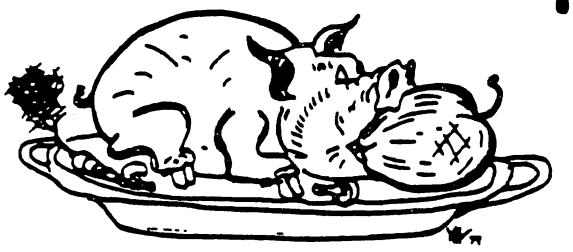
H.A.A.U.G.



HOUSTON AREA APPLE USERS GROUP

THE APPLE BARREL

VOLUME 5 NO. 9 DECEMBER 1982

PRESIDENT, MIKE KRAMER VICE PRES., BRIAN WHALEY
EDITOR, MIKE KRAMER

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HAAUG APPLE BARREL

2218 Running Springs
Kingwood, TX 77339

CLUB NOTES

The HOUSTON AREA APPLE USERS GROUP is an Apple user club, not affiliated with Apple, Inc., or any retail computer store. HAAUG is a member of the International Apple Core and supports its publications and purposes. General membership meetings are held on the second Thursday of each month in the rear chapel of Memorial Lutheran Church, 5800 Westheimer, between Chimney Rock and Jungman Library, beginning at 6:30 P.M. An additional general meeting is held beginning at noon the third Saturday of each month at the UT School of Public Health in the Medical Center at 6905 Bertner at Holcomb. This meeting features tutorials, special interest group meetings, problem-solving sessions, and access to the HAAUG software library. The meeting is held in the main floor meeting room to the left of the entrance. Bring your Apples!!

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OFFICERS / EXECUTIVE BOARD

President	Mike Kramer
Vice Pres	Brian Whaley
Treasurer	Wally Edmiston
Secretary	Ruth Dill
Software Lib.	Jim Good
Hardcopy Lib.	Larry Baumann
Membership	Lee Gilbreath
IAC Rep.	Robin Cox

APPLE HOTLINE
713-668-3102

The APPLE HOTLINE has been established to provide an easy means to learn of meeting topics, news, etc. It can also be used to obtain answers to puzzling Apple - related questions. If you get a recording, leave your name, date, and time. You should get a return call within 24 hours.

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MEMBERSHIP INFORMATION

New memberships are $30 and include the HAAUG starter kit. Renewals are $20 per year. Make checks payable to Houston Area Apple Users Group and mail to Lee Gilbreath, 3609 Glen-meadow, Rosenberg,TX 77471.DO NOT SEND RENEWALS TO THE APPLE BARREL.

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APPLE BARREL REPRINT POLICY

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ADVERTISING RATES

FULL PAGE	HALF PAGE	QTR PAGE	6TH PAGE	8th PAGE
$50	$28	$18	$15	$10

Advertisements should be submitted in camera ready form to H.A.A.U.G., 2218 Running Springs, Kingwood, TX, 77339, by the 1ST of the month. Charges will be billed and accompanied by a copy of the Apple Barrel containing the ad.

THOUGHTS FROM THE PRES

Last month in this column I stated that we expected to increase the ranks of HAAUG as a result of Applefest. Thanks to the help of a group of our members, particularly DeWayne Van Hoozer, Robin Cox, Lee Gilbreath, and others whose names slip my mind at the moment, the HAAUG membership drive at the show was a huge success, with membership jumping from 750 or so to over 1000. What was very surprising was that a very high percentage of those signing up were unaware that HAAUG existed. Many had actually been told by the store where they had bought systems that there was no club in Houston!!! How strange. What started out as a small number of gifts to be given in a drawing to new members turned in to a sizeable list as various exhibitors came by the HAAUG booth and sweetened the list. Our thanks to all of them.

The Saturday meeting this month was still not as smooth as it could be, but the classrooms continued to add to the quality of the session. This month we were given use of the Auditorium for the general meeting and for special guest presentations. I'm sure you all agree that the quieter surroundings were much more conducive to conducting a business meeting. Several of you probably had ruffled feathers as a result of closing of the copy session during the general meeting. If so, I'm sorry, but it is important that everyone get together for the half hour session so that they can hear the announcements and participate in the discussion. Too often I hear complaints such as "No one told me we were changing to the third Saturday of the month" or "I didn't know we couldn't trade copyrighted software at the meeting" when those topics had been discussed in the general session.

It was suggested that the general meeting be made compulsory, but it is hard to do that with a group such as ours. I do feel that every possible means should be used to encourage attendance, including attempts to keep the meeting brief and interesting. Suspending the software copying is essential because no one will attend at the risk of losing their turn. The solution to that is to suspend copying for half an hour. Actually the copy session is scheduled to begin at 2:30 after the general meeting, not Noon.

Finally, we should all keep in mind that we use the UT facility at no cost to HAAUG and should do everything possible to keep the University happy. We should therefore observe the following rules to the letter:

1. Be responsible for your own Coke cans and other trash.

2. Do not take food and drink into the Auditorium.

3. Use classrooms and Auditorium only for scheduled HAAUG activities.

4. Keep children under control. They may not play in the elevator, on the stairs, or on the upper floors.

5. Money must not change hands in the building.

Your cooperation in observing these rules will help assure continued availability of UT's fine facilities for our use.

SPECIAL INTEREST GROUPS

Members who share interests are encouraged to join or form Special Interest Groups (SIGs) to more fully explore their fields. Although some of these groups meet separately from the regular meetings, most meet at the regular Saturday session at the times listed below. If you would like to become involved in a SIG, show up at the appropriate meeting room at the Saturday session or call the HOTLINE for meeting time and location if the SIG is not listed on the schedule. Lists of members with specific interests can be generated on request from the HAAUG MEMBERSHIP SURVEY data base for use in organizing new SIGs.

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HAAUG SATURDAY SESSION
SIG ROOM ASSIGNMENTS

TIME	AUDIT	MAIN	RM204	RM208	RM228
NOON	_____	BASIC___	CP/M____	_____	EDUC____
1230	_____	BASIC___	CP/M____	_____	EDUC____
1:00	_____	BASIC___	CP/M____	_____	EDUC____
1:30	NEW MEMB	BASIC___	CP/M____	_____	EDUC____
2:00	GEN MEET	SOFTWARE	_____	PASCAL__	BUSINESS
2:30	SPECIAL_	SOFTWARE	_____	PASCAL__	BUSINESS
3:00	SPECIAL_	SOFTWARE	_____	PASCAL__	BUSINESS
3:30	SPECIAL_	SOFTWARE	ASSEMBLR	GAMES___	APPLE///
4:00	_____	SOFTWARE	ASSEMBLR	GAMES___	APPLE///
4:30	_____	SOFTWARE	ADVANCED	GAMES___	APPLE///
5:00	_____	SOFTWARE	ADVANCED	_____	FORTH___
5:30	_____	SOFTWARE	ADVANCED	_____	FORTH___

SIG CHAIRMEN: CALL GUS AT 481-5329 THE WEEK BEFORE MEETING TO CONFIRM NEED FOR ROOM OR FOR TEMPORARY ROOM ASSIGNMENT.

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SIG CHAIRMEN

Business	Rudge Allen	CP/M	Jim Huck
Pascal	Jon Stevens	Sci/Engg	Mike Conway
Statistics	Lindsay Reed	Stocks	George Marsden
Education	Brian Whaley	FORTH	Steve Knouse
Assembler	Robin Cox	BASIC	Glenna Payne
DOS	Bill Zahrt	Games	Bill Muhlhausen
Adv.Topics	Tom Murdock	Apple ///	Mike Kramer

MINUTES
HAAUG MEETING, November 11, 1982

Mike Kramer announced that Re Kramer will have some free sessions on VisiCalc at the Kingwood High School. Anyone interested may sign up after the meeting.

The APPLE BARREL will be put in the mail Friday, November 12th or Monday, November 15th.

Membership renewals should be mailed to Lee Gilbreth and not to Mike Kramer.

Lee Gilbreth reported that the membership drive at the Apple Fest resulted in over 200 new members on the first day. Many people picked up applications at the Apple Fest and mailed them in. Those new members added to those who signed up at the meetings bring the total membership to over a thousand.

Articles are needed for the APPLE BARREL. New members, even beginners, can submit reviews on software. Contributors will receive a free diskette for each page that is used in the newsletter.

The Stock Special Interest Group will not have a meeting in November but will have one in December. Further information will be announced later and will be available on the hot line.

Steve Knouse will have a session on Forth at the next Saturday meeting.

Robin Cox has taken over the handling of the hot line. The new hot line number is 668-3102.

Robin Cox will start a new course on Assembly Language beginning with the next Saturday meeting.

Beginning with this month, the Saturday meetings will be held on the third Saturday of the month from now on.

The Games Special Interest Group will make another attempt to organize at the next Saturday meeting.

All people who have been working on the Software Library should turn in the material they have been working on at the next Saturday meeting.

Wally Edmiston, Treasurer, reported on club finances as of September 30th. Figures are approximate.

Income	$17,000
Expenses	10,500
Net Profit	$ 6,500
Club assets	$ 2,000
Now in Treasury	$15,000

Brian Whaley would like to organize a Logo Special Interest Group at the next Saturday meeting. The Computer School at 59 and 610 offered the use of Apple Computers for the Logo group.

The club agreed to buy a printer for Ed Seeger to use in printing the mailing labels. This will be a dot matrix printer which will print at least 120 characters per second.

The drawings were held from the names of new members who signed up at Apple Fest, resulting with the following winners:

DeWayne Van Hoozer, the club's IAC Representative is leaving Houston. He reported that IAC, in combination with an insurance company now has insurance available to any member of a member club. Computers and accessories can be insured for $7500 and up. Full information will be available soon. The financial report from IAC is as follows:

Total revenues collected	$440,211
Publication costs	249,645
Office expenses	48,849
Salaries, payroll taxes, etc.	56,243
Travel expenses, etc.	60,000
Retained earnings	25,794

The club expressed its appreciation to DeWayne for the work he has done for the club.

The Nominating Committee will announce its slate of officers at the next Saturday meeting.

The program was turned over to a panel of experts who answered questions from the floor.

WANT/DON'T WANT ADS

FOR SALE: **Data Products serial thermal printer, 80 cps, quiet. Includes cable. Asking $200.**

Call Lee Gilbreath at 342-2685.

---===*===---

FOR SALE: **Non-airline-proof case. Lists for $125, sell for $50. Saturn 32K RAM card with disk & documentation, $150. Epson parallel card $40, cable $20.**

Call Mike Kramer at 358-6687

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FOR SALE: **VISICALC 3.3 with original documentation, $75. Call Cy Helm at 676-5276 (work) or 974-5153 (home)**

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FOR SALE: **Trendcom Printer with interface, thermal, 40 cps. Lists for $299 w/o interface. Sell for $250.**

Call Dennis Cornwell at 774-0671.

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MEETING ANNOUNCEMENTS

VISICALC TUTORIAL

An introduction to Visicalc for the Apple II and Apple /// will be held for current and prospective HAAUG members on Tuesday, December 14, 7:30 P.M. in Room 306, Kingwood High School, 2701 Kingwood Drive. There will be no charge, but you should bring your own computer. Visicalc will be loaded in your machine so you won't need to own it to take advantage of the session. Call Re Kramer at 358-6687 to reserve an electrical outlet.

EDUCATION SPECIAL INTEREST GROUP

An organizational structure for the Education SIG was formed at the November Saturday meeting. The Education SIG will meet at the next Saturday Meeting on December 18 from Noon to 2 P.M. for an introduction to Logo Programming. This will be continued at the January meeting. The SIG has allocated 12 Noon to 12:30 for educational software demos. All reasonable applications should be considered for demo. The formal presentation on Logo will begin at 12:45 P.M.

DEMO OF GENERAL PURPOSE DATA SYSTEM

Lee Gilbreath has obtained a new data base system from Micro-Mates which uses the file structure of File Cabinet but enjoys all the advantages of a full blown commercial system. The system will be demonstrated at the December Saturday session. Although the system costs only $50, it has excellent documentation and has features not found in many of the more expensive data base systems. It even reads and translates Visicalc files. The time and room number will be posted at the meeting.

APPLE PARENTS ANONYMOUS

If you and your children are interested in encouraging computer education and the development of a computer culture in the schools at a grass roots level, call SERGIO HENAO (pronounced A-NOW) at 729-2385 after 7 P.M.

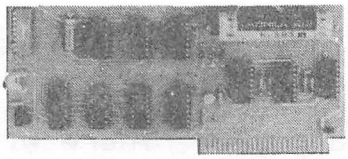
WEST SIDE ANONYMOUS

Some of those who live on the west side of Houston (Katy rice paddies) would like to test the degree of interest in forming a loose confederation of Apple users within HAAUG. The purpose is to get together very informally by phone or at each others' homes as the situation warrants to share and promote Apple knowledge. Call Ervin Cain at 392-9824 if you are interested.

APPLE PERIPHERALS ARE OUR ONLY BUSINESS

TIME II
THE MOST POWERFUL, EASIEST TO USE CLOCK FOR YOUR APPLE

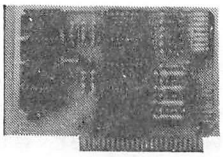
- Time in hours, minutes and seconds.
- Date with year, month, day of week and leap year.
- Will enhance programs for accounting, time and energy management, remote control of appliances, laboratory analysis, process control, and more.
- 24-hour military format or 12-hour with AM/PM indication.
- User selectable interrupts permit foreground/background operation of two programs simultaneously.
- Crystal controlled for .0005% accuracy.
- Easy programming in basic.
- On board battery backup power for over four months power off operation (battery charges when Apple is on).



- Twenty-seven page operating manual included with many examples of programs to use with your Apple in any configuration.
- Includes disk containing a DOS Dater and many other time oriented utilities plus over 25 user contributed programs at no extra cost.

PRICE $129.00

SUPER MUSIC SYNTHESIZER



- Complete 16 voice music synthesizer on one card. Just plug it into your Apple, connect the audio cable (supplied) to your stereo and boot the disk supplied and you are ready to input and play songs.
- It's easy to program music with our compose software. You will start right away at inputting your favorite songs. The Hi-Res screen shows what you have entered in standard sheet music format.
- We give you lots of software. In addition to Compose and Play programs, the disk is filled with songs ready to run.
- Easy to program in basic to generate complex sound effects.
- Four white noise generators which are great for sound effects.
- Plays music in true stereo as well as true discrete quadrophonic.
- Envelope control.
- Will play songs written for ALF synthesizer (ALF software will not take advantage of all the features of this board. Their software sounds the same in our synthesizer.)
- Automatic shutoff on power-up or if reset is pushed.
- Many many more features.

PRICE $159.00

ANALOG TO DIGITAL CONVERTER

- 8 Channels
- 8 Bit Resolution
- On Board Memory
- Ratiometric Capability
- Fast Conversion (.078 ms per channel)
- Eliminates The Need To Wait For A/D Conversion (just PEEK at data)
- A/D Process Totally Transparent to Apple (looks like memory)

The analog to digital conversion takes place on a continuous, channel sequencing basis. Data is automatically transferred to on board memory at the end of each conversion. No A/D converter could be easier to use.

Our A/D board comes standard with 0, 10V full scale inputs. These inputs can be changed by the user to 0, -10V, or -5V, +5V or other ranges as needed.

The user connector has +12 and -12 volts on it so you can power your sensors. (These power sources can be turned off with on board dip switch).

Accuracy 0.3% Input Resistance 20K Ohms Typ

A few applications may include the monitoring of ● flow ● temperature ● humidity ● wind speed ● wind direction ● light intensity ● pressure ● RPM ● soil moisture and many more.

PRICE $129.00

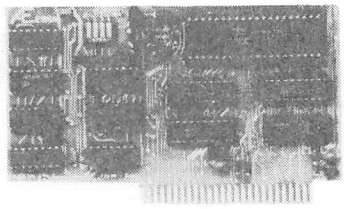
DIGITAL INPUT/OUTPUT BOARD

- Provides 8 buffered outputs to a standard 16 pin socket for standard dip ribbon cable connection.
- Power-up reset assures that all outputs are off when your Apple is first turned on.
- Features 8 inputs that can be driven from TTL logic or any 5 volt source.
- Your inputs can be anything from high speed logic to simple switches.
- Very simple to program, just PEEK at the data.
- 4 other outputs are also provided. User 1, reset, interrupt request, non-maskable interrupt.
- Now on one card, you can have 8 digital outputs and 8 digital inputs each with its own connector. The super input/output board is your best choice for any control application.

PRICE $62.00

Z-80 CARD

- TOTALLY compatible with all CP/M software.
- Executes the full Z-80 and 8080 instruction set.
- Allows you to run your Apple CP/M based programs.
- Does EVERYTHING the other Z-80 boards do, plus supports Z80 Interrupts.
- Hardware and software settable switch options.
- An on-card PROM eliminates many I.C.'s for a cooler, less power consuming board.
- Complete documentation included. (user must furnish software)



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EDUCATIONAL GAME PLAYING

by Nick Fotheringham

Like many Apple owners with school-age children, I have an interest in trying to compensate for the time my children spend playing games with software that may improve their performance in the classroom. The weak areas where the Apple seems most likely to help my children are mathematics/arithmetic and spelling/vocabulary. I have generally been satisfied with the mathematics software available commercially or through HAAUG, but the spelling programs that I have encountered are typically ineffective or boring, thus consuming much of my time keeping the kids at the keyboard. Programs like Hangman and Stay Afloat have captured their interest, but are often resolved by guesswork which does not require an image of the word being spelled. Consequently, I have written two "educational" programs which require envisioning and typing words as a whole. These programs were adapted from puzzles occuring in crossword puzzle magazines, and thus capture kids' attention a bit better than drills.

The first program, which creates puzzles whose name I can't recall, is labeled SYLLABLE.PUZZLE. Each puzzle generated by the program consists of ten two-syllable words whose component syllables have been disassociated, pooled and alphabetized. The objective is to recombine the syllables to identify the original words. As each word is correctly identified, its syllables are erased from the list, making the rest of the puzzle a bit easier.

In the word list provided as an example in the listing, not all of the word fragments (e.g. 'ch' + 'air') are actually syllables, but were often included as part of a specific lesson I was trying to teach (i.e. the 'air' in 'chair' is identical to that in 'airplane', etc.). Thus I was trying to get my children to hear the 'air' in 'chair' as they searched for and found a match. Other ad hoc applications are easily developed which use this puzzle to increase exposure to specific learning obstacles.

The program's limitations result largely from its development for children in early grade school. Its vocabulary is entered via DATA statements (lines 540-1030) and consists of fifty words. Interest in the program can be maintained by changing the words periodically, and a more challenging version for older children (or adults) may be created by expanding the word list (adding DATA statements and changing the limits in lines 80, 120 and 180) or by modifying the program to utilize words of more than two syllables.

The second program (ALPHAGRAMS) constructs puzzles in which words with lengths of 5-7 letters are imbedded (hidden) in rows of unrelated letters. One letter of each word is removed, and the

objective is to find the missing letters and identify each hidden word. The puzzle consists of twenty six such rows, from which each letter of the alphabet has been removed exactly once. The puzzle is displayed on two screens, which can be viewed alternately by pressing the <RETURN> key. The missing letters (in alphabetical order) are displayed across the top of each screen. As each word is correctly identified, the missing letter is replaced and the word is highlighted in the puzzle.

The program currently has a 200-word vocabulary, defined by the DATA statements in lines 1040-1170 and the limits in lines 480 and 530. Unfortunately for my children, my interest in the program got a little out of hand, and the resulting puzzles are too difficult for small children. To add to this difficulty, the program utilizes lists of prefixes and suffixes, rather than random letters, to fill in spaces adjacent to the words in the puzzle. Constructing the puzzles consists of proceeding through the letters of the alphabet in reverse order of their frequency of occurrence in the English language (i.e. the rarest letter first); searching the word list until a word containing the letter is found; checking for duplication against previously selected words; identifying the word's position in the row; filling in the empty spaces before and after the word with prefixes, suffixes and miscellaneous letters; and arranging the rows in random order.

A simulation of one half of an alphagram puzzle is show in Figure 1, and listings of the programs, which have been submitted to the HAAUG software library, follow.

FIGURE 1

A B C D E F G H I J K L M N O P Q S T V W X Y Z

AOCONEN OYUTEIS
AISFORQUITEENTH
DIFORES UNDKWDJ
XONORMI CHIEFSE
DOEDCIN OGICATE
ESCMISW LLETOIR
INTKINS IPOTEDO
DOPOTWI DOWMERF
EODLTER ANDORUE
ENTELUD TREOKED
TMBORCAREFULENE
YFRESTA RSITEFK

```
10  REM  ************************

20  REM  *    SYLLABLE PUZZLE   *

30  REM  * BY NICK FOTHERINGHAM *

40  REM  *    HOUSTON, TEXAS    *

50  REM  *    OCTOBER, 1982     *

60  REM  ************************

70  TEXT : HOME : NOTRACE : NORMAL

80  DIM A$(50),B$(50)
90  DIM D$(20),E$(10)
100  DIM P$(10),Q$(10),U(10)
110  REM  SELECT PUZZLE WORDS FRO
     M MASTER LIST
120  FOR I = 1 TO 50: READ A$(I),
     B$(I)
130  NEXT I
140  FOR I = 1 TO 10:U(I) = 0: NEXT
     I
150  FOR I = 2 TO 20 STEP 2
160 H% =  INT ( RND (1) * 25 + 1)
     :V% =  INT ( RND (1) * 15 +
     8)
170  VTAB V%: HTAB H%: FLASH : PRINT
     "FINDING WORDS": NORMAL
180 J =  INT ( RND (1) * 50 + 1)
190  FOR L = 1 TO I / 2 - 1: IF J
      = U(L) THEN 180
200  NEXT L
210 A% =  INT (I / 2):U(A%) = J
220 D$(I - 1) = A$(J):D$(I) = B$(
     J):K =  INT (I / 2)
230 P$(K) = D$(I - 1):Q$(K) = D$(
     I):E$(K) = P$(K) + Q$(K)
240  NEXT I
250 S = 0
260  REM  SORT ROUTINE
270  FOR I = 1 TO 19: FOR J = I +
     1 TO 20
280  IF D$(I) > D$(J) THEN T$ = D
     $(I):D$(I) = D$(J):D$(J) = T
     $
290  NEXT J: NEXT I

300  REM  DISPLAY
310  HOME : HTAB 12: INVERSE : PRINT
     "SYLLABLE.PUZZLE": NORMAL : PRINT

320  PRINT : PRINT "COMBINE THE F
     OLLOWING SYLLABLES INTO    P
     AIRS TO FORM WORDS": FOR I =
     0 TO 39: PRINT "-";: NEXT I
330  POKE 34,6
340  HOME : FOR I = 1 TO 16 STEP
     5
350  PRINT D$(I); TAB( 8)D$(I + 1
     ); TAB( 16)D$(I + 2); TAB( 2
     4)D$(I + 3); TAB( 32)D$(I +
     4)
360  NEXT I
370  FOR I = 0 TO 39: PRINT "-";:
      NEXT I
380  VTAB 13: HTAB 1: CALL  - 958
     : CALL  - 198: INPUT "ENTER
     A WORD:   ";M$
390  VTAB 17: HTAB 1
400  FOR I = 1 TO 10
410  IF E$(I) <  > M$ THEN 510
420 E$(I) = "": CALL  - 198: CALL
      - 198: PRINT "GOOD WORK!  T
     RY ANOTHER WORD. ": CALL  -
     198: FOR X = 1 TO 1000: NEXT
     X
430 S = S + 1
440  FOR X = 1 TO 20: IF D$(X) =
     P$(I) THEN D$(X) = "":P$(I) =
     "XXXXX"
450  IF D$(X) = Q$(I) THEN D$(X) =
     "":Q$(I) = "XXXXX"
460  NEXT X
470  IF S < 10 THEN 340
480  HOME : PRINT "YOU FINISHED T
     HIS PUZZLE.": PRINT "DO YOU
     WANT TO PLAY AGAIN (Y/N)? ";
     : GET Z$
490  IF Z$ = "Y" THEN 140
500  VTAB 12: HTAB 15: PRINT "GOO
     DBYE": END
510  NEXT I
520  PRINT "THAT'S NOT ONE OF THE
      WORDS.": PRINT "TRY AGAIN."

530  FOR X = 1 TO 600: NEXT X: GOTO
     380

540  DATA  "MA","GIC"
550  DATA  "FIN","ISH"
560  DATA  "KIT","TEN"
570  DATA  "WAN","DER"
580  DATA  "BAY","OU"
590  DATA  "WISH","BONE"
600  DATA  "CAR","RY"
610  DATA  "TA","BLE"
620  DATA  "AP","PLE"
630  DATA  "TO","WEL"
640  DATA  "DISK","ETTE"
650  DATA  "ELE","PHANT"
660  DATA  "TELE","VISION"
670  DATA  "CAN","NON"
680  DATA  "AIR","PLANE"
690  DATA  "TRI","ANGLE"
700  DATA  "RO","OF"
710  DATA  "TOI","LET"
720  DATA  "COU","SIN"
730  DATA  "CAM","ERA"
740  DATA  "MAGA","ZINE"
750  DATA  "MAIL","BOX"
760  DATA  "SP","OON"
770  DATA  "CHALK","BOARD"
780  DATA  "RA","DIO"
790  DATA  "SNEA","KER"
800  DATA  "BATH","TUB"
810  DATA  "CH","AIR"
820  DATA  "WILL","ING"
830  DATA  "LOVE","LY"
840  DATA  "CARE","LESS"
850  DATA  "AIR","PORT"
860  DATA  "TELE","GRAM"
870  DATA  "CAR","PET"
880  DATA  "CHOCO","LATE"
890  DATA  "LEAD","ER"
900  DATA  "HOPE","FUL"
910  DATA  "MIS","CHIEF"
920  DATA  "OF","FICE"
930  DATA  "RUB","BER"
940  DATA  "STA","PLE"
950  DATA  "TRI","CYCLE"
960  DATA  "UM","BRELLA"
970  DATA  "WALK","ING"
980  DATA  "SIDE","WALK"
990  DATA  "LOB","STER"
1000  DATA  "GOLD","MINE"
1010  DATA  "ER","ROR"
1020  DATA  "ES","CAPE"
1030  DATA  "DOL","LAR"
```

```
10  REM  ************************

20  REM  *      ALPHAGRAMS      *

30  REM  * BY NICK FOTHERINGHAM *

40  REM  *    HOUSTON, TEXAS    *

50  REM  *    OCTOBER, 1982     *

60  REM  ************************

70  REM  ALPHAGRAM PUZZLE MAKER
80  HOME : NOTRACE : NORMAL : TEXT

90  GOTO 440
100  REM  PLAY GAME
110 X = 1:NF = 0
120  HOME : HTAB 11: INVERSE : PRINT
     " A L P H A G R A M ": NORMAL
     : FOR I = 0 TO 39: PRINT "="
     ;: NEXT : PRINT
130 T$ = ""
140  FOR I = 1 TO 26:T$ = T$ + S$
     (I): NEXT
150  PRINT  TAB( 6)T$: PRINT : PRINT

160  FOR I = X TO X + 12
170  IF K$(I) <  > "" THEN  PRINT
      TAB( 10)W$(I): GOTO 190
180  HTAB 10: PRINT L$(I);: INVERSE
     : PRINT KW$(I);: NORMAL : PRINT
     R$(I)
190  NEXT I
200  VTAB 23: CALL  - 868: HTAB 4
     : INVERSE : CALL  - 198: PRINT
     "ENTER WORD: ";: NORMAL : PRINT
     " ";: INPUT "";C$
210  IF C$ > "" THEN 250
220  IF X = 1 THEN X = 14: GOTO 1
     20
230  IF X = 14 THEN X = 1
240  GOTO 120
250  FOR I = 1 TO 26: IF C$ = KW$
     (I) THEN 280
260  NEXT I
270  VTAB 23: CALL  - 958: PRINT
     "WRONG WORD.       TRY AGAIN
     ...": FOR J = 1 TO 1000: NEXT
     : GOTO 200
280  VTAB 23: HTAB 1: CALL  - 958
     : CALL  - 198: CALL  - 198: PRINT
     "GOOD!  TRY ANOTHER WORD.": CALL
      - 198: FOR J = 1 TO 1000: NEXT

290  FOR J = 1 TO 26: IF S$(J) =
     K$(I) THEN S$(J) = " "
300  NEXT J
310 W$(I) = L$(I) + K$(I) + R$(I)

320 NF = NF + 1
330  IF NF = 26 THEN 400
340  FOR J = 1 TO 8: IF  MID$ (W$
     (I),J, LEN (KW$(I))) = KW$(I
     ) THEN 360
350  NEXT J
360 L$(I) =  MID$ (W$(I),1,J - 1)

370 R$(I) =  MID$ (W$(I),J +  LEN
     (KW$(I)),14 - J -  LEN (KW$(
     I)))
380 K$(I) = ""
390  GOTO 120
400  VTAB 23: CALL  - 958: INVERSE
     : PRINT "DO YOU WANT TO PLAY
      AGAIN (Y/N)? ";: GET A$
410  IF A$ = "N" THEN  END
420  HOME : VTAB 15: HTAB 12: FLASH
     "*** PLESE WAIT ***": NORMAL

430  RESTORE : GOTO 470
440  DIM KW$(26),K$(26),LW$(200),
     P%(26),L$(26),R$(26),PR$(50)
     ,SU$(50),W$(26)
450  DIM S$(26)
460  GOSUB 920
470  FOR I = 1 TO 26: READ K$(I):
      NEXT
480  FOR I = 1 TO 200: READ LW$(I
     ): NEXT
490  FOR I = 1 TO 50: READ PR$(I)
     : NEXT
500  FOR I = 1 TO 50: READ SU$(I)
     : NEXT
510 NW = 0
520  FOR I = 1 TO 26
530 K =  INT ( RND (1) * 200) + 1

540  FOR J = 1 TO  LEN (LW$(K))
550  IF  MID$ (LW$(K),J,1) = K$(I
     ) THEN 580
560  NEXT J
570  GOTO 530
580 P%(I) = J: FOR J = 1 TO NW: IF
     LW$(K) = KW$(J) THEN 530
590  NEXT J
600 NW = NW + 1:KW$(I) = LW$(K)
610  NEXT I
620  REM  KEY WORDS AND POSITIONS
      FOUND
630  FOR I = 1 TO 26
640 W$(I) = KW$(I)
650 LS = (6 - P%(I) + 1):RS = (13
     -  LEN (KW$(I)) - LS)
660  IF LS < 3 THEN 710
670 K =  INT ( RND (1) * 50) + 1
680  IF K < 1 THEN K = 1
690  IF K > 50 THEN K = 50
700 W$(I) = PR$(K) + W$(I):LS = L
     S - 3
710  IF LS > 0 THEN K =  INT ( RND
     (1) * 26) + 1:W$(I) = K$(K) +
     W$(I):LS = LS - 1: GOTO 710
720  IF RS < 3 THEN 770
730 K =  INT ( RND (1) * 50) + 1
740  IF K < 1 THEN K = 1
750  IF K > 50 THEN K = 50
760 W$(I) = W$(I) + SU$(K):RS = R
     S - 3
770  IF RS > 0 THEN K =  INT ( RND
     (1) * 26) + 1:W$(I) = W$(I) +
     K$(K):RS = RS - 1: GOTO 770
780 L$(I) =  LEFT$ (W$(I),6):R$(I
     ) =  RIGHT$ (W$(I),6):W$(I) =
     L$(I) + " " + R$(I)
790  NEXT I
800  REM  RANDOMIZE WORDS
810  FOR K = 1 TO 26
820 L =  INT ( RND (1) * 26) + 1
830 T$ = W$(K):W$(K) = W$(L):W$(L
     ) = T$
840 T$ = KW$(K):KW$(K) = KW$(L):K
     W$(L) = T$
850 T$ = K$(K):K$(K) = K$(L):K$(L
     ) = T$
860 T% = P%(K):P%(K) = P%(L):P%(L
     ) = T%
870 T$ = L$(K):L$(K) = L$(L):L$(L
     ) = T$
880 T$ = R$(K):R$(K) = R$(L):R$(L
     ) = T$
890  NEXT K
900  FOR I = 65 TO 90:S$(I - 64) =
      CHR$ (I): NEXT
910  GOTO 110
920  REM  INSTRUCTIONS
930  HOME : FOR I = 0 TO 39: PRINT
     "=";: NEXT
940  HTAB 11: INVERSE : PRINT " A
      L P H A G R A M ": NORMAL :
      FOR I = 0 TO 39: PRINT "=";
     : NEXT : PRINT
950  PRINT "ALPHAGRAMS ARE WORD-S
     EARCH PUZZLES IN  WHICH WOR
     DS OF AT LEAST FIVE LETTERS"

960  PRINT "IN LENGTH ARE HIDDEN
     AMONG UNRELATED  LETTERS.
      ONE LETTER IS REMOVED FROM"
```

```
970  PRINT "EACH HIDDEN WORD SUCH
      THAT EACH WORD HASA DIFFERE
     NT LETTER OF THE ALPHABET": PRINT
     "REMOVED.  THESE LETTERS ARE
      SHOWN, IN  ORDER, AT THE T
     OP OF THE PUZZLE."
980  PRINT : PRINT "ONLY HALF OF
     THE PUZZLE (13 WORDS) IS  S
     HOWN ON THE SCREEN AT ONE TI
     ME.  YOU"
990  PRINT "MAY VIEW THE PUZZLE H
     ALVES ALTERNATELY  BY PRESSI
     NG ONLY THE <RETURN> KEY IN"

1000 PRINT "IN RESPONSE TO THE R
     EQUEST FOR A WORD.": PRINT :
      PRINT "TO PLAY, IDENTIFY EA
     CH WORD AND ENTER ITAS REQUE
     STED."
1010 PRINT : HTAB 12: FLASH : PRINT
     "*** PLEASE WAIT ***": NORMAL

1020 RETURN
1030 DATA  Z,Q,J,X,K,V,B,W,P,Y,G
     ,U,M,C,F,L,D,H,S,I,R,N,O,A,T
     ,E
1040 DATA  REWARD,STITCH,PLEASE,
     ROGUE,SIMPLE,THEORY,OFFSET,O
     ZONE,AUGER,GAUGE,PREMIUM,GAR
     DEN,REVIVE,LABEL,ENTITY,FLOR
     AL
1050 DATA  SUNSET,ORIENT,FRUIT,W
     AGER,SPIRIT,TURBINE,JUSTLY,C
     ENSUS,CONTOUR,HELIX,TERRAIN,
     HOLSTER,EVENT,MAPLE,PRODUCE
1060 DATA  KHAKI,BERRY,OBESE,BAR
     GAIN,CHEWY,MELON,BESET,ARISE
     ,LEGAL,SOLAR,UMPIRE,ULCER,UN
     IQUE,UPPER,URGENT,UPSET
1070 DATA  OPINION,OPPOSE,ORDEAL
     ,AROMA,OFFER,OCCUR,IRONY,ISL
     AND,ISOLATE,ITSELF,IVORY,EAS
     ILY,EBONY,EDITOR,EJECT
1080 DATA  HANDFUL,BUREAU,BLUSH,
     QUIET,QUITE,MOSQUE,POPPY,SPR
     OUT,GARAGE,BRINK,COMFORT,JOU
     RNEY,ROWDY
1090 DATA  EMBALM,EMBRYO,EPOXY,E
     PISODE,BRUSH,CABINET,CABBAGE
     ,CENTURY,CERTAIN,CEREAL,CHEA
     P,CHARM,CLEAR,COMBINE,DEMON,
     DEMURE,DIARY,DIPPER,FLASK,FR
     ESH
1100 DATA  FORMULA,FURNACE,HARSH
     ,HEAVE,HEDGE,HOARD,INTERIM,J
     EALOUS,KETTLE,KEYHOLE,LIBRAR
     Y,MASTER,MIGHT,MOBSTER,MOUTH

1110 DATA  POWER,POTATO,PURSUE
1120 DATA  STAMP,FLANNEL,PEANUT,
     WORKER,MILDEW,SIGHT,PERUSE,T
     RIBUTE,POLYGON,STOUT,OUTCOME
     ,SUFFIX,EXCEPT,THRIVE,ENZYME

1130 DATA  CLIMB,POSTAL,CORRECT,
     SHAMPOO,WALTZ,ENCORE,ENJOY,S
     ECRET,FALSE,KERNEL,MARGIN,ZI
     PPER,EXCLAIM,TEXTURE,RAPTURE

1140 DATA  PILLOW,WANDER,MISSION
     ,LISTEN,PAMPER,ENGULF,CAUGHT
     ,HINDER,BUTTON,CAPABLE,EMPLO
     Y,VOICE,THRICE,STRIVE
1150 DATA  HUMID,TRAVEL,FURTHER,
     VALUE,CLOSURE,PATIO,PRINCE,N
     OTION,IDEAL,AWAKEN,SHOAL,TRO
     UP,WEALTH,BRUNCH,REPORT,FIDD
     LE
1160 DATA  POSITION,CURVE,SHAKE,
     NOTHING,DYNAMIC,ADORE,GENTLE
     ,PLURAL,PLUMBER,MARINE,CACTU
     S,CANYON,BEACH,BUNNY
1170 DATA  FOREST,PRIMATE,COMPET
     E,APPLE,HANDILY,FIERCE,STAPL
     E,INJURE,INQUIRE,LEMON,ADOBE
     ,FENCE,CAMERA
1180 DATA  INT,COM,CON,TRA,TRI,W
     EA,ASP,SPI,RES,BRE,STA,REP,R
     ET,POR,PER,PRE,WHI,POL,COS,I
     NC,RIE,CIR,SPR
1190 DATA  MAT,MIR,NOT,UNE,TAM,S
     IL,TUB,DER,LIS,MIS,TUR,OUT,H
     AR,CAR,BER,EIN,LAT,PRO,FRO,T
     OU,PEA,CRE,PRU,SUL,BEL,FUS,R
     EQ,LIP
1200 DATA  ITE,IER,ION,VEL,RAL,V
     ER,BLE,BLY,NEY,PIC,ILE,OLE,I
     NG,INE,VET,ECT,ENT,LAR,NCH,M
     ER,NER,DIT,PET,GEN,FUL,EAU,T
     IL
1210 DATA  GHT,EMP,COR,ACT,APE,A
     TE,IPE,OUR,RED,EAD,NOE,IVE,S
     EN,PER,INT,PIN,GAR,LIS,HAM,B
     UR,POR,BYS,POL
```

---===*===---

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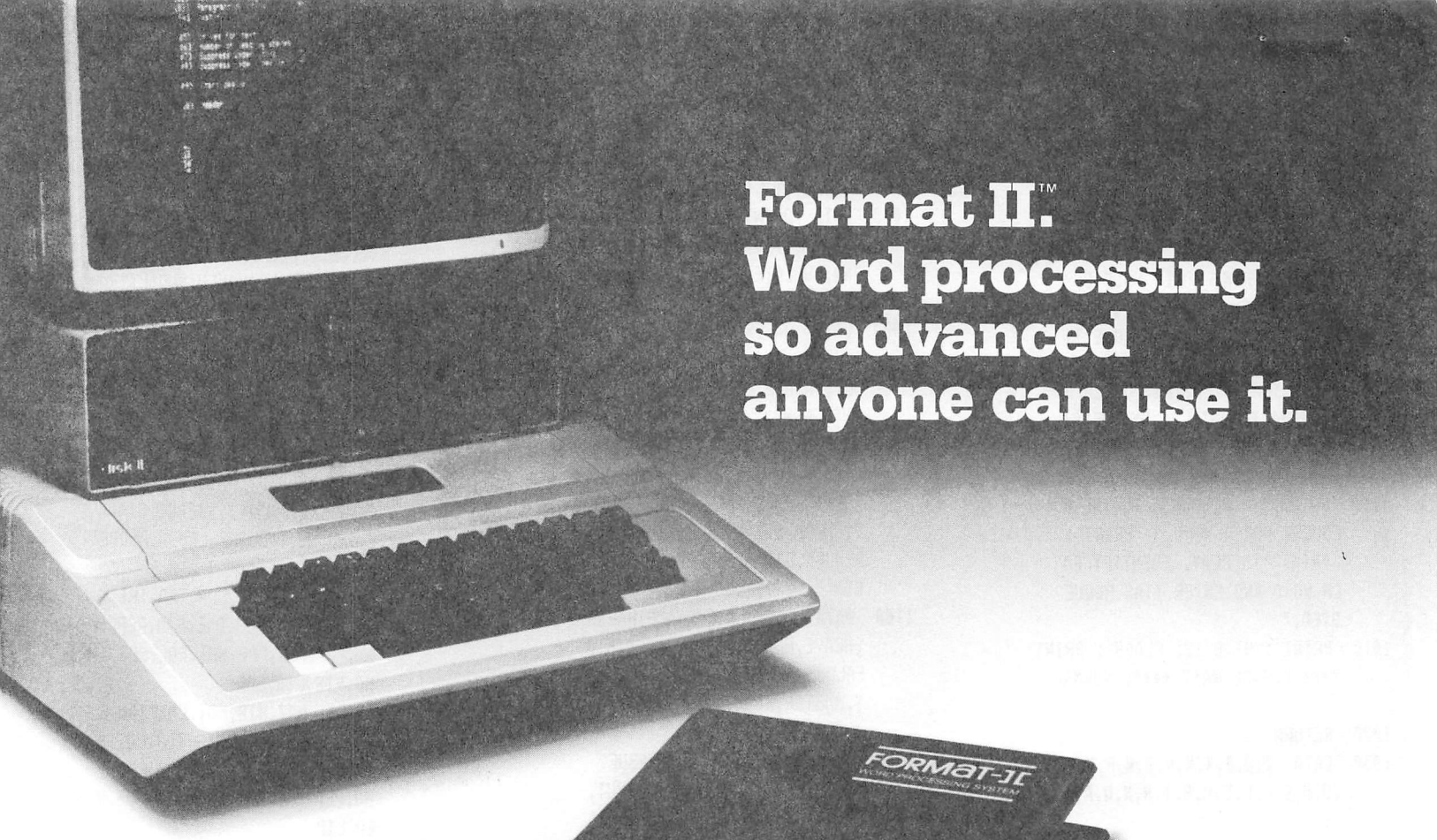

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Logo Locus

by Brian Whaley

THIRD IN A SERIES

In this article I want to continue our exploration of Logo with the introduction of robotics to Logo. By this time I hope that you are aware that the Logo language has recently been introduced on personal computers and that it is a programming language concerned with learning computer languages. Most importantly, Logo is readily learned by children, for in all of it's complexity it is outwardly simple to learn. In it's immediate execution mode, Logo responds immediately to each command, usually with a motion of the turtle on a graphics display. This results in positive reinforcement and rapid learning. The language presents a powerful tool for learning math via the rich mileau of geometrical shapes fforded by it's graphics capabilities. As the language has it's roots in artifical intelligence languages, Logo also provides unique capabilities for learning spoken language structure and logic with it's list manipulation. More on this later.

Robots are emerging as a powerful force in industry, but in this article the application will be limited to children (Limited? Who will program the robots of 10 years hence?).

Microprocessors are finding their way into children's toys. One of the most fascinating of these are in the class of "boy's toys". I am speaking of the Milton-Bradley toy Big Track. Big Track is a self-propelled tank-shaped robot about a foot long that uses a 4 bit TMS1000 microprocessor to store and then run it's programable actions.

I purchased Every's Kids First Book of Robots and Computers published by Compute!Books for my children. The First Book is written at a fourth grade reading level as an introduction for children to turtle graphics combining the Logo language and the Big Track.

The reason for this association of a child's toy and a computer language is that they share a great number of similarities that are obvious to the child that is using both. Not only do similar commands result in the same result but they are structured similiarly. First the

command is given followed with the almost always manditory inputs which form an expression. An example is FORWARD 5 where FORWARD is the command and 5 is the input for FORWARD to act upon. In Logo you type FORWARD 5 to make the turtle move from it's present location 5 units forward whereas on the Big Track you press the forward arrow following it with a key press on the 5 button to form the expression. If you then press the go button, the Big Track responds by moving forward 5 of it's own lengths. Instructions can be entered and run sequentially or they can be entered all at once and then executed in order in a preprogrammed sequence.

Besides a forward and backward button, the Big Track has a left and right button which also must be followed by an input value. There are also hold (wait) and fire buttons. The fire button will fire the laser cannon the number of times instructed by the input value. In all 16 commands can be entered with input values ranging from 1 to 99. The Big Track fascinates not only children but adults as well which was verified when I took it to our Engineering Center. And about that earlier slight to our young ladies; my three year old daughter also enjoys it.

Here we have a physical representation of the Logo turtle executing it's basic commands. There is a one-to-one correspondence between the Big Track's actions and the turtle on the screen. Children immediately recognize this and want to try similar commands on both. However Logo lacks a fire command but I fixed that quickly using the extensibility of the Logo language. The procedure is listed at the end of this article.

The obvious next step is to physically connect the Big Track to the Apple Computer and have Logo direct it's actions. This may well be possible. In the February 1981 issue of Byte, Steve Ciarcia describes in his article A Computer-Controlled Tank, a RS-232 remote control link via any RS-232 port and the Big Track using walkie talkies. I haven't had the opportunity to try this but it is high on my list of priorities.

It is worth noting that Terrapin, Inc. markets a robot turtle that supposedly interfaces directly with their version of the Logo language. It is considerably more expensive than the Big Track and uses a generation of the Logo language once removed from that marketed by Apple Computer.

Next time I will explore teaching set theory to upper elementary children with the list handling capabilities of Logo.

Listing of FIRE Procedure to emulate laser firing on Big Track:

```
TO FIRE :BANG
REPEAT :BANG [SHOOT]
END

TO SHOOT
MAKE "STARTPOS POS
MAKE "SAVEPOS POS
MAKE "PENSTATE PEN
HT
IF EQUALP FIRST :PENSTATE "PENUP [PENDOWN]
REPEAT 5 [FD 5 SETPOS :SAVEPOS PENERASE FD 10 PENDOWN MAKE "
SAVEPOS POS]
PENUP
SETPOS :STARTPOS
IF EQUALP FIRST :PENSTATE "PENUP [PENUP] [PENDOWN]
ST
END
```


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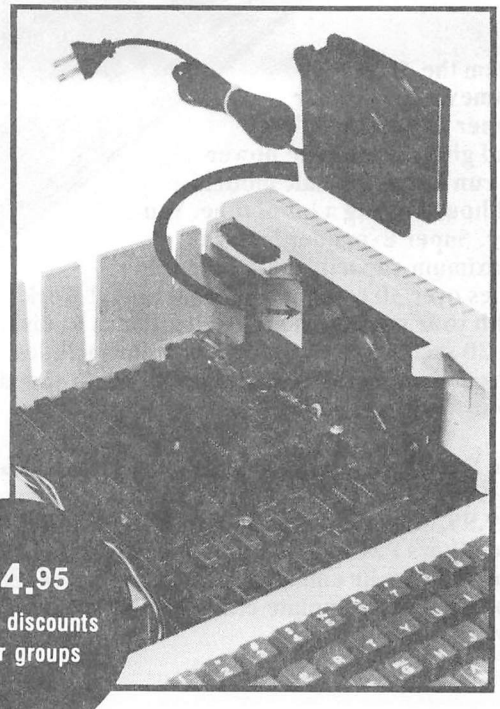

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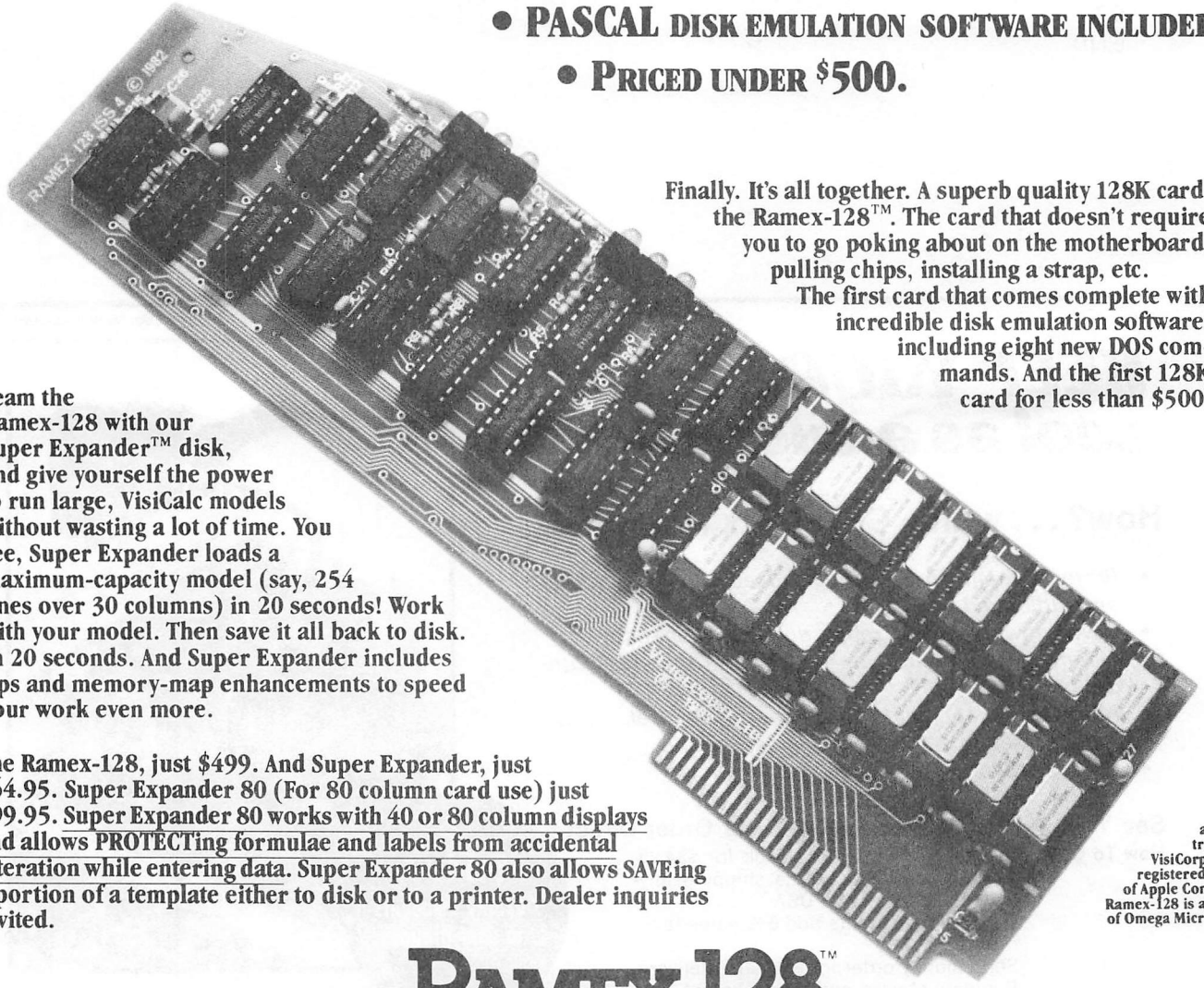

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SERIOUS NUMBER GAMES -- SELF CHECK NUMBERS
A Professional Programming Technique

A technique of systems analysis exists whereby a numeric field can be self-validating when it is keyed. Given a number with a width of n digits, a data entry machine or a computer program can predict the rightmost digit value. When a self-check number is used as a control field to a computer data file, update or inquiry transactions need no key verifying of the control field. The person who is keying the transaction knows immediately if this data field is keyed erroneously. For a given base number 12345, arithmetic formulas can predict the check-digit, 3. For the complete check-digited number, concatenate the base number with the check-digit: 123453; use the complete number in your computer system.

Self-checking has been an effective tool for years when employed as a programming technique on keypunch equipment. But now many computer users have terminals or small personal computers. We as analysts should provide an efficient method of validating what has been keyed; if a control field has been keyed wrong, tell the operator while he is keying the number. This detection is not difficult to provide with self-check numeric fields.

Let's explore an example. Suppose that you have a General Ledger application with many "account" numbers in the Chart of Accounts. If you set up these control account numbers using self-check techniques, fewer transactions will be posted to the wrong account. The idea is to have the "master" file account numbers be constructed with a self-check formula; all transactions will also have the same self-check formula for account number. So, forever, when you key a transaction to your master file, a mis-keyed account number will give you a "beep" as you key it. For our example, let's suppose you keyed 132453; this number would not compute as a valid account number.

Hard to believe? BEEP. Well, read on, friends. There are many self-check number formulas in use. Some keypunch equipment supports check-digit calculations by Modulus 10 and Modulus 11 formulas. Some new computerized keypunch equipment will allow programmable check-digits in almost any flavor you want. Let's keep this discussion on the thesis that the more standard formulas, Mod 10 and Mod 11, are popularly used. For instance, your VISA, MASTERCARD, and AMERICAN EXPRESS account numbers are Modulus 10 self-check numbers. Your bank account number is likely Modulus 10 or Modulus 11 check-digit validated. Our example number, 123453, is Mod 10 check-digited.

The basis of check-digit arithmetic is explained in your keypunch equipment manual, and examples are shown in reasonable detail. What, you don't have a keypunch at home with your Apple? Wait until I finish these articles and see if you don't have a good collection of examples. The idea of check-digit mathematics is to perform arithmetic on each digit of a numeric field to predict what the rightmost (last, low order) digit must be. With a numeric field of n digits, the arithmetic will multiply each digit of the field by a "weight factor"; sum up these products to a sum value; compute the check-digit for this sum to be evenly divisible by the "modulus", either 10 or 11. The machine calculation requires only a New York second, and the machine knows whether the number is keyed correctly or

not. When a key entry error is calculated, the keyboard may beep and be locked up. The poorly keyed field may be reviewed right now; and this is the earliest possible time of a mechanized computer cycle.

The advantages of Modulus 10 check-digit formula are: Any number you have can be assigned an extra digit, the check-digit. Almost all keying errors will be detected; especially single digit keystroke errors. There are a couple of types of two stroke key errors called transpositions that may be keyed wrong and not be detected.

The advantages of the Modulus 11 check-digit formula go beyond single digit error detection. Practically all keying errors are detected by Modulus 11. But, some base numbers cannot have Mod 11 check-digits assigned. These base numbers would be considered not valid on your file.

To implement check-digits in your system, consider these ideas. If the file exists now, you may add a digit to the file "key" using Modulus 10. In choosing Modulus 11 check-digits, some base numbers are not usable as keys on your file. It is quite probable that you will print a list of file keys for your file. Any "add" record will have a key from the check-digit list; this is how a user assigns new key values with valid numbers for new master records. For modulus 10 systems, the computer program can calculate the check-digit as the new base number is added to the file. The user may never be aware of a "complicated" math formula being used. After the record addition, the complete file key is printed with the check-digit tacked on. The user now knows the complete key and may enter correct transactions for the new account. For Modulus 11 systems, be careful that not all base numbers may be properly check-digited. Note that an extra digit is required for the key. This digit is the check-digit; it is normally the rightmost digit of the numeric field.

Some keypunch or keyboard programming may be required to validate the check-digit fields as they are keyed or processed; the savings is much less key verification and fewer transaction rejects on the first pass of file update. Remote users need not have a master file list to be assured that their transactions will be processed against the correct master record.

I work at a retail store chain. We use modulus 11 check-digits for our item number and charge plate numbers. When a sales clerk enters these numbers at the Point-of-Sale register, the keystrokes are checked; poorly keyed numbers are signaled with a beep and a prompt to re-enter. Later, at the home office, we have very few item numbers and charge numbers to fix; most (not all) of the errors are caught when they are keyed. So, the system works for me. I hope that transaction accuracy can be improved in your home and business if you learn more about check-digits.

p.s. Let me know if you need more information on how to calculate a check-digit in Mod 10 and Mod 11. I have information on these mathematical formulas.

Dan Herron (713) 729-9616

APPLE /// PEELINGS

by Mike Kramer

ORIGINAL APPLE ///rs

At Applefest Houston I had the pleasure of meeting Don Norris, President of the Original Apple ///rs of San Francisco. Don was helping man the IAC booth as well as signing up members for his organization. Both Rudge Allen and I joined and look forward to sharing experiences with other Apple ///rs . Dues are $25 per year, which gets you the bimonthly magazine and hopefully access to some software. If you wish to join, the address is P.O. Box 813, San Francisco, CA, 94101.

TEXT FILE SCROLL UTILITY

The August installment of Taylor Pohlman's "The Third Basic" in Softalk included a program designed to illustrate how to take advantage of the features of the console driver. This program permits the user to load a TEXT file from disk and do a four way scroll through it. If the file contains lines greater than 80 columns, the program permits horizontal scrolling.

Although the program was useful as presented, it only allowed loading of a single file and had no graceful way to exit. I have modified the program to permit cataloging the disk by responding with "CAT" when the name of the file to be loaded is requested, loading another file when <RETURN> is pressed, printing the file on the specified output device when <CTRL P> is pressed, or terminating execution and clearing the screen when <ESC> is pressed.

The program is very useful for looking at files created by Apple Writer ///, captured from the telephone line, generated by a BASIC program, etc. No provision has been made to permit editing the file, although this would make the program even more useful. Anyone want to try it?

APPLE /// SOFTWARE LIBRARY

The Text File Scroll Utility program and the other BASIC programs I've been entering while going through Pohlman's Softalk series are available to anyone who wants them. I have a number of other programs which are considered public domain which I will make available on a request basis. Until a decision is made as to how we will handle the Apple /// part of the library, I plan to maintain it and make copies available when requested at a cost of $5 per single sided disk with $1 going to the HAAUG treasury. To fill out the remainder of this writeup I will summarize what I have currently available.

Super Emulator - Provides upper and lower case, read/write "ROM" memory area, 13 or 16 sector format, and other features in the Apple][emulation mode.

Jeppson Disassembler - Although I have not wrung this out to any great extent, this public domain program from Softalk will permit disassembly or a HEX-ASCII dump of a disk file or a range of main memory and provides a PEEK and POKE capability which is not normally available in the Apple ///.

APPLECON - A utility program which converts an Applesoft program to a Business BASIC program. Unlike the Integer to Applesoft conversion we have all tried at one time or another, Applecon actually converts commands as far as possible, including some pokes. The result is a TEXT file which must be EXECed into memory to produce a Business BASIC program.

CAPTURE/COMPARE/LOWER CASE CONVERT - This disk contains several programs which should be useful to anyone developing Apple /// BASIC programs. CAPTURE.EXEC is a short EXEC file that can be used to capture a piece of a BASIC program as a text file which can be then be EXECed into another program. Used with the RENUMBER program on the Business BASIC disk, CAPTURE can be used to create a library of routines which can be used to synthesize programs. CAPTURE can also be used to save whole programs as text files for comparison using the APPLE /// BASIC COMPARE program described below. A CAPTURE program is provided in the Business BASIC manual, but it is not able to save program lines longer than 80 characters because it fails to set the SOS reserved variable OUTREC equal to 255. I have written APPLE /// BASIC COMPARE using a similar program for comparing Applesoft programs by Chuck Boody in Call-A.P.P.L.E. as inspiration. If you have ever made more than one version of a program and wondered a month later what the differences were you need this program. Finally, the disk contains a utility I wrote to process a text file, converting all upper case letters to lower case. This was written to convert text files created by APPLECON from upper to lower case. When the resulting program file is EXECed into memory, the reserved BASIC words will be in upper case and the variables will be in lower case though the program had been typed in in lower case.

File Cabinet /// - Do not confuse this with File Cabinet III in the HAAUG Library. Dick Stein's conversion of the File Cabinet data base program contains a number of enhancements to take advantage of the features of the Apple ///.

Apple II to Apple /// Text File Converter - This program can be used to convert a text file created under Apple II DOS to be readable under Apple /// SOS, but not vice versa. To go both ways you need the Apple Writer /// Utilities disk.

Word Handler and Screenwriter II
A Comparative Review

by Ed Haymes

We all know the limitations of the Apple II in word processing. The 40 column screen, the shift key that doesn't shift and so on. The two programs under review here represent software solutions to the limitations of the Apple. Both programs offer lower case display and on-screen formatting without LC chips or 80 column boards. They are both designed to operate successfully on the "minimal" Apple with a single disk drive, although both programs have capabilities that can only be accessed with a two-drive system.

Word Handler II (Silicon Valley Systems) is perhaps the easiest word processor to use on the market. The boot brings up a screen asking for data about the printer, but after this data has been entered once, it no longer needs to be dealt with. The second and all subsequent boots bring the user to the question "Use 66-column display? Y/N". Most users will want to use the 66 column display unless they are working with an exceptionally bad monitor. The 40 column display breaks the lines and indents the second halves. After answering this the screen changes to what will be the normal display. A separator line at the bottom and a cursor asking for a command. A menu might have been useful, but the most common command is simply the name of a file. The word "Index" or a simple carriage return will display the contents of the disk so that the user can choose or refresh his memory about spelling or abbreviations. An added feature is the use of short titles. The user can place a semicolon after any part of a title and the remainder will be displayed, but need not be entered to call up the file.

Most editing commands are CTRL plus a single letter. The mnemonics are superior. I for insert. D for delete. One moves forward or backward through the file by using the forward and back arrows. D or motion through the file can be expanded by added W (word), L (line) or P(page). The computer stores the number of times a key is struck and eventually carries out the number of commands entered, although some are relatively slow. The back arrow can be used to cancel a deletion before it is completed. Any other key completes it.

Insertion is fast and the text appears on the screen just as it will appear on the page (with the exception of vertical spacing). Justification is shown on the screen and it is possible to go through a text and tighten it up by hyphenating words (soft hyphens are not available).

Block moving is quite simple and the move buffer is emptied after each write command, so there is no serious memory problem. There are no macros and no user definable keys. Macros can be simulated by typing an abbreviation into the text and then using the Replace function. There is also no convenient command telling the cursor to go to a specific place in the text. The forward/back to (T) command can, however, be used by homing in on a particularly unusual word that occurs near where you want to work. Moving to the end of the text can be accomplished by typing

an impossible sequence of letters and telling the computer to go forward to that sequence. The program will search and then beep at the end of the document complaining that it did not find the entered string.

The formatting is handled by a special formatting menu, reached from the file by CTRL-F. This menu is maintained for each file and is easy to use. It allows starting the numbering at a number higher than one, but not omitting the number from the first page of a document. (Numbering can be omitted entirely, however.) Only arabic numbering is available. Headers and footers can be entered for left and right pages separately.

Printing is very simple and has the flexibility to allow any number of pages to be printed from a document. The Epson and Diablo drivers I have seen in action seem to work flawlessly. The program will even print true superscripts and subscripts on the Epson. No mean trick this. The only drawback in printing is the necessity to push the space bar after each page. This is a useful function, but one should be able to defeat it.

Screenwriter II is the much improved version of Superscribe II from On-Line Systems. The original had lots of bugs, but the new one seems to have eliminated the most serious of them and added very few new ones. The ease of use of the new version is also a considerable improvement, but it still will take no prizes for user friendliness. The prime culprit is perhaps the still somewhat dense documentation. One has to read a great deal and experiment even more to find out that once can call up the list of disk files from the line demanding an output file (or the one demanding an input file) by simply typing a "c" <return>. If I had known this, it would have saved me much frustration.

The much-touted 70 column display is of little use in editing a text. It is possible to display the text being entered in any format up to 70 columns (there are actually two fonts, a regular 40 column font and one designed for 70 columns) but the 70 column option does not display the lines, paragraphs and pages as they will appear on the printed page. One is thus editing in the dark, just as with the more traditional Apple word processors.

Insertion of text is easy. The screen display falls behind very quickly if one inserts text while pushing a screen of display ahead. (Word Handler II gets around this problem by blanking out the screen from the insertion point on.) Screenwriter II allows the user to overcome this problem by scrolling the cursor down to the last line of the screen.

Editing commands are fairly standard, but the mnemonics are no match for those in Word Handler II. CTRL-A moves the cursor down a line. CTRL-Z moves the cursor to the next space. CTRL-P advances the cursor a screen "page". The shift key reverses all of these functions. Delete is limited to character and to the line following the cursor. Block movements are easy and the block buffer is not erased when printed out, allowing one to repeat a piece of text several times in different places in the document. Macros (strings to be inserted by a single character) are possible, but they must be called up by a single keystroke, meaning that one must sacrifice a character or a control function (almost all of the letters of the alphabet are occupied by commands). Any character can be replaced by any other character

or by an ASCII number through the replace command. Formatting and such functions as underlining are managed by imbedded commands.

The formatter-printer program must be booted separately if one does not have a RAM card. Once inside this program one has a menu of possibilities and well-worked out "pages" to deal with different aspects of the process. The most complex of these "pages" is the one dealing with the printer. If one follows the instructions in the new, much improved manual, this should not prove much of a problem for the more popular printers. The printer format is saved so that it does not have to be carried out each time. There is also an "Edit Format" page that allows setting many of the formatting functions that were covered by imbedded commands in the editor. It is not entirely clear which group of commands has precedence. The ambiguous use of the word "Title" here can also lead to misunderstandings.

The next stage in the printing process is the display of the formatted text. At this point one invariably sees a problem than must be remedied by a return to the editor, a wearisome and time-consuming process. The RAM card version makes this much faster, but it still does not match the ease of Word-Handler II in this respect. The last operation is the printing itself. It is impossible to print specific pages of a document, although one can instruct the program to stop at the end of each page.

In short: Word Handler II lacks macros and the character replace function that allows one to call up ASCII numbers that are not on the Apple keyboard. This latter function is necessary if one wishes to make use of the special foreign language fonts available on many printers including the Epson. It also lacks the ability to change format within a document. Indented paragraphs, for example, must be faked with carriage returns and tabs.

Screenwriter II lacks true on screen formatting in the edit mode. It lacks the ability to print specific pages of a text and the necessity to go back and forth between editor and formatter programs for minor corrections is a nuisance.

Both programs save the text to disk as they work. Word Handler II stops completely to save, while Screenwriter II may lose a few characters in the process, although I have had no problem there. I did once lose a whole editing session when the Screenwriter save function overwrote the output file. Since then I have kept my files short to prevent such disasters. This problem must have been foreseen by the programmers, since they have a special error message to inform the user that his program has just eaten the text. This problem can be avoided by keeping the output file and the save file on different disks, but this is not possible on the "minimal" Apple for which this program was ostensibly designed.

Both systems support the hardware shift key modification, although only the Screenwriter II documentation tells you how to do it. It is well worth the trouble.

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DEALING WITH DOS

By

Clark Johnson

Part #2

This is the second installment in a continuing series on Apple DOS. As a way of restating the goals of this column, I will repeat a few of the comments made in the first part last month. First, I would appreciate your thoughts on what you like, dislike, understand, or don't understand. Also, I realize that the topics might be elementary at first, but the intent is to begin with the basics and work up in complexity as time progresses. And lastly, there are some of you out there who are very knowledgeable about DOS and could help me greatly with information, articles, and techniques. Whether "novice" or "expert", you could reach me for questions or suggestions on the HAAUG hotline (668-3102) or at my home (370-3543).

Review Of Last Month

Last month we covered the beginning of the Apple computer but really concentrated on the origin of the Disk][system and the Apple DOS that controls the disk system. The development of the different DOS's, from DOS 3 through DOS 3.2 and finally DOS 3.3, was examined. Also, although there are 28 valid DOS commands, only four were discussed (INIT, RUN, LOAD, and SAVE). Looking back over the last column, I find a few points that could be re-emphasized. These are :

1. DOS must be loaded into your computer whenever it is powered up. This is done by a process known as "booting". During booting, DOS is transferred from the first three tracks on a disk into a specific range of the Apple's memory.

2. Here are some diverse ways of booting DOS. The] is the Applesoft prompt. Except for d), those preceded by the] will work equally well with the Integer prompt >. The * is the monitor prompt. Those that specify 6 assume that the disk controller card is in Slot 6.

   a) Turn on the Apple][Plus.

b)]PR#6
c)]IN#6
d)]CALL 50688
e)]CALL -14848
f)]CALL -1400
g) *6 ctrl-P
h) *C600G

3. INITilization is a process of putting on the disk identifying data marks that DOS uses to know where to store data to (or retrieve data from) that disk. These 'marks' are not really physical marks on the disk, but are bits of magnetically caused polarity that are translated into data by the disk drive and DOS.

4. INITilization wipes out any previous data that was stored on the disk. It completely starts a disk anew as if it had never been used before.

5. When using the INIT function, the "hello" program does not have to actually be named HELLO (I have an Hawaiaan friend who names his hello programs ALOHA), but it is often best to name it HELLO to avoid confusion in the future.

6. DOS 3.2 (13 sector) and DOS 3.3 (16 sector), while similar in many ways, are not compatible with each other mainly because their respective disk operating systems each expect different disk storage capacities and because the two DOS's have different ways of interpreting data on the disk.

7. Also, I need to correct an error in last month's column. In one example, I referred to DRIVE 3. Actually, drives can be referenced only as D1 or D2 even if you have more than two drives. To access a third (or higher) drive, you must state the slot number for that drive. The first drive on that slot will be D1.

File Types In Apple DOS

Before we get into further discussions of the other DOS commands, it is necessary to identify the various types of files that are used by Apple DOS. These are :

1. Applesoft (A)
2. Integer (I)
3. Binary (B)
4. Text (T)

Applesoft and Integer files are very similar. Both are BASIC language files. Integer was the first BASIC language developed for the Apple, being designed by Steve Wozniak in the development stages of the Apple I. While Integer is a very fast language and well suited to games, it lacked easy-to-use decimal point capability and therefore was not suitable for business and scientific applications. Applesoft was developed later mainly to

satisfy the need for floating point arithmetic. Applesoft and Integer files are also different in the way they load into your Apple. Applesoft loads into memory from the bottom up and Integer loads from the top down. Details of this memory usage will be deferred until later when we discuss the Apple's method of utilizing memory.

A Binary file is an exact duplicate of the contents of a particular area of binary memory in the computer. A binary file may either be a machine language program or a memory duplication that is used for other reasons (a hi-res picture is an example of this latter type of binary file).

There are two main uses for Text files. The most important use is to store data or strings (strings are usually words or phrases) on the disk for use by other programs. Word processing programs use Text files in many cases to store the text that you have typed. Some data base programs use Text files to store items of data such as names, addresses, occupations, or many other items of data expressed by both words and numbers.

The second main use for a Text file is an EXEC file. An EXEC file is basically a stored command list. For example, instead of typing in a series of DOS, monitor, or Applesoft commands, you could place these commands in an EXEC file and then let the EXEC file take control over your computer. An example EXEC file will be shown in a later installment of this column when we discuss the DOS command "EXEC".

It is usually best practice not to LOCK any text files. This is because the programs that use the text files have to be able to OPEN and WRITE to the text files. The main program cannot do this if the text files are locked.

Some of you may still be wondering what are really the differences in the way these different files are stored on the disk. In truth, there is not much difference, because each of these files (A, I, or B) duplicate what was in the computer's memory. There is some small difference in the first few bytes of the files, because it is there that the length and possibly the starting address is stored. It is important to know, however, that Applesoft, Integer, and Binary files are each coded into memory differently by the Apple itself. Therefore, while the storage of these files is very similar, the actual data in the files is very different because of the differences in the languages.

Text file storage (and retrieval) is different from the others. Text files are not true duplicates of the Apple's memory. The data in these files is manipulated by DOS in order to organize the data in a specific way both on the disk and in the computer memory. This extra data manipulation is the reason that Text file reading and storage is slow compared to the other types of files. You may have experienced an occasion while reading in a large Text file that the disk drive actually had to shut off very briefly to

wait for the Apple to catch up.

There are actually four other types of files defined by DOS. These are the R file, the S file, the "new" A, and the "new" B. So far, there has been a very limited use of the R file and absolutely no use of the others (to my knowledge). Therefore, these will be ignored for now.

The Other DOS Commands

The DOS commands that will be discussed this month are :

1. CATALOG
2. BLOAD
3. BSAVE
4. BRUN

CATALOG

This is one of the simplest of all DOS commands. It can be entered after any of the prompts,], >, or even *. Also, you don't really have to separate the word CATALOG from the drive number with a comma. (i.e., CATALOGD1 is a legal command.) A CATALOG lists all files currently saved on a disk, indicating whether the file is locked, what type of file it is, how many sectors on the disk it occupies, and the file name. The name may be 30 characters or less, but must start with a letter and not include any commas.

If you remember last month's column, I gave a very simple hello program that would catalog the disk's contents when it was booted. Let's elaborate on that hello program by improving the CATALOG function. Normally, of course, when you catalog a disk with a long directory, many of the files will scroll off the screen before the catalog listing is complete. This makes it more difficult to use the technique of running a file by copying over the file name using the cursor movement and arrow keys.

This new addition to the hello program (lines 2, 4, and 6) will modify DOS so that you can prevent the CATALOG listing from scrolling off the screen. Normally, after the CATALOG listing pauses, you press the space bar to see the rest of the CATALOG. There is usually no convenient way to stop the listing at a particular spot. With this modification, you merely press the RETURN key if you want to stop the listing at a point (or press the space bar if you wish the CATALOG to continue).

I think this modification is important not only because it makes a long CATALOG more friendly, but also because it is our first excursion into the world of modifying DOS to suit a particular need. The "POKEs" in the following listing do actually 'poke' machine language command changes into a portion of DOS, thereby altering its normal CATALOG function.

Type in the program, run it, and then try CATALOGing a disk that has a long CATALOG. If you wish, SAVE the program as a hello

program to replace one of your other hello programs. Only lines 2, 4, and 6 are really necessary to modify DOS; the rest just pretty things up a bit.

```
2  FOR I = 0 TO 2:READ POK: POKE 44601 +I,POK: NEXT
4  FOR I = 0 TO 12:READ POK: POKE 48351 +I,POK: NEXT
6  DATA 76,223,188,32,12,253,201,141,208,3,76,44,174,76,60,174
10 HOME:HTAB6:PRINT "DISK INITIALIZED ON 10/10/82"
20 PRINT CHR$(4)"CATALOG"
```

It is important to stress that after running this program, you have modified the DOS that is in the computer's memory. This modified DOS will remain in control until you reboot DOS from another disk. At this point, you have not altered the DOS on any disk. Therefore, it is possible to modify DOS temporarily (in the Apple's memory) or permanently (on a disk). You do now have one means to place a modified DOS permanently on a disk. Simply initialize a disk after running the above program. Since the altered DOS will be transferred from the computer memory to the disk during the initialization process, you will now have a disk with the CATALOG function changed to allow a listing stop after pressing RETURN. It will not be necessary to run the above progam on this disk since the modification is already present in the DOS.

This leads further into the discussion started last month regarding a 'virgin' DOS versus an altered DOS. You may recall that I suggested initializing a disk only after booting up on the System Master disk (or another disk that you definitely know to be unaltered). Modified DOS's can be very useful for particular purposes but be sure that you are working with the DOS that you want. You can see from the above example that it is very easy to have a modified DOS on a disk (perhaps even unintentionally).

BLOAD

BLOAD transfers a binary file from the disk to a specific location in the computer's memory. As stated before, this binary file may be a machine language program, a high-res screen, or possibly just a collection of data. (Some data base programs and word processor programs store their string data in binary files instead of text files.)

You may wonder to what "specific" memory location the file is being transferred. If you use only the command, as an example, "BLOAD PRG1", the file will be loaded into memory at the same location from where it was 'BSAVEd' originally. (More on that later.) If you desire to load the binary file into a new memory location, you could specify for example "BLOAD PRG1, A4000". In this example, no matter where in the Apple that PRG1 was originally located when it was BSAVEd, it will be loaded back into the computer starting at memory address 4000 (decimal). You obviously could also specify drive number if you need to.

A warning is in order here, however. Many machine language programs will run at only one location in memory because of the they were written. Such programs are said to be "non - relocatable". You cannot BLOAD this type of binary file into another spot of memory and expect it to run without making some modifications to the machine language coding.

BRUN

BRUN is somewhat close but not the exact binary file equivalent of the BASIC file RUN command. For example, you could have used the command "LOAD PRG2" (an Integer or Applesoft program) and then typed RUN. The program would execute just as well as if you had typed only "RUN PRG2". This is because the Apple always knows where the BASIC program starts in memory. Applesoft programs always at a specific location in low memory (2049 decimal unless you do something tricky) and Integer programs always at the first byte just below DOS. (Applesoft programs are stored from low memory upwards toward high memory and Integer programs are stored from high memory 'backwards' down to low memory).

However, a binary file may be stored practically anywhere in a wide range of memory. Therefore, you cannot type "BRUN" after a "BLOAD PRG1" and expect the program to execute. You will get a "?SYNTAX ERROR" because there is no way for the Apple to know the location of the binary file to be executed. It is true that the computer keeps a record in memory of the location of the last binary file loaded, but the DOS developers apparently decided not to use this mechanism to allow a simple "BRUN" command (or else correctly thought it was not important enough to worry about).

Therefore, to execute a machine language file, you must type - for example - "BRUN PRG1". Since the file PRG1 has its starting location stored in the first few bytes of the program file, DOS will use this information to first BLOAD PRG1 in the proper area and then execute the program. As with the BLOAD command, you could specify the starting address of the file if you wish (BRUN PRG1,A5000). Be careful of non - relocatable binary files.

You could, of course, execute the program by first typing "BLOAD PRG1" and then after the load is complete, type CALL 4000 (assuming that you knew the binary file started at address 4000 decimal). The CALL command is one that will be used very frequently. It can be typed in directly from the keyboard or used in an Applesoft or Integer program. It causes execution of a machine language program located at the address specified. The address must be specified in decimal notation. Remember that any time you are working in the BASIC language arena, all memory addresses must be specified in decimal and that anytime you are working at the monitor level, all addresses are in hexadecimal.

One other factor to point out about binary files is that although you could have only one BASIC program stored in memory at

one time, you may have several binary files stored provided they don't overlap in memory. One way you could have more than one machine language program ready for use in your computer is to BLOAD them separately and then CALL the appropriate program location when desired. (An example later).

Somewhere along the way, you have probably noticed in a CATALOG listing a binary file (preceded by a B) and then tried to BRUN it. But you got nothing for your efforts but a load (the red light on the disk did indicate that the file was being transferred to the computer) and then an asterisk jumped on your screen along with a few funny numbers. Or maybe the computer just hung up.

What happened was that you tried to BRUN a file that could not be run. The binary file might have been a high-res picture (usually 33 or 34 sectors long) or it might have been a binary data file. And even if it was truly a machine language program, it could have been one that does not run by itself. This type of machine language program is used as a subroutine by a BASIC program or another machine language program. The master program will call on this subroutine when necessary, the subroutine will perform some function, and then pass control back to the master program. It cannot operate only by itself. It should be put into the computer's memory by a BLOAD, not a BRUN.

BSAVE

BSAVE is the DOS command that transfers a binary file from computer memory to disk. BSAVE must always be followed by the specification for the starting address in memory and the length of the program in bytes. As an illustration, the following command is valid.

```
BSAVE PRG1, A4000,L50,D2
```

This will save a binary file onto a disk in drive 2. The file will contain an exact duplicate of the contents of whatever was in the Apple's memory beginning at address 4000 decimal and ending at address 4049 decimal (L = length of 50 bytes).

Why did you have to specify the address and length? Well, again, the Apple keeps track of the starting and ending points of any BASIC program and therefore you need not specify these values for an Applesoft or Integer program. However, since binary files can begin and end practically anywhere, you must tell your Apple what these values are.

PUTTING THE HEX ON YOU !

If you have noticed, so far I have avoided using the hexadecimal numbering system, but have instead illustrated all BSAVE and BLOAD commands using only decimal numbers. I know

exactly what those people new to computers are thinking - "What good are hex numbers anyway? They only confuse matters." That's exactly the way I felt when I first began using the Apple. Well, I've had my system for about 18 months now, and I must say that hex numbers are really far better to use than decimal numbers for computer use. If you keep delving into what makes a computer tick, you will learn to think in terms of hex numbers instead of decimal numbers. Why? Because the computer is a binary animal and hex numbers (closely kin to binary numbers) far better describe the memory addresses of a computer than do decimal numbers. After some point in your exposure to computers, you will begin to realize both that this is true and exactly why it is true.

For now, however, I think that it is best not to really try to learn the hex system from a cold start. Instead, I would encourage you to keep an open mind about hex numbers and try to use hex numbers whenever you can. You will find that as we really explore DOS, that it will be very difficult - if not impossible - to think of DOS locations in terms of decimal numbers. Indeed, you will come to the point where you will actually work in hex and only convert to decimal numbers when you need to alter DOS or a machine language program from within a BASIC program.

With that in mind, the methodology used to BLOAD or BSAVE using hex numbers is, as an example

BSAVE PRG1, A$FA0, L$32

Notice that hex numbers are always preceded by a $ to distinguish them from decimal numbers. In the example above, the hex numbers $FA0 and $32 correspond to the 4000 and 50 decimal numbers used before.

TIME OUT FOR AN EXAMPLE

I will show you three small examples to reinforce these earlier comments. Listing 1 will be an Applesoft program. Listing 2 will be a small machine language program. After typing in and saving Listing 2, it will then be modified slightly to create a third machine language program that will run at another location in memory. These three programs will all do practically the same thing, but we will be able to keep all three in memory at the same time.

Listing 1

```
10  HOME:VTAB 3:HTAB 6:PRINT"PROGA1"
```

Now SAVE this program as PROGA1.

Listing 2 is a series of machine language hex codes. To enter the codes into the Apple, you must be in the Monitor - type

CALL -151 to enter the monitor. A "*" will appear. Now enter the starting address (in hex) of the machine language program followed by a colon (:) and then begin entering the hex codes. The first code should be directly next to the colon and the following codes should be separated by a space as shown in the example below :

*900:20 58 FC A9 05 85 25 A9 <ret>

When finished entering the hex codes, first check to make sure that you haven't made any mistakes. You do this by entering "900.923" after the monitor prompt. You should get the identical listing as shown in Listing 2. Now save the program by typing "BSAVE PRGB1,A$900,L$24". You can prove that the program works by two methods; 1)type CALL 2304 from the BASIC prompt or 2)type 900G from the monitor prompt. The 'G' stands for 'GO' and is used to execute from the monitor a machine language program located at the specified address. Both ways should give the same result. By now you should know that hex 900 is the same as decimal 2304. The binary program is identical to the Applesoft program in Listing 1 except that the 'A1' has been changed to 'B1' and the word appears on screen line 8 instead of line 3.

Listing 2

```
0900- 20 58 FC A9 05 85 25 A9
0908- 0F 85 24 20 22 FC A2 00
0910- BD 1E 09 20 ED FD E8 E0
0918- 06 90 F5 4C D0 03 D0 D2
0920- CF C7 C2 B1
```

Now we will load PROGB1 (did you save it yet ?) back into memory at a different location and then modify it give a slightly different result. We will change the name displayed and the line on which the name shows. Type "BLOAD PROGB1, A$A00". (It is being loaded into address $A00.) Enter the monitor and type

A04:08 N A12:0A N A23:B2 <ret>

The "N" is just a device that allows us to input several changes on one line. Another way to make the changes would have been to type the addresses individually and then the new hex codes followed by a carriage return.

BSAVE the program as PROGB2 at $A00. Test the program as before (either CALL 2560 or A00G). It should say "PROGB2" ,located on line 9. Unless you have shut down your computer at some point during this example, you should now have all three programs loaded concurrently in the Apple. Typing RUN should run the Applesoft program. CALL 2304 should run the first binary program and CALL 2560 should run the second binary program.

This example therefore shows how to BLOAD, BSAVE, and BRUN binary programs. It also gives proof that you are really unlimited in the number of binary files that can be in the computer's memory at one time. I encourage you to type in these listings and experiment by running them in various ways. Try BRUNning and RUNning the files or BLOAD with CALL or 'G'. You can't learn anything by just reading.

ONE LAST EXAMPLE

In a earlier chapter I mentioned that DOS is nothing but a large machine language program. It might be more accurate to say that it is a collection of machine language programs. Type in CALL 42350. What happened? You should get a CATALOG listing. We have made use of the CALL command to access a small portion of DOS. The CATALOG function resides at 42350 decimal or $A56E. There will be many more opportunities to make use of specific routines in DOS as we progress in our knowledge of this subject.

P.S. ON DISKFIXER

I've had some real good response to the special on the DISKFIXER program for $10. This program will be our main-stay when we get into disecting a disk to learn how files are stored. You really need this (or something just like it) if you want to learn about disk storage. Give me a call if you haven't already signed up.

CALL FOR ARTICLES

Articles and program listings should be submitted in hardcopy form, and, if possible, on disk in Applewriter][or ///, Apple DOS or SOS text, Professional Easywriter, Wordstar, Palantir][OR ///, or Pascal files, or via modem (358-6687). If not submitted on disk, articles must be free of typing or spelling errors as they cannot be retyped. Diskettes will be returned to the author provided his name and address are on them. Printed material should be printed using normal size characters, a new ribbon and enhanced print if your printer is so equipped. Margins should be set at 7 and 73 for articles. Listings should be printed in 40 column mode and should be printed in compressed print. Thermal paper should be avoided because it does not reproduce well. Authors of published articles will receive a blank diskette per page as compensation. The Apple Barrel reserves the sole right to determine which articles are used. Submit articles to:

HAAUG APPLE BARREL

NEW MEMBER DRAWING WINNERS

As extra enticement for potential new members to sign up with HAAUG at Applefest, a few prizes were obtained from local stores to be given away in a drawing following the show. As the show progressed, a number of the exhibitors added to the list, making the odds of winning pretty good. The drawing was held at the November 11 business meeting, with prize winners as follows:

S.T.Whatley - A book, "How to Write an Apple Program" from Datamost.

David Luther - Flip file for diskettes from CTI.

Louis Ball - CPS Interface from Computer City.

Ruth Hughes - Super Fan II from R.H.Electronics

A.Vuyk - Box of diskettes from CTI

James D. Payne - "Apple Widow" from the Mercury Company.

Dr.Fred Weaver - Box of paper from CTI.

Alex Keller - "Crazy Mazey" from Datamost.

Sylvia Kaplan - Apple Writer II from Computer Galleries.

Lawrence Edelblum - "Tharolian Tunnels" from Datamost.

Jim Kollaer - Kraft Joystick from Kraft Systems.

Ann Perry - "Kids and the Apple" from Datamost.

Allyn Shelton - Disk head cleaning kit from CTI.

James Bradshaw - "Swashbuckler" from Datamost.

Jerry Block - Supertalker from Mountain Computer.

June Cravens - "The Blue Book" from the publisher.

Eugene J. Metz - Pkaso Graphics Interface from Interactive Structures.

Fred Womack - "Amper Magic" from S-C Software.

John B. Anderson - "Pandora's Box" from Datamost.

Rosalie Raymond - Super II Fan with Line Filter from R.H.Electronics.

Kathy Wilson - 64K RAM Card from Saturn Systems.

Our thanks to those who generously provided the prizes and congratulations to those who won.

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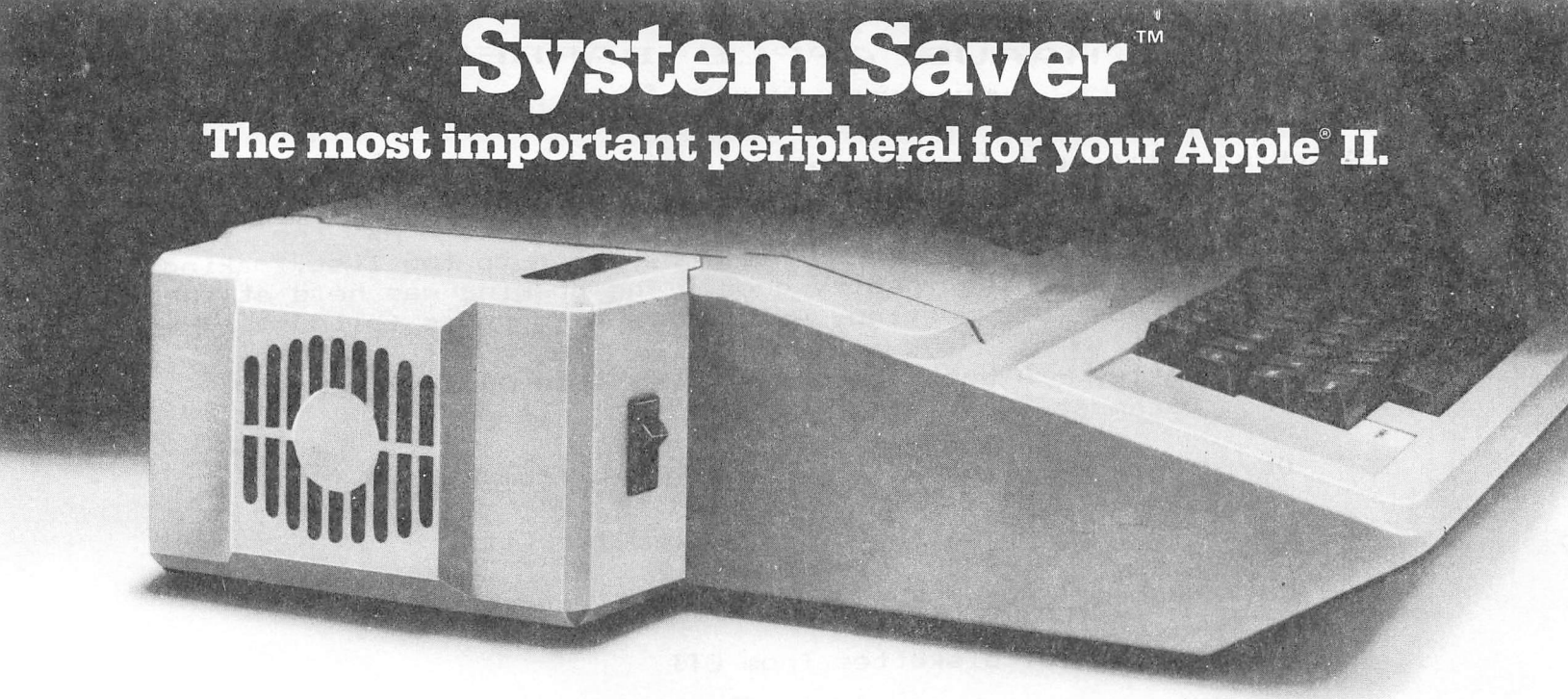
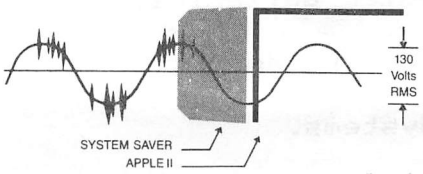


For Line Surge Suppression

The SYSTEM SAVER provides essential protection to hardware and data from dangerous power surges and spikes.

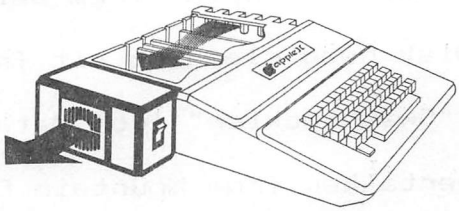


By connecting the Apple II power input through the SYSTEM SAVER, power is controlled in two ways: 1) Dangerous voltage spikes are clipped off at a safe 130 Volts RMS/175 Volts dc level. 2) High frequency noise is smoothed out before reaching the Apple II. A PI type filter attenuates common mode noise signals by a minimum of 30 dB from 600 khz to 20 mhz, with a maximum attenuation of 50 dB.

For Cooling

As soon as you move to 64K RAM or 80 columns on your Apple II you need SYSTEM SAVER.

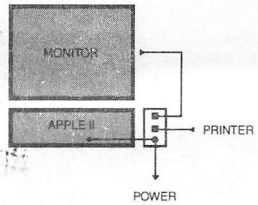
Today's advanced peripheral cards generate more heat. In addition, the cards block any natural air flow through the Apple II creating high temperature conditions that substantially reduce the life of the cards and the computer itself.

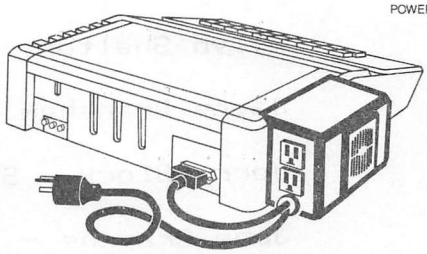


SYSTEM SAVER provides correct cooling. An efficient, quiet fan draws fresh air across the mother board, over the power supply and out the side ventilation slots.

For Operating Efficiency

SYSTEM SAVER contains two switched power outlets. As shown in the diagram, the SYSTEM SAVER efficiently organizes your system so that one convenient, front mounted power switch controls SYSTEM SAVER, Apple II, monitor and printer.





The heavy duty switch has a pilot light to alert when system is on.You'll never use the Apple power switch again!

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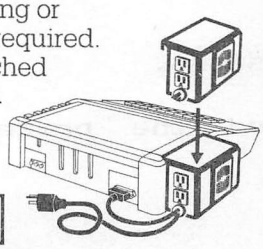

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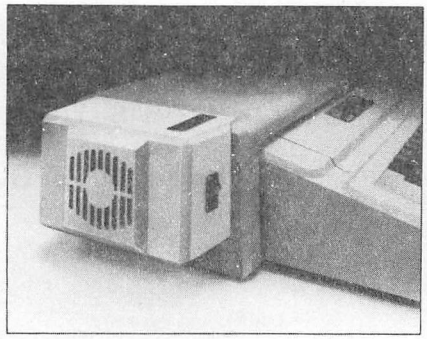

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THE APPLE II AND CANCER CONTROL

The American Cancer Society needs the help of Apple II owners in its fight against cancer. Approximately 23% of all cancer in the United States can be prevented if each of us learns the facts about cancer and applies them, and the cure rate of cancer treatment could be improved by over 20% with earlier detection.

The ACS has developed a Risk Assessment Program for the Apple II that allows the individual to find out his own personal risk from each of the major cancer killers, based on his or her answers to a series of questions. Based on the response, a printout will result which is highly specific for the individual.

The ACS needs the help of Apple II owners in conducting our many different presentations and other events throughout the community. We want to make the Risk Assessment Program available to as many people as possible. All the educational programs that the American Cancer Society presents to the public are free. We are asking that Apple II owners volunteer to work with the American Cancer Society and use their personal computers at health fairs, education workshops, employee programs and club programs to help save lives. The American Cancer Society would assist with specific information concerning the dates, times and locations of the programs.

The software is available from the American Cancer Society office. The person to contact is:

Carla Cran
American Cancer Society
1102 Autrey,
Houston, Texas 77006

Phone: (713) 528-2877

We only ask that the content of the Risk Assessment program not be altered, since it is the distillation of a vast amount of research and painstaking review by many people.

Of further interest will be our forthcoming Apple II Smoking Cessation Program for teenagers, available in December 1982.

Yours Truly,

J.Peyton Barnes,Jr.,M.D.
Chairman,Medical Committee,
Greater Houston Unit
American Cancer Society

KRAFT PRECISION JOYSTICK - PRODUCT REVIEW

By Mike Kramer

If you were a well known radio control manufacturer and wanted to get into the personal computer business, what would you produce? If you said joysticks you would be 100% correct. Kraft, long known as a maker of quality radio control gear, has introduced a joystick that combines good looks with a list of features that are equalled by few (if any) others.

Kraft's joystick features a self-centering mechanism which can be converted to non-centering whenever desired by flipping a pair of recessed switches on the bottom of the case. A pair of trim pots permit easy adjustment of either the X or Y axis, a feature essential for those who like the cursor to be centered when the stick is centered. The trimpots on the unit tested permitted a range of 71 to 162 counts on the X axis and 69 to 152 on the Y axis with the centering mechanism engaged. If the trimpots are significantly off center, it is possible to open the case and center them with a little time and the proper tools. When playing Choplifter, it is possible to adjust the trim so that the chopper hovers when the stick is released or settles slowly to a safe landing. The mechanism operates smoothly over the full range without jitter and is able to get into every corner of the graphics screen. This should permit record high scores when playing ABM, Sneakers, or Falcons. Two flush firing buttons are provided, one on the horizontal surface and one on the face of the case away from the user. The operation of these two buttons is also very smooth.

The only feature of the joystick that may be hard to become accustomed to is the positioning of the pushbutton on the vertical face of the case. This is strictly a matter of personal preference, however, and I will probably get used to it. It should also be pointed out that the plug, a high quality Augat type with machined pins, will be susceptible to pin breakage so caution should be used when plugging or unplugging it. The plug can be protected by tying a knot in the cable on the inside of the Apple's cabinet to avoid damage from an accidental yank.
The joystick is available locally with a list price of about $70 and is warranted for a full year to be free from defects in materials and workmanship.

The Kraft Joystick is highly recommended.

Apple Slices

Steve Knouse

Programmer's Aid #1

If you have an Apple][+ with a RAM card, a file called INTBASIC is loaded when you boot your DOS 3.3 System Master diskette. This is the Integer Basic language. Also included in this file is a set of Integer Basic utility programs known as Programmer's Aid #1. Included in these utilities are routines to:

1. Renumber all or part of an Integer Basic program.
2. Relocate a machine language program so it will run in a different section of memory.
3. Do Hi-Resolution graphics from an Integer Basic program.
4. Check the Apples memory chips.
5. Generate musical notes.

This month we will discuss the use of the music routine from both Integer and Applesoft Basic.

If you want more information you can get the full documentation from your Apple dealer by ordering the "Programmer's Aid #1 Installation and Operating Manual", product number A2L0011.

Music Routine in Programmer's Aid #1

When using the music routine you have control over a note's pitch (how high or low it is), the length of time the note is played and the note's timbre (a quality which allows you to distinguish one instrument from another). There is no control over loudness.

To play a note in Integer Basic you must POKE the pitch, length and timbre into locations 767, 766 and 765 and then CALL -10473.

There are 50 notes over four octaves numbered 1 thru 50. Note 0 is a rest, note 32 is middle C, note 33 is C sharp.

The length of the note can be from 1 to 255 (where 255 gives a longer note than 1). A time of 170 will give about a one second note. To get notes at a metronome marking of MM, use a length equal to 10020/MM.

Timbre can be 2, 8, 16, 32 or 64. None of them are very different but some give incorrect pitch on very high or low notes. A timbre of 32 does not have that problem.

For example the following program will play a middle C for one second:

```
10 PITCH = 767: LENGTH = 766: TIMBRE = 765: MUSIC = -10473
20 POKE PITCH, 32: POKE LENGTH, 170: POKE TIMBRE, 32
30 CALL MUSIC
40 END
```

To use the routine from Applesoft Basic we must first relocate it in memory. This is because it normally is in the same area of memory as Applesoft (remember it is an Integer Basic utility).

This can be done by using the relocation routine in another part of the Programmer's Aid. From Applesoft type the following with the exception of the characters in parethesis (the explanation):

```
INT                          (get into integer basic)
CALL-151                     (get to the monitor)
D4D5G                        (initialize the control-y vector)
9500<D717.D7FB^Y*            (initialize the relocation routine)
9500<D717.D7FB^Y             (relocate the code portion)
.D7FBM                       (move the data portion)
3D0G                         (return to integer basic)
BSAVE MUSIC,A$9500,L$E5      (save the routine to disk)
```

Note: ^Y is a control Y which you get by holding down the CTRL key and pressing Y.

Then in Applesoft, the example above would be:

```
10 PRINT CHR$(4)"BLOAD MUSIC"
20 HIMEM: 38144: REM PROTECT THE ROUTINE ABOVE HIMEM $9500
30 PITCH = 767: LE = 766: TIMBRE = 765: MUSIC = 38144
40 POKE PITCH, 32: POKE LE, 170: POKE TIMBRE, 32
50 CALL MUSIC: REM PLAY MIDDLE C FOR ONE SECOND
60 END
```

Be sure and set HIMEM: before assigning any string variables or else they will be overlaid by the MUSIC routine. Note that the variable LENGTH has been changed to LE because in Applesoft LENGTH would be seen as LEN GTH, where LEN is a reserved word. To relocate the routine to another address substitute the other address for $9500 (hex) or 38144 (decimal) as appropriate.

Paper Out Message with a Grappler

If you get a paper out message (and you're not our of paper) when trying to print with a Grappler printer interface TURN OFF your machine. Check the interface cable where it connects to the Grappler. The 26 pin connector is probably set over one row of pins. It didn't seem to hurt anything when it happened, which surprised me, but I wouldn't guarantee that nor try it again deliberately.

On Being Careful or Puff the Magic Dragon

Another friend wasn't so fortunate when he plugged his disk drive cable in one pair of pins to the right (or maybe it was to the left). He blew one of the circuits on the controller board. Another friend blew up a good amount of a expansion chassis when changing boards with the power on. Another blew a disk drive when he forgot to touch the power supply to discharge the static charge he'd picked up on the carpet and then touched the end a disk drive

cable. All of these people had there machines for some time and knew how to prevent these things from happening. So be very careful when delving around inside your Apple; double check that the power is off but not unplugged, that you touch the power supply case to discharge any static charge and that all cables are installed properly.

On Spending Your Money or Getting Your Buck's Worth

1. Buy from a good dealer.
   A good dealer has a good stock of software (hardware) so you can compare competing products, lets you try out software before you buy it, and has a replacement policy for products which prove to be defective within a reasonable period of time. (Note this does not mean the dealer should give you your money back if you don't like the product - it's up to you to do your homework).

2. Do your homework.
   Ask questions like, "Does the product do what it says it does?", "What do I want it to do now; in the future?", "Is it compatable with other hard/software I already own or plan to buy", "How hard is it to use?". If you don't know ask others, read reviews in magazines and the Apple Barrel. But be sure they know what they are talking about and they are speaking from the same frame of reference. Do you agree with them on products you already own or know of. I will never trust a major contributor to a magazine which reviews software because he spoke with great authority on a subject about which he obviously knew nothing. On the other hand I know I can always trust the judgement of the manager of one of the local computer stores as he is not afraid to say "I don't know".

3. Buy products made by firms of good reputation.
   This doesn't mean large or old or anything but firms which do business the way you would like to see it done. There are many fine businesses which are run our of someone's garage and crummy ones that are multi-million dollar companies. I will buy nearly anything Videx or Sensible Software or John Bell Engineering or Hayes or Software Publishing makes (if I need it) because everything I've seen of their's has been excellent. Stoneware has excellent phone support for DB Master, as do Videx for anything, or S-C Software for the same. In particular Videx's support is almost beyond belief. This is not an exhaustive list of good companies; they are firms that I have first-hand knowledge of.

4. When choosing software give weight to unprotected programs.
   Good programs do not have to be protected. S-C Macro Assembler, PIE Writer, Data Capture 4.Ø, Global Program Line Editor, Graphics Magician are excellent programs that can be copied with COPYA. Unprotected programs are so enjoyable to use as you don't have to worry about blowing the disk and there is the possiblility of modifying them. With all the hoopla about protected vs. unprotected software there is no better way to cast your vote.

5. Try it out in the store.
   If you can't do this don't buy it! Try it out with your hard/software configuration. If the store doesn't have everthing you do, take it with you. Don't buy an 80 column board to use with your word processor or communications software unless you actually use them together. The amount of time you spend banging on the keyboard before you buy should be directly propotional to the amount of money you are going to spend. Your homework told you which programs would (or looked like they might) do the job; now you decide if they work as advertised. If the program is highly recommended by people whose opinion you trust you can shorten or this step but do not eliminate it.

6. After you buy it, try it - before you leave the store.
   Boot your disk, print with your printer and interface board, play a quick game on your new color monitor. Nothing is more frustrating to buy that new game or word processor or printer late on Saturday only to find it doesn't work when you get it home.

7. If it breaks get it adjusted immediately.
   Don't let the warranty run out while you decide to take it in. Aside from the difference in cost (free vs. not free) many hardware products can be replaced while under warranty but must be returned to the manufacturer for repair if outside warranty. Software can probably be replaced by the store if it is shortly after the purchase. Otherwise you'll have to return it (and some bucks) to the publisher.

8. Back up software and run on the backup.
   Do this anyway you can, as soon as you can, as many times as you need to make you feel secure. If it is not copy protected do it before you even boot it. You would feel foolish having to ask for a replacement of a disk which you could have easily copied. If it is locked and and the publisher has a decent backup policy use it. With business software that means a backup supplied with the original or a sent after you send in your warranty card. If they want thirty bucks for a backup and you own a nibble copier use it. If you don't know the parameters get it from the publisher of the copy program. Make no mistake, you are fully within your rights to make a copy of your own software. You are not within your rights to give a copy to anyone else.

9. If you like (don't like) the program tell your friends so they will know to buy (not buy) it.

10. If there is something you'd like to see the program do or do better let the publisher know.
    They love to hear from customers about ways to improve their product. It is the cheapest market research they can get. If you come up with good enough ideas they might send you a copy of the next version to evaluate or to keep as a thank you for helping.

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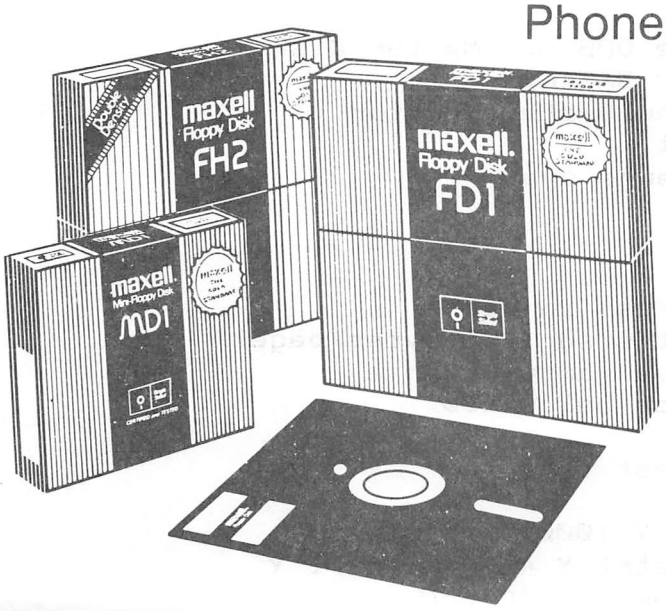

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	APPLE DOS	DIVERSI-DOS
SAVE ‡	27.1 sec.	5.9 sec.
LOAD ‡	19.2 sec.	4.5 sec.
BSAVE*	13.6 sec.	4.1 sec.
BLOAD*	9.5 sec.	2.6 sec.
READ**	42.2 sec.	12.4 sec.
WRITE**	44.6 sec.	14.9 sec.

* Hi-res screen ‡ 80-sector BASIC program
** 52-sector random access text file

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THE HIDDEN APPLE IIC RAM MEMORY TEST

By Mike Kramer

Those having a RAM card in their systems have a good memory test utility available any time Integer BASIC is loaded into the RAM card by booting with the HELLO program on the DOS 3.3 System Master. This test is part of the old Programmers Aid ROM sold for the Apple IIC Integer Machine. Unfortunately, without the Programmers Aid Manual no one knows it's there or how to use it. The steps outlined below describe how to run the memory test.

1. RUN the HELLO program on the DOS 3.3 Master Disk.
2. Type INT to get into Integer BASIC.
3. Type CALL-151 to get into the System Monitor.
4. Type D5BCG to start RAM test.
5. To run a test on a memory range type

   a . p ctrl Y

   where a is starting address in hex
   p is pages to be tested (256 bytes/page)
   note that (1) p cannot be larger than a
   (2) cannot test below 400

6. For a 48K system complete test type

   400.4 ctrl Y 800.8 ctrl Y 1000.10 ctrl Y
   2000.20 ctrl Y 3000.20 ctrl Y 4000.40 ctrl Y
   7000.20 ctrl Y 8000.40 ctrl Y RETURN
   (do not type spaces)

7. For an automatically repeating test

   a. Precede test command with letter N
   b. Follow test command with 34:0
   c. Precede RETURN with a single space
   d. Run for an hour or more

8. ERROR MESSAGES

   a. SIMPLE ERROR INVOLVING SINGLE ADDRESS

      xxxx yy zz ERR r-c

      where xxxx is hex addr where error found
      yy is hex data written to addr
      zz is hex data read back from addr
      r-c is row and column where bad chip is

   b. DYNAMIC ERROR INVOLVING TWO ADDRESSES
      xxxx yy zz vvvv qq ERR r-c

      where xxxx is hex addr where error detected
      yy is hex data written earlier to xxxx
      zz is hex data now read from xxxx
      vvvv is current addr to which qq written
      qq is data written to and read from vvvv
      r-c is row and column where bad chip is

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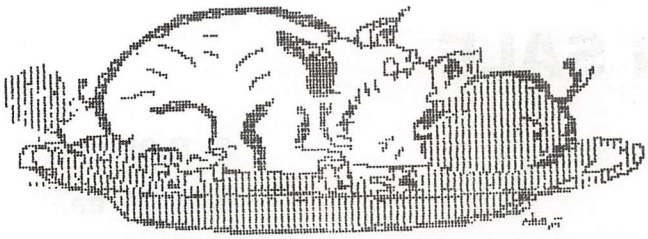

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