,1)="D4"
57 A$(18,1)="D5"
58 A$(19,1)="D6"
59 A$(20,1)="D7"
60 A$(21,1)="D8"
61 A$(22,1)="D9"
62 A$(23,1)="D10"
63 A$(24,1)="DJ"
64 A$(25,1)="DQ"
65 A$(26,1)="DK"
66 A$(27,1)="SA"
67 A$(28,1)="S2"
68 A$(29,1)="S3"
69 A$(30,1)="S4"
70 A$(31,1)="S5"
71 A$(32,1)="S6"
72 A$(33,1)="S7"
73 A$(34,1)="S8"
74 A$(35,1)="S9"
75 A$(36,1)="S10"
76 A$(37,1)="SJ"
77 A$(38,1)="SQ"
78 A$(39,1)="SK"
79 A$(40,1)="CA"
80 A$(41,1)="C2"
81 A$(42,1)="C3"
82 A$(43,1)="C4"
83 A$(44,1)="C5"
84 A$(45,1)="C6"
85 A$(46,1)="C7"
86 A$(47,1)="C8"
87 A$(48,1)="C9"
88 A$(49,1)="C10"
89 A$(50,1)="CJ"
90 A$(51,1)="CQ"
91 A$(52,1)="CK"
100  PRINT "          *BLACK*JACK*          "
110  PRINT : PRINT : PRINT : PRINT : PRINT : PRINT : PRINT "                BY
     "
120  PRINT : PRINT : PRINT "       J. ALEX DRAUGHON        "
130  PRINT : PRINT : PRINT
131  PRINT
132  FOR I=1 TO 550: NEXT I
135  GOSUB 1000
141  CALL 17046
142  INPUT "ENTER THE NAME OF PLAYER #1!!!!",C$
143  INPUT "ENTER THE NAME OF PLAYER #2!!!!",D$
150  CALL 17046
151  PRINT "DO YOU REQUIRE INSTRUCTIONS????"
152  INPUT B$
153  IF B$="NO" THEN 200
154  IF B$="YES" THEN 160
155  PRINT "PLEASE ANSWER 'YES' OR 'NO'....": GOTO 152
160  CALL 17046
165  PRINT : PRINT
```

```
170  PRINT : PRINT "            INSTRUCTIONS                "
171  PRINT "THE SUITES ARE REPRESENTED AS   FOLLOWS:  S = SPADES                "
172  PRINT "   H = HEARTS          C = CLUBS "
173  PRINT "            D = DIAMONDS                "
174  PRINT : PRINT "THE CARD NUMBERS ARE IN NUMERIC FORM WITH THE FOLLOWING
   EXCEPTIONS:                                "
175  PRINT "A = ACE, J = JACK, Q = QUEEN                K = KING                "
176  PRINT "EXAMPLES:                                   HA=ACE OF HEARTS
     S10=TEN OF SPADES      "
180  INPUT "PRESS ANY KEY TO CONTINUE!!!!!",B
181  CALL 17046
182  PRINT C$;" WILL USE THE LEFT CONTROL"
183  PRINT D$;" WILL USE THE RIGHT CONTROL"
184  PRINT : PRINT "PRESS THE 'FIRE' BUTTON FOR A   HIT."
185  PRINT "PRESS THE 'CLEAR' KEY IF YOU    WANT TO STAND."
186  PRINT "THE 'FIRE' BUTTON WILL ALSO RE- SET THE GAME AT THE END."
187  PRINT : PRINT
189  INPUT "PRESS ANY KEY TO CONTINUE!!!!!",B
190  CALL 17046
200  REM
201  CALL 17046
202 L=0:M=0
209  PRINT C$; SPC (18);D$
210 X= RND (10)
211 U= RND (10)
212 V=U*100: IF V>52 GOTO 211
213  IF V<1 THEN 211
214  IF A$(V,1)="0" THEN 211
215 Y=X*100: IF Y>52 GOTO 210
216  IF Y<1 GOTO 210
217  IF A$(Y,1)="0" THEN 210
218  IF V=X THEN 210
219  IF L>0 THEN  PRINT A$(Y,1):A$(Y,1)="0": GOTO 300
220  IF M>0 THEN  PRINT ; SPC (22);A$(V,1):A$(V,1)="0": GOTO 320
225  PRINT A$(Y,1); SPC (20);A$(V,1)
229 A$(V,1)="0"
230 A$(Y,1)="0"
240 N=N+1
242  IF N=2 THEN 300
250  GOTO 210
300 N=0
310  PRINT "HIT?                                  "
311 B$= KEY$ (2): IF B$="" THEN 311
312  IF B$="!" THEN L=L+1: GOTO 210
320 L=0: PRINT "                                HIT?      "
321 B$= KEY$ (1): IF B$="" THEN 321
322  IF B$="!" THEN M=M+1: GOTO 210
350  CALL 17046
360  PRINT "WOULD YOU LIKE TO TRY AGAIN????"
370 B$= KEY$ (2): IF B$="" THEN 370
371  IF B$="!" THEN  CALL 17046: GOTO 200
377  CALL 17046: PRINT "NO??? OH WELL..."
378  PRINT : PRINT : PRINT
380  PRINT "THIS IS YOUR *BLACK*JACK*        COMPUTER PROGRAM SAYING 'GOOD-  BYE
FOR NOW!!!!!!!!!!!!!!!!!!!!"
381  PRINT : PRINT : PRINT : PRINT : PRINT : PRINT : PRINT "              THE END
     "
388  GOTO 388
1000  CALL 17046
1020  SHAPE =15: COLOR =0
1060  COLOR =4: FOR I=5 TO 11: HLIN 4,12,I: HLIN 18,26,I: NEXT I
1080  COLOR =3: HLIN 4,12,4: HLIN 4,12,12: VLIN 5,11,3: VLIN 5,11,13: SHAPE =7:
PLOT 3,4: SHAPE =11: PLOT 13,4: SHAPE =13: PLOT 3,12: SHAPE =14
1100  PLOT 13,12: COLOR =2: PLOT 27,12: SHAPE =15: HLIN 18,26,4: HLIN 18,26,12:
VLIN 5,11,17: VLIN 5,11,27: SHAPE =11: PLOT 27,4
1110  SHAPE =7: PLOT 17,4: SHAPE =13: PLOT 17,12
1140  COLOR =0: FOR I=6 TO 8: PLOT I,6: PLOT I,8: PLOT I,10: NEXT I: PLOT 6,7: P
LOT 6,9: PLOT 8,7: PLOT 9,7: PLOT 8,9: PLOT 9,9
1180  HLIN 20,23,6: VLIN 6,10,22: HLIN 20,22,10: PLOT 20,9
2000  PRINT "*BLACKJACK*BLACKJACK*BLACKJACK*": PRINT : PRINT
2010  FOR I=1 TO 400: NEXT I
2500  RETURN
```

```
0   CALL 17046: PRINT : PRINT : PRINT
1   PRINT "        *STATE*CAPITALS*          "
2   PRINT : PRINT : PRINT : PRINT : PRINT "                    BY                "
3   PRINT : PRINT : PRINT "        J. ALEX DRAUGHON          "
4   PRINT : PRINT : FOR I=1 TO 550: NEXT I
10   POKE 24578,32
20   DIM A$(15)
30   CALL 17046
40   PRINT "ENTER THE NAME OF A STATE SO   ": PRINT "THAT I CAN TELL YOU ITS CAPI
TAL": INPUT A$
41   CALL 17046
47   IF A$="DISTRICT OF COLUMBIA" THEN  GOTO 600
48   IF A$="WYOMING" THEN  GOTO 590
49   IF A$="WASHINGTON D.C." THEN  GOTO 600
50   IF A$="PUERTO RICO" THEN  GOTO 610
51   IF A$="OREGON" THEN  GOTO 500
52   IF A$="PENNSYLVANIA" THEN  GOTO 510
53   IF A$="SOUTH CAROLINA" THEN  GOTO 520
54   IF A$="TENNESSEE" THEN  GOTO 530
55   IF A$="TEXAS" THEN  GOTO 540
56   IF A$="VIRGINIA" THEN  GOTO 550
57   IF A$="WASHINGTON" THEN  GOTO 560
58   IF A$="WEST VIRGINIA" THEN  GOTO 570
59   IF A$="WISCONSIN" THEN  GOTO 580
60   IF A$="ALABAMA" THEN  GOTO 104
61   IF A$="ALASKA" THEN  GOTO 110
62   IF A$="ARKANSAS" THEN  GOTO 120
63   IF A$="ARIZONA" THEN  GOTO 130
64   IF A$="CALIFORNIA" THEN  GOTO 140
65   IF A$="NEW MEXICO" THEN  GOTO 150
66   IF A$="COLORADO" THEN  GOTO 160
67   IF A$="CONNECTICUT" THEN  GOTO 170
68   IF A$="RHODE ISLAND" THEN  GOTO 180
69   IF A$="DELAWARE" THEN  GOTO 190
70   IF A$="MARYLAND" THEN  GOTO 200
71   IF A$="FLORIDA" THEN  GOTO 210
72   IF A$="GEORGIA" THEN  GOTO 220
73   IF A$="HAWAII" THEN  GOTO 230
74   IF A$="IDAHO" THEN  GOTO 240
75   IF A$="ILLINOIS" THEN  GOTO 250
76   IF A$="INDIANA" THEN  GOTO 260
77   IF A$="IOWA" THEN  GOTO 270
78   IF A$="KANSAS" THEN  GOTO 280
79   IF A$="KENTUCKY" THEN  GOTO 290
80   IF A$="LOUISIANA" THEN  GOTO 300
81   IF A$="MAINE" THEN  GOTO 310
82   IF A$="MASSACHUSETTS" THEN  GOTO 320
83   IF A$="MICHIGAN" THEN  GOTO 330
84   IF A$="MINNESOTA" THEN  GOTO 340
85   IF A$="MISSISSIPPI" THEN  GOTO 350
86   IF A$="MISSOURI" THEN  GOTO 360
87   IF A$="MONTANA" THEN  GOTO 370
88   IF A$="NEBRASKA" THEN  GOTO 380
89   IF A$="NEVADA" THEN  GOTO 390
90   IF A$="UTAH" THEN  GOTO 400
91   IF A$="NEW HAMPSHIRE" THEN  GOTO 410
92   IF A$="VERMONT" THEN  GOTO 420
93   IF A$="NEW JERSEY" THEN  GOTO 430
94   IF A$="NEW YORK" THEN  GOTO 440
95   IF A$="NORTH CAROLINA" THEN  GOTO 450
96   IF A$="NORTH DAKOTA" THEN  GOTO 460
97   IF A$="SOUTH DAKOTA" THEN  GOTO 470
98   IF A$="OHIO" THEN  GOTO 480
99   IF A$="OKLAHOMA" THEN  GOTO 490
100   PRINT "I'M SORRY, BUT YOU EITHER MADE  A MISTAKE IN SPELLING OR DID NOT TYP
E IN THE NAME OF A STATE!": FOR L=1 TO 500
101   NEXT L: GOTO 10
104   PRINT "THE CAPITAL IS MONTGOMERY       "
105   GOTO 5000
110   PRINT "THE CAPITAL IS JUNEAU           "
115   GOTO 5000
120   PRINT "THE CAPITAL IS LITTLE ROCK      "
125   GOTO 5000
130   PRINT "THE CAPITAL IS PHOENIX          "
135   GOTO 5000
140   PRINT "THE CAPITAL IS SACRAMENTO       "
145   GOTO 5000
150   PRINT "THE CAPITAL IS SANTA FE         "
155   GOTO 5000
160   PRINT " THE CAPITAL IS DENVER          "
```

```
165  GOTO 5000
170  PRINT " THE CAPITAL IS HARTFORD "
175  GOTO 5000
180  PRINT "THE CAPITAL IS PROVIDENCE "
185  GOTO 5000
190  PRINT "THE CAPITAL IS DOVER"
195  GOTO 5000
200  PRINT "THE CAPITAL IS ANNAPOLIS"
205  GOTO 5000
210  PRINT "THE CAPITAL IS TALLAHASSEE"
215  GOTO 5000
220  PRINT " THE CAPITAL IS ATLANTA "
225  GOTO 5000
230  PRINT "THE CAPITAL IS HONOLULU"
235  GOTO 5000
240  PRINT "THE CAPITAL IS BOISE"
245  GOTO 5000
250  PRINT " THE CAPITAL IS SPRINGFIELD"
255  GOTO 5000
260  PRINT " THE CAPITAL IS INDIANAPOLIS"
265  GOTO 5000
270  PRINT "THE CAPITAL IS DES MOINES "
275  GOTO 5000
280  PRINT "THE CAPITAL IS TOPEKA"
285  GOTO 5000
290  PRINT "THE CAPITAL IS FRANKFORT"
295  GOTO 5000
300  PRINT " THE CAPITAL IS BATON ROUGE "
305  GOTO 5000
310  PRINT " THE CAPITAL IS AUGUSTA "
315  GOTO 5000
320  PRINT " THE CAPITAL IS BOSTON"
325  GOTO 5000
330  PRINT " THE CAPITAL IS LANSING"
335  GOTO 5000
340  PRINT "THE CAPITAL IS SAINT PAUL"
345  GOTO 5000
350  PRINT " THE CAPITAL IS JACKSON"
355  GOTO 5000
360  PRINT " THE CAPITAL IS JEFFERSON CITY "
365  GOTO 5000
370  PRINT " THE CAPITAL IS HELENA"
375  GOTO 5000
380  PRINT "THE CAPITAL IS LINCOLN"
385  GOTO 5000
390  PRINT "THE CAPITAL IS CARSON CITY "
395  GOTO 5000
400  PRINT " THE CAPITAL IS SALT LAKE CITY "
405  GOTO 5000
410  PRINT "THE CAPITAL IS CONCORD"
415  GOTO 5000
420  PRINT "THE CAPITAL IS MONTPELIER"
425  GOTO 5000
430  PRINT "THE CAPITAL IS TRENON"
435  GOTO 5000
440  PRINT "THE CAPITAL IS ALBANY"
445  GOTO 5000
450  PRINT "THE CAPITAL IS RALEIGH"
455  GOTO 5000
460  PRINT " THE CAPITAL IS BISMARCK"
465  GOTO 5000
470  PRINT " THE CAPITAL IS PIERRE"
475  GOTO 5000
480  PRINT "THE CAPITAL IS COLUMBUS"
485  GOTO 5000
490  PRINT " THE CAPITAL IS OKLAHOMA CITY "
495  GOTO 5000
500  PRINT "THE CAPITAL IS SALEM"
505  GOTO 5000
510  PRINT " THE CAPITAL IS HARRISBURG"
515  GOTO 5000
520  PRINT "THE CAPITAL IS COLUMBIA"
525  GOTO 5000
530  PRINT "THE CAPITAL IS NASHVILLE"
535  GOTO 5000
540  PRINT " THE CAPITAL IS AUSTIN"
545  GOTO 5000
550  PRINT " THE CAPITAL IS RICHMOND"
```

```
555  GOTO 5000
560  PRINT " THE CAPITAL IS OLYMPIA"
565  GOTO 5000
570  PRINT " THE CAPITAL IS CHARLESTON"
575  GOTO 5000
580  PRINT "THE CAPITAL IS MADISON"
585  GOTO 5000
590  PRINT "THE CAPITAL IS CHEYENNE"
595  GOTO 5000
600  PRINT "THE CAPITAL IS ANNAPOLIS"
605  GOTO 5000
610  PRINT " THE CAPITAL IS SAN JUAN"
615  GOTO 5000
625  GOTO 5000
5000  PRINT "PRESS 'RETURN' TO CONTINUE      ": INPUT Z
5010  GOTO 10
```

```
1  REM    STROBE PROGRAM SUBMITTED BY DANIEL TAYLOR. CHANGE LINE 70 TO GOTO 10 F
OR INTERESTING EFFECT.
5  CALL 17046
10 X= INT ( RND (0)*15+1)
20  IF X<=5 THEN  COLOR =4
30  IF X>5 THEN  COLOR =5
40  IF X>9 THEN  COLOR =1
50  SHAPE =X
60  HLIN X,31,X
64 Y= INT ( RND (0)*32+1)
65  VLIN X,15,Y
70  GOTO 5
```

PROGRAMS IN REVIEW.

First on the list is EDDIE BEDNAR'S Here is a handful of games for everybody. ----The prices are right and make great stocking stuffers

John Mechalas has a dandy "cenopede" game for us this year. ===High res graphics, Color, Lotsa action=== Makes for some good scores for all on this version.
Russ Needham has delivered two programs that should not be missed by anyone with children from five to 12. "spellbinder" is a novel and fun way to help with spelling and "safari in Africa" is an action adventure game. Your kids won't know they're practicing reading skills till you tell them.---This is the IM-1 at it's finest as a teaching tool for little programmers.

????????????????????????

LONELY MEMBERS

David Alger
RR1 BOX 234A
Carbon In,47837
Phone 317-672-4652
Presently on robotics committee for ARCO aluminum. Programming in BASIC for several years learning assy.lang. Interested in C.A.I. Believe that IM-1 is tops for purpose.
16K with disc, Rommon, &level II BASIC.

Emmet Jenkins
P.O. BOX 1302
BRONX, N.Y. 10452
I love science fiction and related literature: Omni, Popular Scirnce, almost all computer magazines, and fat women!

```
10  CALL 17046
20  POKE 24578,32
21  PRINT "          MERRY CHRISTMAS          ": PRINT : PRINT : PRINT : PRINT : PRI
NT : PRINT "                BY                 ": PRINT : PRINT : PRINT : PRINT : PR
INT
22  PRINT "        J. ALEX DRAUGHON         "
23  FOR I=1 TO 550: NEXT I
25  CALL 17046
30  COLOR =4: SHAPE =15
40  FOR I=11 TO 15
50  HLIN 0,31,I
60  NEXT I
70  COLOR =6: HLIN 13,17,13: HLIN 14,16,14
80  COLOR =3: PLOT 15,12
90  COLOR =0
100  HLIN 11,19,11
110  HLIN 12,18,10
120  HLIN 13,17,9
130  HLIN 14,16,8
140  HLIN 15,15,7
150  SHAPE =12: COLOR =1
160  HLIN 20,28,4
170  SHAPE =1: PLOT 19,3
175  COLOR =3
180  SHAPE =11: PLOT 21,3: SHAPE =3: PLOT 22,3: PLOT 23,3: SHAPE =15: PLOT 24,3:
 PLOT 24,2: COLOR =4: PLOT 24,1
190  COLOR =3: SHAPE =7: PLOT 24,0
200  COLOR =7: SHAPE =15: HLIN 26,28,3: PLOT 27,2: SHAPE =1: PLOT 26,2: SHAPE =2
: PLOT 28,2: SHAPE =1: PLOT 26,1: SHAPE =2: PLOT 27,1
210  COLOR =1
220  SHAPE =3: PLOT 16,2: PLOT 17,2: SHAPE =6: PLOT 14,3: SHAPE =2: PLOT 15,3: S
HAPE =1: PLOT 16,3: SHAPE =9: PLOT 17,3
230  SHAPE =6: PLOT 14,2: SHAPE =2: PLOT 15,1: SHAPE =4: PLOT 13,2: SHAPE =2: PL
OT 13,1
240  SHAPE =3: PLOT 15,2
250  HLIN 7,9,2: SHAPE =6: PLOT 9,3: PLOT 6,3: SHAPE =2: PLOT 7,3: PLOT 10,3: SH
APE =11: PLOT 6,2: SHAPE =9: PLOT 5,1: SHAPE =1: PLOT 6,1
260  SHAPE =8: PLOT 7,1: COLOR =7: SHAPE =1: PLOT 5,2
280  COLOR =3: SHAPE =3: PLOT 23,2
285  COLOR =4: SHAPE =1: PLOT 22,2
290  POKE 714,13: POKE 715,5: POKE 716,18: POKE 717,18: POKE 718,25
300  POKE 720,3: POKE 721,8: POKE 722,18: POKE 723,9: POKE 724,19: POKE 725,20:
POKE 726,13: POKE 727,1: POKE 728,19
310  GOTO 310
```

```
1  REM        BATTLE OF NUMBERS ...BY D ON   SCHMIDT
10  GOSUB 20: CALL 17046
20 A= INT ( RND (0)*13+7): REM    ARBITRARY
30 B= INT ( RND (0)*37+41): REM ARBITARY
40  PRINT "INTERRVAL IS I TO ";A: PRINT
50  PRINT "STARTING TOTAL IS ";B: PRINT
55 :
60  INPUT "YOU GO ",P
70  IF  INT (P)<>P THEN 100
80  IF  INT ((P-1)/A)<>0 THEN 100
85  IF P=0 THEN 100
90  IF P<=B THEN 110
100  PRINT "ILLEGAL NUMBER": GOTO 60
110 B=B-P: IF B=0 THEN  PRINT "*** I WIN***": GOTO 200
120 I= INT ((B-I)/(A+1))
130 C=B-((A+1)/(A+1))
140  IF C=0 THEN 170
150 C= INT ( RND (0)*A+1)
160  IF B=C<0 THEN 150
170 B=B-C: PRINT "I TAKE",C
180  IF B=0 THEN  PRINT "*** YOU WIN***": GOTO 200
190  PRINT "LEAVEING A TOTAL OF ",B: GOTO 60
200  INPUT "ANOTHER BATTLE? (Y=1 N=0",P: IF P=1 THEN 20
210  END
220  INPUT "DO YOU KNOW THE RULES? (Y=1,N=0)",P: IF P=1 THEN  RETURN
230  PRINT "WE TAKE TURNS SUBTRACTING AN INTEGER"
240  PRINT "IN THE RANGE OF (1) TO SOME NUMBER (A)"
250  PRINT "FROM ANOTHER (B),WITH THE DIFFERENCE"
260 LEAVEING(B) FOR THE NEXT TURN.THE"
270  PRINT "LAST ONE TO SUBTRACT LOSES. HERE WE GO": RETURN
```

```
1  POKE 24578,54: CALL 17046
2  DIM A$(2)
3 M=15
5  GOSUB 300
10  PRINT "**** GAME OF 15 MATCHES ***"
15  PRINT
20  INPUT "DO YOU NEED INSTRUCTIONS ",A$
25  IF A$="Y" THEN  GOSUB 700
30  PRINT
35  INPUT "DO YOU WANT TO GO FIRST ",A$
45 M=0:R=0
50  PRINT : INPUT "HOW MANY MATCHES DO YOU WANT    TO START WITH ",M
51  GOSUB 300
60  IF A$="Y" THEN 70
65  GOSUB 100
68  GOSUB 300
70  GOSUB 200
75  GOSUB 300
80  GOTO 65
100  IF M=1 THEN 520
105 R=M-4* INT (M/4)
110  IF R<>1 THEN 130
120 C=3* RND (X):C= INT (C)+1
125  GOTO 140
130 C=(R+3)-4* INT ((R+3)/4)
140 M=M-C
150  PRINT "I'M THINKING !!"
155  MUSIC "*5/3  *5/3  *5/3  444  444  *5/3  *5/3 321 321 *7 500000"
156  IF C=1 THEN 172
157  PRINT : PRINT "OKAY, I'LL TAKE ";C;" MATCHES."
160  FOR X=1 TO 400: NEXT X
170  RETURN
172  PRINT : PRINT "OKAY, I'M GOING TO TAKE ONLY    1 MATCH."
174  GOTO 160
200  IF M=1 THEN 500
203  PRINT "OKAY HUMAN.. THERE ARE          ";M;"  MATCHES LEFT."
205  PRINT : INPUT "HOW MANY DO YOU WANT TO TAKE",H
207  PRINT
210  IF H<1 THEN 220
215  IF H>3 THEN 220
218  GOTO 240
220  PRINT "TSK!TSK!": MUSIC "3 3 4 4  50"
222  PRINT "YOU CAN ONLY TAKE 1,2, OR 3 !!!!"
230  GOTO 203
240  IF M>H THEN 250
245  PRINT "YOOU ONLY HAVE ";M;" MATCHES!!": MUSIC "345 666 *7*7"
248  PRINT : GOTO 203
250 M=M-H
260  RETURN
300  CALL 17046
301  FOR J=1 TO M: COLOR =5: SHAPE =5
305  VLIN 5,10,2*J
307  COLOR =3
308  PLOT 2*J,4
310  NEXT J
320  RETURN
500  GOSUB 300
502  PRINT : PRINT " YOU LOSE!!!": MUSIC "500   /+3000000000"
505  PRINT "TOO BAD. BETTER LUCK NEXT TIME."
508  GOTO 600
510  GOSUB 400
520  PRINT "VERY GOOD. YOU'VE WON!!"
521  MUSIC "/5  /7  /5  /7  33  7 54000"
522  PRINT "I TOOK THE LAST MATCH."
525  GOTO 600
600  CALL 17046
610  POKE 40960,2: POKE 40961,512
615  INPUT "DO YOU WANT TO PLAY AGAIN",A$
620  IF A$="Y" THEN 20
625  PRINT : PRINT "OKAY, MAYBE NEXT TIME."
628  MUSIC "50 40 33 /1  /1  /1  *2000"
629  FOR X=1 TO 100: NEXT X
630 M=15
635  GOSUB 300
640  COLOR =1
645  FOR T=1 TO M
650  PLOT 2*T,4
655  NEXT T
```

```
660  FOR X=1 TO 200: NEXT X
670  CALL 17046
680  STOP
690  FOR X=1 TO 900: NEXT X
692  CALL 17046
695  RETURN
700  CALL 17046: POKE 40960,2: POKE 40961,512
705  PRINT "WE BEGIN THE GAME WITH A ROW OF MATCHES."
710  PRINT : GOSUB 690
715  PRINT "THEN WE TAKE TURNS REMOVING 1,2,3 MATCHES UNTIL THEY ARE ALL GONE."
720  PRINT : GOSUB 690
725  PRINT "WHOEVER TAKES THE LAST MATCH    LOSES."
730  PRINT : GOSUB 690
735  PRINT "IT'S A THINKER'S GAME AAND I'M  GOOD AT IT."
750  PRINT : GOSUB 690
755  RETURN
800  END
```

M B ENTERPRISES, Inc items for sale.

1. Adapter cable to allow hooking ATARI type joy sticks to the IM-1. With this cable and a small modification to the Atari Joystick you can get the use of the IM-1 and Atari Joystick.

Atari Joystick and installation of both.

COST $9.95 EACH
OR $14.95 FOR 2
Include $2.00 shipping and handling

2. GEMINI 10X or 15X Printers... These come complete with all of the special interfaces and cables needed in the GEMINI to attach them to the IM-1. Also for limited time you can get a free SI-232 for the IM-1 with the purchase of the printer.

GEMINI 10X $399.95
GEMINI 15X $599.95
Please include $15.00 shipping & handling.....

3. Disc Drives for the IM-1.....

COST $349.95
Include $10.00 shipping & handling.....

4. Combination CABLE and Atari Joystick for the IM-1....

COST $24.95 EACH
2 for $39.95
Include $3.00 shipping & handling

5. Modified SI-232 with program to allow the use of a printer and modem at the same time on the IM-1.....

COST $29.95 EACH
Include $3.00 shipping & handling

6. Also we now have a line of Computer furniture for sale, so if you want more info write to the address below.

SEND ALL ORDERS TO::
M B ENTERPRISES, Inc
PO BOX 1411
SPRINGDALE
ARKANSAS 72765

All items limited quantities, first come first serve. Please alloww 4 to 6 weeks for delivery.

Want Ad Information

Due to the cost of printing we must ask you again to limit your want ads to 10 lines. The cost of 25 cents pre line for members and 75 cents for non-members is the same as is the limit of 32 characters per line. Ads will be published in the order received. any leftovers will be held till the next issue. Deadline for ads is the 20th of the month !!!!!!!!!!!! Here we go again. The want ads are for small programs or hardware, they are not intended for commercial use. The professional type rates have gone down so don't be afraid to ask again what they are. You can expect a pleasant surprise.

We have another full mailing to 3,000 people coming up this year.

****

BLANK WANT AD

Each line can contain 32 characters including spaces.

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1. _____

2. _____

3. _____

4. _____

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6. _____

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9. _____

10. _____

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Lonesome computers

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---Check here if you do not want this information published!!!

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name=----------------------------*Tell us a little about yourself
                                 *
addr=---------------------------*
                                 *
city=---------------------------*
                                 *
state=--------------------------*
                                 *
zip=---------------              *
                                 *
phone=--------------------------*
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