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Issue #42 June, 1988
Editor: Lyle Marschand
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Annual: (U.S. 3rd class) \$19.00
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Continuing our study of Romans chapter 8 ...

12 So then, brethren, we are debtors, not to the flesh, to live according to the flesh - 13 for if you live according to the flesh you will die, but if by the Spirit you put to death the deeds of the body you will live. 14 For all who are led by the Spirit of God are sons of God. 15 For you did not receive the spirit of slavery to fall back into fear, but you have received the spirit of sonship. When we cry, "Abba! Father!" 16 it is the Spirit himself bearing witness with our spirit that we are children of God, 17 and if children, then heirs, heirs of God and fellow heirs with Christ, provided we suffer with him in order that we may also be glorified with him. 18 I consider that the sufferings of this present time are not worth comparing with the glory that is to be revealed to us. 19 For the creation waits with eager longing for the revealing of the sons of God; 20 for the creation was subjected to futility, not of its own will but by the will of him who subjected it in hope; 21 because the creation itself will be set from its bondage to decay and obtain the glorious liberty of the children of God. 22 We know that the whole creation has been groaning in travail together until now; 23 and not only the creation, but we ourselves, who have the first fruits of the Spirit, groan inwardly as we wait for adoption as sons, the redemption of our bodies. 24 For in this hope we were saved. Now hope that is seen is not hope. For who hopes for what he sees? 25 But if we hope for what we do not see, we wait for it with patience.

Paul is continuing to contrast the fleshly and spiritual life, explaining the benefits and consequences of each. We make a conscious decision to be led by the flesh or the Spirit - we either decide to make it on our own (without God) or we decide to give our lives to God and rely on him for direction, guidance and love. This is the choice that Adam and Eve had to make in the Garden of Eden. Unfortunately, they decided to do what they wanted, not what God wanted. This is our choice as well. Human pride is a very strong force that pulls us away from relying on God who has given us a free will to make our own choices. God could have made us robots with no will other than to do exactly what He directed. This, however, would not have been obedience born out of a

decision to obey. Our relationship with God the Father is much like that of a child and his/her parents. The parents have to teach the child the importance of obedience and the child has to decide to obey or not.

Paul goes on to explain that if we follow the Spirit as opposed to our flesh, we are sons of God. This is very important. When we make the conscious decision to follow God by accepting the gift offered through the sacrifice of His son Jesus, we become a son to God, having our relationship established. Furthermore, once we are sons we become heirs of all God has, fellow heirs with Christ himself. By accepting Jesus' sacrifice on the cross for our sins, we are given his righteousness. God sees us as sinless, just as His son Jesus is sinless and hence we become co-heirs with Jesus to the kingdom of God. Do you remember the story of the Prodigal Son? Jesus told this story as an example of our relationship to God. The son decided to go it is own in the world (pride and living in the flesh). He ended up squandering all his money and living with swine. He came back to his father (as we can come back to God) and instead of being an outcast as he expected, his father cheerfully received him back and even gave him a welcome home party, completely forgiving him for his mistakes. This is exactly what God will do for us if we come back to him.

In verse 18 Paul explains what the future holds for those who are heirs to God. The glory that is to be revealed when our "inheritance" comes to pass is beyond compare.

Paul states that creation itself is waiting for this redemption. Since sin came into the world, it has caused decay to set in. We can see this all around us in many different forms. God will even correct the effects of this decay in nature itself. God made a perfect world, and even though it has undergone significant decay, he will restore it fully.

God's promises give us hope for a future of blessings that are guaranteed. Won't you establish your relationship to God now to insure these blessings for yourself?

God bless you all.

NIAD NEWS/ UPDATES

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From the Editor's Desk:



Software piracy is becoming a major problem within the ADAM community again and is especially destructive to ADAMites because of the limited availability of commercial software. At this critical juncture in ADAM's life I admonish all of us to take a stand against illegal copying of non Public Domain software. It is you as ADAM software users that have the decision to make about whether you are going to accept an illegal copy of software or refuse it and tell the "copier" why. You see, illegal software piracy is done by the ones who buy or accept the software, not by the one who is making it available since if no one bought it, the copier would have no reason to make it available. You may think that buying illegally copied software is a "little" crime that couldn't hurt anyone. You are very wrong !! Hundreds of these "little" crimes kill the motivation for companies and individuals to put the time, effort and money into developing high quality software which in turn just comes back to hurt you and every ADAM owner out there. NIAD is supporting the ADAM alliance against software piracy and will move against any known software piracy.

On a disturbing note, Orphanware had accused both NIAD and E & T Software of "piracy" based on our selling a Parallel Printer Interface manufactured in Canada that

Orphanware feels is a copy of their PIA2 printer interface. The board is certainly a very close match to the PIA2, although I am not qualified to judge the technical aspects of board design and component layout. Had we known this in advance, we would not have ordered the parallel boards from Canada. The fact is that Orphanware was out of stock on the PIA2 and required a huge minimum order at the time E&T ordered the Canadian boards. Unfortunately, Orphanware does not have a patent or copyright on their PIA2, which greatly complicates the matter. Some ADAMites have stated it is ethically wrong for NIAD or E&T to sell this board and have come out strongly against our selling the boards. NIAD has always been fair and honest in all our dealings with both suppliers and customers. We have strongly come out against piracy on all fronts. However, this is a very "grey" area. We definitely want to support Orphanware as we support all reputable ADAM developers and will not order any more of the Canadian boards. Orphanware has apologized for their accusations and the issue is resolved to everyone's satisfaction.

Below is an excerpt from a newspaper article that explains the current financial problems at Coleco Industries.

"Cabbage Patch Kids Can't Cut the Mustard By Burton A. Chardak

Coleco Industries has sold a zillion Cabbage Patch Kids since it shook up the toy market with the Lovable Ones in 1983. But in 1986, the West Hartford, Conn. based toy company stumbled, and it has never recovered. Its line of late-arriving Adam home computers had so many glitches, it finally was dumped; its Rambo action figures and its stuffed Furskins bears never got off the ground. Sales fell to \$230 million from \$600 million a year earlier, and Coleco chalked up a \$111 million loss. Coleco tried for a quick recovery. It bought four small companies including Selchow & Righter, which put Scrabble and Trivial Pursuit in Coleco's stable. But, as analysts noted, like some horses both board games had passed their peak. The only toy selling in volume for Coleco was ALF, a furry creature from outer space. But ALF wasn't enough. Though sales rebounded to \$504 million in 1987, Coleco, recorded a loss of \$105 million.

At year's end, Chairman Arnold C. Greenberg was trying to juggle a deal with the banks for a million in debt for stock. Meanwhile, Coleco's lines of credit began intoning fears of Chapter 11 bankruptcy. In quick succession, Coleco slashed its work force and Greenberg resigned. Morton E. Handle, long-time Coleco financial officer, took the reins. But these changes may have come too late. Last week, a California court gave a collection agency the right to attach some of Coleco's assets. Analysts said they feared this decision would open the flood gates."

. Don't forget that the next issue will be a combined July/August issue that you will receive in the middle of August.

\$ We're proud to announce the winners of our \$

drawing from the NIAD Member Surveys you sent in:

FIRST PLACE \$100 GIFT CERTIFICATE - Charles Goetnals
 SECOND PLACE \$50 GIFT CERTIFICATE - Larry Hogan
 THIRD PLACE \$25 GIFT CERTIFICATE - Lou Dini

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. We will have the results of our member survey in the next issue. I think you will find this data very interesting!

. Coleco disk drives are very scarce right now and we're not sure when we will have any additional units in. However, we now have double sided disk drives available! Yes, E&T and MMSG have teamed up to provide a modified Coleco disk drive that will give full double sided capacity of 320K in all the popular ADAM software - SMARTBasic, SMARTWriter, CP/M 2.2, etc. These double sided drives are available now for only \$265 from NIAD. If you already have a regular single sided Coleco drive, NIAD will convert it to a double sided drive for \$125. E&T/MMSG are also working on a 3 1/2 inch 720K disk drive that should be available soon. They are considering producing a 10 megabyte HARD drive for the ADAM if there is a demand for it. Please notify us at NIAD if you would purchase a 10 meg hard drive for approximately \$350.

. TELEGAMES USA has announced a Colecovision compatible game system that will run all the Colecovision and ADAM CARTRIDGES (not DDPs or disks). This system is priced at \$69.95 to compete against the Atari game systems. This is great news since it will mean more cartridge software will be coming out that can run on the

ADAM. We'll have more on this next month!

. Our Public Domain library is growing so large that we can now offer reduced prices. Effective 7/1/88 the price will be \$4.00 on disk and \$6.00 on DDP. Take advantage of this great offer to get some of the best ADAM programs around at an economical price. We also have available a booklet with descriptions of each program in each of our SMARTBasic PD volumes. BASIC PD DESCRIPTIONS is available for only \$5 and will help you choose from our 26 volumes of Basic PD totally over 600 individual programs !!

. Computer Shopper is a popular monthly magazine that covers many different computers, now including the ADAM! Yes, we have found another home in the CLASSIC COMPUTER section of the Computer Shopper. We plan to convince Computer Shopper to devote even more space to the ADAM, but they need to hear from you ADAM owners that you want this support. Write to them and ask them to support the ADAM with more articles and programs and pick up the magazine at the newsstand or better yet get a subscription to it. See the letter in the ITEMS OF INTEREST section for an address.



. Our devoted CP/M 2.2 librarian and ADAM supporter Sharon McFarlane has had to defer work on her Beginner's Guide to ADAM CP/M and documentation files for the recent CP/M Public Domain libraries due to a health problem. We're praying for a quick recovery for Sharon and the best to her family.

. This issue contains some great Basic programs that you will really enjoy and another chapter from L. C. Austill's fine SMARTBasic Programming course. This course is designed for the novice and will help you understand and make much better use out of SMARTBasic.



This month you'll be shown how to make a menu program using the SMARTKeys and even get into some graphics as well!

. We're also starting a series of articles on the use of the fine SPEEDYWRITE 2.0 program in this issue. These articles are designed to help you get the most out of this great ADAM word processor. Let us know if these articles are what you need and any other topics you would like us to cover in them.

We have a review of CHESS CHAMP by Digital Express. This is a great program !! Digital has put about everything you could imagine in it for the chess player - from great graphics to full instructions on how to play the game !

Wayne has developed a unique SEARCH GAMEPAK for the recently released MR T. SEARCH word puzzle program (see the review in the April NIAD issue). This set of puzzles is both a game and educational in nature - see our review.

See the GRAPHICS WORKSHOP for information on how to make the best use of your dot matrix printer using a printer set up program and some pictures from two new graphics picture files - CLIP ART 2 AND POWERPRINTS.

. As customary, we have discontinued our local monthly meetings for the summer. The next meeting will be September 8th.

. If 0688 is the first 4 digits of your member number, this is your last issue so get your subscription renewal in soon. Renewals are \$19 per year for US 3rd class and \$26 for first class and Canada.

SOFTWARE/HARDWARE UPDATES



. Digital Express has projected an end of June date for their GODOS program. If we get it in time, we'll have a full review in the July/ August issue. Digital's SWIFTPRINT for high resolution color printing on the Okimate 20 color printing should be available soon.

. Acolyte Software has released OPENFILER, a unique program that converts SMARTFILER databases into standard files that can be used by SMARTBasic and other programs. This program will offer significant additional functions for those of you that have data contained in SMARTFiler databases. We'll have a review in the next issue.

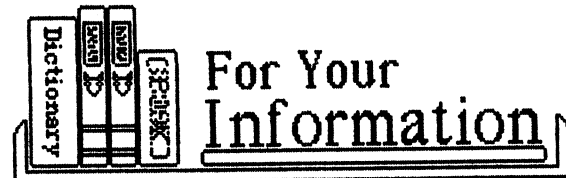
. Wizard's Lair software has released CLIP ART 2, containing 40 professionally done clip art pictures for use with Digital's POWERPAINT. Wizard's Lair has also released POWERPRINTS which are full page pictures also for use with POWERPAINT.

. D.L. Decker Enterprises is planning to release a

bimonthly ADAM disk/ddp "magazine" containing news, articles, programs and reviews. More on this in the next issue.

. Thomas Electronics has developed an ADAM compatible mouse which is a fully analog proportional mouse. More details next issue.

. 256K memory expanders are still not available and we're not sure exactly when they will be !



. This article is from the ECAUG User Group -

It has come to my attention that a number of our club members are having troubles with their modems. When logging on to a couple of local bulletin boards, they are not able to stay connected to them. The bulletin board disconnects a few seconds after being connected. . We discovered that not all the modems are having the problem. One modem connected was tried on another computer in another section of town, and still worked. The one that wouldn't stay connected, still would not on any other computer, so the problem is in the modems, not the computers or their location. . We also discovered that your modem may work, but the next one from the same company, in the same shipment, may not. I'm not sure what this means. . We did, however, find a way to get around the problem, that seems to be working for some of us, at least. Call the BBS that you have been unable to stay connected with. As soon as the connection is made, press the WILD CARD. Wait about five seconds, and press it again. Hit the RETURN key, and you should then be able to get on with your business on the board and stay connected! Don't ask me why it works, but it seems to! . HAPPY COMPUTING!!
-by Faye B. Deere



I am a member of NIAD and greatly enjoy reading your newsletter. In your MAY issue you said that Family Computing has dropped support of the ADAM, and you advised ADAM users to support the COMPUTER SHOPPER. I have been a subscriber to Family Computing for 4 years, and that was only because they supported the ADAM. I will gladly drop my subscription to Family Computing and support the Computer Shopper, if you would tell me how to get a hold of an address to subscribe to it. I live in a very rural area and have very little choice of magazines at the local store. I'm sure other ADAMites are in the same situation and would appreciate it if you would print an address for COMPUTER SHOPPER.

Sincerely, Sandy Taylor

- The subscription address for COMPUTER SHOPPER is:
5211 S. Washington Ave., P.O. Box F
Titusville, FL 32781

** Cost is \$21 per year for 12 issues **

. Dear folks at NIAD:

I appreciated seeing the listing of ADAM users group in the March newsletter. I would like to submit the following information about our ADAM users group and associated BBS that serves the nations capital area.

ADAM Washington Area Users Group (AWAUG)

President: Robert Blair

Address: 7814 Worthington Ct., Alexandria, VA 22310

Phone: (703) 971-6465

Dues: \$15/annually We meet at noon on the third Saturday of the month, at the Tyson-Pimmit Regional Library, 7584 Leesburg Pike, Falls Church, VA. We usually skip one monthly meeting during the peak summer months, so call ahead to confirm meeting plans for any particular month.

The club also sponsors a bulletin board that has been online since mid-march. The board operates 24 hours, ph * (703) 922-5497. The BBS software was designed by Shawn M. Merrick and operates under CP/M. Downloads are possible under CP/M communications and programs like Mex and Madam7. Set your Adamlink at 8 character bit, no parity, 1 stop bit (8-N-1).

Joe Mendez

. H!!! At our club meeting the Yokes on You ran fine! I came home and no matter what I did it wouldn't run. I thought something must be wrong with my computer!!! But I noted three other programs on the disk, so I tried Hustler and got a Coleco message to insert cartridge. After resetting the program, it ran O.K.!! I guess that it has to have something in RAM (loading Math Wiz and

resetting doesn't work). So maybe other people might have the same problems and maybe you might pass on this information.

ALOHA, John S. Spangler

- Yes, there is some type of quirk in these games. It is best to power the whole ADAM off before running them.

. Dear Editor, I purchased my CP/M 2.2 about three years ago, when ADAM was still supporting it. The package contained a Westico catalog of CPM application software that was impressive and I had intended to buy some of it. I understand, however, that they have since gone out of business. Do you know if anyone maintains the software or is it lost forever? I was particularly interested in their MuMath/MuSimp and Electronic Circuit Analysis packages. Maybe, if the software is no longer available to purchase, copyright laws are no longer applicable and members who did buy the software could make copies. If copyrights are still applicable, there must be someone to whom they're applicable. Please advise or ask your readers if they have any useful information.

- Westico is no longer in business but there are several ways to get CP/M 2.2 software. First, some background might be helpful. Due to the nature of the CP/M 2.2 operating system most CP/M programs will run on a variety of different computers as long as they are all using the same version of CP/M e.g. a CP/M program that is designed to run on an IBM PC using the 16 bit version of CP/M will not run on any of the 8 bit computers like the ADAM. However, there is a ton of CP/M programs that can run on the ADAM. Once you find some programs, the critical job is to get them transferred to an ADAM formatted disk/ ddp. You see, each computer has its own special way of formatting disks which makes it impossible to interchange disks/ ddps between different computers. If you have a modem (or you may want to get one just for this), you can download programs from Bulletin Board systems like Compuserve. By taking a program off another computer and transferring it via phone lines to yours, you get it placed on a disk/ ddp so it is ready to run.

The second method is to buy the CP/M programs that have already been converted to ADAM CP/M formatted disk/ ddp. This can be Public Domain or commercial programs, like those carried by NIAD. There is a company that specializes in supplying CP/M programs in a variety of formats for many different computers - Elliam Assoc.; 6101 Kentland Ave.; Woodland Hills, CA 91367 (818) 348-4278.

(CONTINUED ON PAGE 11...)

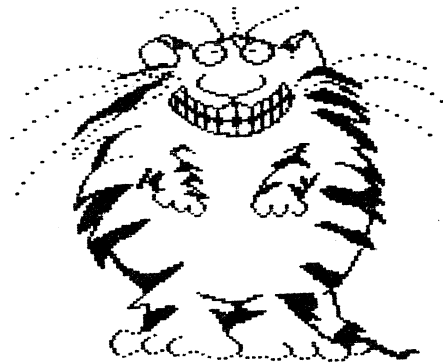
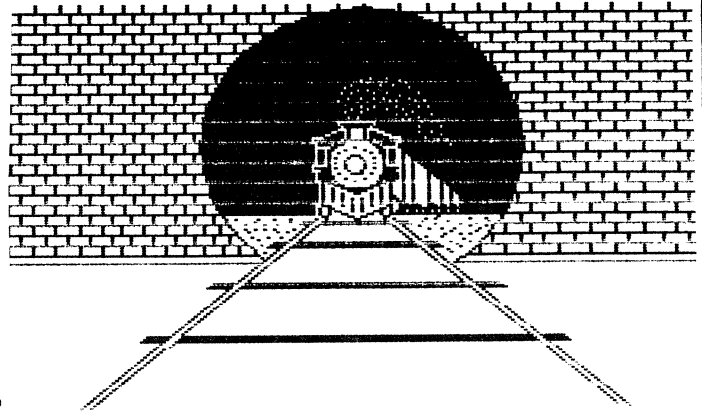

GRAPHICS WORKSHOP


Wizard's Lair software is putting out some fine art/picture files for the ADAM. Most rely on the use the excellent POWERPAINT program for printing.

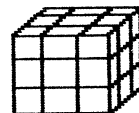
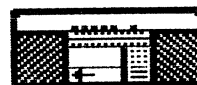
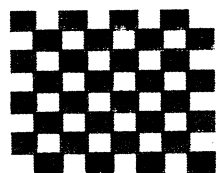
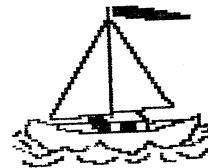
CLIPART 2 is a collection of 40 clip art files that are best described by showing you a sample selection below.

POWERPRINTS 1 is a collection of 15 full cell pictures for use in POWERPAINT - again pictures are worth a 1000 words.

Remember that clip art are 64 by 64 pixels and the full cell pictures are 240 by 160. Why should you buy picture files? Take a look at these and try to guess how much time it would take you to create them or capture them from a BBS that might have some RLE files !!



GRIN
And
BEAR
IT



WAMODriver is a patch to the operating system of ADAM which allows for the use of a parallel printer in SmartBASIC. This program, developed by Wayne Motel, allows one to output both text printing and graphics from SMARTBasic 1.0. It is an alternative to the patches provided by EVE and ORPHANWARE, but can be modified unlike the patches provided by the companies mentioned above. It, also, cannot be accessed through SmartWRITER, SmartFILER or any other program besides SmartBASIC 1.0. Upon boot, you are not stuck with using only your parallel printer. With a simple line: <CALL 10>, you can switch back to the ADAM daisy wheel printer. To return to the parallel printer all you have to do is enter in a <CALL 25>. Using the parallel printer in SmartBASIC 1.0 is also very easy, just enter in the command <PR*1> and all output will go to the screen and the printer. When finished just enter in <PR*0> to stop output to the printer. Many people have been complaining about having to swap disks all the time in order to get the parallel printer setup. Well, there is a very easy solution to this out cry. First, make a backup of SmartBASIC 1.0. Once this is completed file copy the WAMO program onto the backup of SmartBASIC. If you do not have a file copier you will have to boot SmartBASIC, then type <LOAD WAMO>, do not run the program, then save the program onto your backup of SmartBASIC. Once this is completed, all you will have to do is rename the file WAMO to HELLO. From now on, whenever you boot up this version of BASIC your ADAM will be configured for output to a parallel printer. The program listed below is a modified version of WAMO. What I have done is given the user the option to change the print style of the

Panasonic printer through a software change. The first listing is a HELLO program which sets LOMEM to 27407 and then runs WAMO, you can also change line 40 to have it BRUN WAMO if you wish to turbo save WAMO. Once the WAMO program is loaded you will be given the option to choose between 10 different print styles: Double Width, Pica, Elite, Compressed, Superscript, etc. If you do not wish to change the print style then you can always choose the Standard Draft Mode. If you have chosen a different print style and wish to return to standard draft mode just enter in this: PR*1 <RETURN> PRINT CHR\$(27)+"@" <RETURN> PR*0 <RETURN>. These statements will reset your printer and return it to standard draft mode. Always remember to that whenever you want to send a command to the printer, you will have to precede this command with a PR*1 command in order to open up communications with it. When you are finished enter in PR*0 to stop communications with it. Note that once the printer is set for a particular print style it will remain that way until you reset the printer or send another command to turn it off. These modifications will work on the Panasonic line of printers. If you have a different brand of printer refer to your owner's manual in order to make the proper changes in lines 140 through 230. Note that the variable "e\$" represents the ESC character which is a decimal 27. Your printer manual will show that each command must be preceded by this value. The printer manuals will also give a character as well as a decimal (and maby a hexadecimal) representation of each printer command. In order to modify this program for your particular printer you would enter the specific codes as done in the program.

```

1 REM 'Panasonic' Driver Installation
2 REM Original 'WAMO' print driver by W. Motel modified by Jim
Notini 6/17/8
8
10 REM      SET ADAM printer in Jumtable
11 DATA      229,33,21,245,34,100,252,33,252,244,34,103,252,225,
201
20 REM      SET Parallel Port 64 routine to Jumtable
21 DATA      229,33,70,000,34,100,252,33,057,000,34,103,252,225,
201
30 REM      Print Buffer fill
31 DATA      03,03,03,03,03,03,03,03,03,03,03,03,03,03,03,03,03,03,03,03
40 REM      FC66 routine (A) to buffer
41 DATA      229,33,41,0,54,3,43,119,205,99,252,225,201
50 REM      FC63 routine (HL) buffer to port 64
51 DATA      126,254,3,40,13,245,219,64,230,1,40,250,241,211,64,
35,24,238,201
60 REM      NO-OP
61 DATA      00
70 REM      SET (HL) with buffer address
71 DATA      229,33,40,0,205,99,252,225,201

```

```
100 FOR x = 10 TO 98: READ v: POKE x, v: NEXT x
110 CALL 25: REM      Set for Parallel printer
114 TEXT: PRINT
115 PRINT " This software is distributed      with permission of
NIAD.": PRINT:
PRINT
120 PRINT " 'Panasonic' Driver Installed "
122 PRINT: PRINT "      Parallel Port Active"
123 FOR t = 1 TO 2000: NEXT
124 e$ = CHR$(27)
125 TEXT: PRINT " PLEASE CHOOSE A PRINT STYLE:": PRINT: PRINT
126 PRINT TAB(3); "1-> Double Width Printing": PRINT TAB(3); "2-
> Pica Printin
g": PRINT TAB(3); "3-> ELITE Printing"
127 PRINT TAB(3); "4-> Compressed Printing": PRINT TAB(3); "5->
Superscript Pr
inting": PRINT TAB(3); "6-> Italics Printing"
129 PRINT TAB(3); "7-> Emphasis Printing": PRINT TAB(3); "8-> Do
uble Printing"
: PRINT TAB(3); "9-> Near Letter"
130 PRINT TAB(3); "0-> Standard Draft Mode": PRINT: PRINT "ENTER
CHOICE-> "; :
GET k
131 ON k GOTO 140, 150, 160, 170, 180, 190, 200, 210, 220
132 IF k = 0 THEN 230
133 IF k < 1 OR k > 9 THEN 125
139 REM ** Double Width **
140 PR #1: PRINT e$+"@"; PRINT e$+"x"+"1"; e$+"w"+"1": PR #0: TE
XT: END
149 REM ** Pica **
150 PR #1: PRINT e$+"@"; e$+"P": PR #0: TEXT: END
159 REM ** Elite **
160 PR #1: PRINT e$+"@"; e$+"M": PR #0: TEXT: END
169 REM ** Compressed **
170 PR #1: PRINT e$+"@"; e$+CHR$(15): PR #0: TEXT: END
179 REM ** Superscript **
180 PR #1: PRINT e$+"@"; e$+"S"+"0": PR #0: TEXT: END
189 REM ** Italics **
190 PR #1: PRINT e$+"@"; e$+"4": PR #0: TEXT: END
199 REM ** Emphasis **
200 PR #1: PRINT e$+"@"; e$+"E": PR #0: TEXT: END
209 REM ** Double **
210 PR #1: PRINT e$+"@"; e$+"G": PR #0: TEXT: END
219 REM ** NLQ **
220 PR #1: PRINT e$+"@"; e$+"x"+"1": PR #0: TEXT: END
229 REM ** Standard **
230 PR #1: PRINT e$+"@"; PR #0: TEXT: END
```




SMARTBASIC WORKSHOP

BASIC PROGRAMMING BY L.C. AUSTILL

CHAPTER VII

MENUS: that is not a command, but a topic for discussion. When programs are written to do more than one thing, the menu is the tool for selecting which operation the computer is to do. The following sample program makes use of many of the commands that have been discussed so far and introduces at least two more. The menu goes through several different approaches. SmartKeys and POKing are utilized.

Type in the following program and SAVE it under any name. The program presents a menu that permits selection of five arithmetic operations. There will be several different versions illustrating various commands. The "best" one will depend upon the needs of the program and the preference of the programmer.

```

10 HOME
20 INPUT "a,b? "; a,b
30 GOSUB 1100
40 ? "1. a + b"
50 ? "2. a - b"
60 ? "3. a * b"
70 ? "4. a / b"
80 ? "5. a ^ b"
100 ? : INPUT "Select Option "; x
120 IF x = 1 THEN GOTO 600
130 IF x = 2 THEN GOTO 700
140 IF x = 3 THEN GOTO 800
150 IF x = 4 THEN GOTO 900
160 GOTO 1000
200 ? : ? "Try another - y/n?":
GET q$
    
```

```

210 IF q$ = "n" THEN END
220 GOTO 10
    
```

```

600 REM addition
610 GOSUB 1100
620 ? "a + b = "; a+b: GOTO
2000
    
```

```

700 REM subtraction
710 GOSUB 1100
720 ? "a - b = "; a-b: GOTO
2000
    
```

```

800 REM multiplication
810 GOSUB 1100
820 ? "a * b = "; a*b: GOTO
2000
    
```

```

900 REM Division
910 GOSUB 1100 920 ? "a / b =
"; a/b: GOTO 2000
    
```

```

1000 REM Exponentiation
1010 GOSUB 1100
1020 ? "a ^ b = "; a^b: GOTO
2000
    
```

```

1100 HOME: REM Clear screen &
? variables
1110 ? "a = "; a; " b = "; b: ? :
1120 RETURN
2000 GOTO 200
    
```

Statement 20 illustrates a way of getting multiple pieces of data in one step. To input the data, the entry would look like:

3,7

With those numbers, "a" will equal 3 and "b" will equal 7. More variables could have been in the statement if necessary.

REM, the command shown in statement 600 etc. is, literally, a REMINDER note. When the computer sees that command, it goes to the next numbered statement, ignoring the material following REM. The programmer can tag parts of the program with notes that tell the purpose, give instructions, etc. When the programs get longer, it is useful,

at least while writing and debugging, to have REM steps. Some recommend the use of logic diagrams. Others use a block, flow-chart approach. It is recommended that notes be kept regarding the numerical location of various steps of the program.

SAVE the program!

RUN the program several times.

The INPUT command is used to make menu selection. This has some advantages. The choice can be seen before being acted upon (by pressing the RETURN key) and corrected if an error has been made. Also, the choice can involve two characters or more if desired. The program is relatively unprotected, however. Step 160 assumes that the choice will be number 5 if it has not been 1 through 4. What would happen if 7 had accidentally been pressed? The result would have been 5. In the program, the error would be obvious in the result, but if the operations were complex, the mistake might not be noticed.

The menu could be "protected" by making the following changes:

```

160 IF x = 5 THEN GOTO 1000
170 ? "Try again": goto 100
    
```

There must be an entry within the 1 to 5 range or a reentry will be requested.

Still another way of protecting the menu would be to delete statement

170 and add the following:

```
110 IF x < 1 OR x > 5 THEN ?
"Try again": GOTO 100.
```

Statement 160 can be either the original one typed or the one changed to. It doesn't make any difference as x must be between 1 and 5 or a reentry would have been requested.

A GOSUB routine could have been used in the menu. This can be illustrated by using the program with the changes listed above and making the following additional changes:

. In statements 120 through 160, change the GOTOs to GOSUBS.

. Change 2000 to read 2000 RETURN

RUN the program with these changes.

Modify the program to use the GET command instead of INPUT in statement 100. RUN again. The response difference is obvious. There are limitations however. 1. Only single digit numbers can be used. If that is a limitation, letters instead of numbers can be used and that gets you to 26 choices. 2. There is no way of stopping the program at the menu level. When INPUT is used, execution can be stopped by the control C RETURN route. Using a menu selection item to stop the program execution is a definite advantage. The computer can check to see if any files need to be updated, closed, or any other housekeeping items performed before the data in RAM is destroyed. In the current program, statements 200/210 let it stop.

SmartKeys I through VI have been completely ignored. In fact, the Coleco instruction manual also

ignores them. Actually, they have ASCII code numbers just like all the other keys. These numbers are:

- SK I 129
- Shifted SK I 137
- SK II 130
- Shifted SK II 138
- SK III 131
- Shifted SK III 139
- SK IV 132
- Shifted SK IV 140
- SK V 133
- Shifted SK V 141
- SK VI 134
- Shifted SK VI 142

A note of these character codes should be made in appendix C of the Coleco SmartBasic instruction manual.

The SmartKeys can be used in the menu. To do so, the commands must be changed a little. A string variable rather than a number must be INPUT or (GET) then converted to an ASCII code. The program can be changed to do this.

In steps 40 through 80 change the numerals to Roman numerals I through V. Now make 100 read as follows:

```
100 ? "Select Option": get a$: x =
ASC(a$)-128
```

The last part of revised statement 100 effectively gives numbers in the range of 1 to 5 for the value of x.

RUN the program now.

ON x GOSUB is one of the most useful menu commands. It simplifies writing the program and also works well with the block diagram type flow chart. "x" is shown as the variable, but any variable can be used. It is required that the variable have a value starting at 1 and going as high as necessary in increments of 1 to accommodate the

number of choices. To use this command in the working program, delete statements 120 through 160 and enter the following:

```
120 ON x GOSUB 600, 700, 800,
900, 1000
```

This is a clue as to why the ASCII codes were converted for the SmartKeys by subtracting 128. Statement 120 says for the computer to GOSUB 600 if the value of x is 1, 700 if the value is 2, 800 if 3, etc. If the value of x is greater than 5, the computer will go to the NEXT numbered statement.

RUN the program now.

After the program is debugged and running, SAVE it as it will be used again for modifications.

There is a very similar command that states ON x GOTO. It works the same as the GOSUB one currently in RAM, but the commands must be altered to a format similar to the initial program used in this test. The changes should be made in order to gain experience. The result of an erroneous entry is the same as the ON x GOSUB command.

Using SmartKeys, a menu can be created that will look somewhat similar to the menu on SmartWriter and other commercial software. The keys will be at the top of the screen rather than the bottom.

Several new concepts will be presented to accomplish this goal. The order of process is going to be influenced by the choice of colors

used.

Formatting the display requires more discipline than previously encountered. There is more information on this subject in a book called "ADAM'S COMPANION".

The following is a string that contains nothing but 31 spaces. This is done with the following program statement:

```
For i = 1 to 31: BL$ = BL$ + chr$(32): NEXT
```

Referring to the ASCII table, a space is character 32. This program step says that starting with BL\$="", add character 32 to the string 31 times.

Using a piece of ruled paper with 31 or more lines, turned on its side, number each of the columns that result. Since we have six SmartKeys, we can allot five columns to define each key. Further, we can use five spaces, give or take, to enhance the description. Copy the information onto your sheet with the numbered columns. It will look something like this:

```
  I  II III IV  V VI
a+b a-b a*b a/b a^b
```

It can take several attempts to get the spaces correct when printing these program statements.

The cursor will be kept on the same line so it will be necessary to use VTAB and HTAB commands. The program shifts the cursor not the computer!

Another new command is POKE. The companion command is PEEK. The PEEK command will reveal the numeric value at a particular address in RAM. These numbers are what make the computer do what it

does. Numbers themselves in RAM can either represent a command to do something or are information required for commands to work upon. In the immediate mode, ENTER

```
PRINT PEEK(16995)
```

A zero "0" will appear on the screen. Zero is the number which is in address 16995. That is the line number on the screen below which scrolling starts.

The number that is at a given address can be changed by using the POKE command:

```
POKE xxxxx, abc
```

where abc is a number from 0 to 255. POKING can be dangerous to ADAM's health. If a number is put in the wrong place, the actions of the computer may be completely changed.

With SmartBasic loaded, type the following in the immediate mode:

```
HOME: VTAB 1: HTAB 1: ? " HI UP
HERE ON LINE 1": VTAB 6
POKE 16995,4
FOR I = 1 to 10: ? I: NEXT
HOME: for I = 1 to 50: ? I: NEXT
```

There is a message on line 1 and some numbers below line 4, but HOME will not touch anything above line 5. ENTER the following:

```
VTAB 4: HTAB 1: ? "You can't get
me on line 4!": vtab 6
HOME: FOR I = 1 TO 50: ? I: NEXT
? PEEK(16995)
TEXT
? PEEK(16995)
```

When 4 was POKED into the address 16995, the area from line 4 up was left on the screen while changes were made below. This demonstrates that that area could be

accessed by using the VTAB command. It has verified that the value 4 was in address 16995. Even though HOME wouldn't clear the top of the screen, the command TEXT would and it also reset the value in address 16995 to 0, the starting point. It is this mechanism that will let the programmer get the SmartKeys to the top of the screen and keep them there.

If not already in RAM, load the menu program that used ON X GOSUB and make the following changes:

```
DEL 40,80
5 GOSUB 5000
5000 REM let BL$ = 31 spaces
5010 for i = 1 to 31: BL$ = BL$ + chr$(32): next
5020 SK$ = " I II III IV  Y
VI ": REM 31 chr$
5030 D1$ = " a+b a-b a*b a/b
a^b"
5040 HOME: For i = 1 to 3: VTAB
i: HTAB 1: ? bl$:; next
5045 VTAB 1: HTAB 1: ? sk$:;
vtab $ HTAB 1
5050 for I = 1 to 31: ? "=";:next:
vtab 6
5060 poke 16995,4
5070 RETURN
```

Change 40 to read

```
40 VTAB 2: HTAB 1: ? D1$:; vtab
7: htab 1
```

Type in the following:

```
200 VTAB 2: HTAB 1: ? BL$:;
210 VTAB 2: HTAB 1: ? "AGAIN";
spc(21); "DONE ";
220 vtab 10: HTAB 1
230 ? "Select SmartKey": get q$:
x = asc(q$)
240 if x = 129 then VTAB 2:
HTAB 1: ? BL$:; VTAB 10: GOTO
10
250 if x = 134 then TEXT: ?
"DONE!": END
260 ? chr$(7): goto 230
270 END
```

Type chr\$(7) in the immediate mode. If you have sound on your monitor (or TV), you should get a beep sound.

SAVE that program and type RUN. If it doesn't work, start debugging. After it is running, save it again if changes were made.

Equal signs have been used to delineate the area for SmartKey selection. We can do the same thing by using the INVERSE command. INVERSE says, "Mr. ADAM, when you print, reverse the background and text colors." The background becomes white and the letters become black. To return to the original color scheme, use the command NORMAL. This can be done in the immediate mode. To accomplish this, make the following changes:

```
5040 HOME: INVERSE: FOR i = 1
to 3: YTAB i: HTAB 1: ? BL$;
NEXT 5050 NORMAL
5060 poke 16995,3
40 INVERSE: YTAB 2: HTAB 1: ?
D1$; vtab 7: htab 1: NORMAL
200 YTAB 2: HTAB 1: INVERSE:
? BL$;
220 vtab 10: HTAB 1: NORMAL
240 IF x= 129 then YTAB 2: HTAB
1: INVERSE: ? BL$; NORMAL:
YTAB 10: GOTO 10
```

Type RUN again and see how that works. This should be saved again as another change is going to be made and there is a danger that the entire program could be lost in the process.

It is possible to use other colors for the SmartKey area that has been created.

The number in address 17126 determines the screen/text colors when printing in INVERSE. The color coding is different than that shown for either low resolution or high resolution graphics in the COLECO

instruction manual. For this purpose, the following color codes apply:

- | | |
|----------------|-----------------|
| 0 Transparent | 8 medium red |
| 1 black | 9 light red |
| 2 medium green | 10 dark yellow |
| 3 light green | 11 light yellow |
| 4 dark blue | 12 dark green |
| 5 light blue | 13 magenta |
| 6 dark red | 14 gray |
| 7 cyanide | 15 white |

The number in 17126 represents

$$16 * (\text{color of letters}) + \text{color of background}$$

Since there are transparent letters (the same as the black background) which is number 0 and white background number 15 when using inverse, the number should be

$$16 * 0 + 15 = 15$$

In the immediate mode, ENTER ? PEEK(17126). The result should be 15.

If white letters on a light blue background are desired the number would be:

$$\text{white letters} \quad 15$$

$$\text{light blue background } 5 \\ 15 * 16 + 5 = 245$$

Use the last program and add the following instruction to accomplish it:

```
3 poke 17126,245:TEXT
```

When the addresses that change colors are POKED, it is necessary to use the command TEXT to effect the change. ADAM only checks color instructions during the TEXT subroutine.

Run the program now!

More color options are available from other texts.

(CONTINUED FROM PAGE 4)

Elliam has access to 1000's of CP/M programs and may be able to help you find the particular type of program you are looking for. Another option is to buy commercial software for another computer and have it converted to ADAM CP/M format. NIAD provides this conversion service and any CP/M 2.2 or CP/M 80 compatible software can usually be converted successfully.

HERE IS A NICE GRAPHICS PROGRAM ...

```
14 REM fireworks
15 REM by
16 REM Stuart Anstis
17 REM Modified for ADAM by H.M.Guill
18 REM *****
19 FOR n = 1 TO 20
20 HGR2
30 j = 90+80*RND(1)
40 k = 45+90*RND(1)
50 FOR a = 1 TO 80*RND(1)
60 hue = INT(4*RND(1)+10)
70 HCOLOR = hue
80 x = 200*RND(1)
90 y = 190*RND(1)
100 HPLOT j, k
110 HPLOT TO x, y
120 NEXT a
130 NEXT n
140 FOR l = 1 TO 30
150 PRINT
160 NEXT l
170 TEXT
```

HERE'S A GREAT LITTLE ARCADE GAME FOR YOUR PLEASURE . . .

```

1 REM NIAD PUBLIC DOMAIN                                VOLUME # BNDV 26
3 REM ENHANCED BY                                       BOB TARNOWSKI
10 REM ---star patrol
20 REM
30 REM a silly little game
40 ONERR GOTO 1000
50 POKE 17115, 129: POKE 17126, 241: POKE 17059, 0: TEXT: INVERSE
51 FOR i = 1 TO 100: VTAB INT(RND(1)*23+1): HTAB INT(RND(1)*30+1):
PRINT ".": : NEXT: NORMAL
52 VTAB 4: HTAB 11: PRINT "STARPATROL": : VTAB 8: HTAB 2: PRINT "M
ove ship with controller #1":
53 VTAB 10: HTAB 5: PRINT "Fire with left trigger": : VTAB 12: HTA
B 5: PRINT "End with right trigger":
54 VTAB 16: HTAB 6: PRINT "ANY KEY TO CONTINUE": : GET k$: VTAB 22
: HTAB 11: PRINT "ONE MOMENT":
55 HIMEM :50000
60 GOSUB 470
70 FOR i = 1 TO st
80 GOSUB 110: GOSUB 270
90 GOSUB 110: GOSUB 370
100 NEXT: GOTO 70
110 REM ---player movement
120 z = PDL(7)
125 qz = PDL(9): IF qz THEN 1000
130 IF z AND NOT tr THEN GOSUB 620
140 tr = z: z = PDL(5)
150 XDRAW 2 AT xc, yc
160 IF z = 1 AND yc > v THEN yc = yc-v
170 IF z = 2 AND xc < xl THEN xc = xc+v
180 IF z = 4 AND vc < yl THEN yc = yc+v
190 IF z = 8 AND xc > v THEN xc = xc-v
200 DRAW 2 AT xc, yc
210 RETURN
270 REM ---enemy movement
280 IF RND(1) < .05 THEN 350
290 x = xe+ex: y = ye+ey
300 IF x < v OR x > xl OR y < v OR y > yl THEN 350
310 XDRAW 3 AT xe, ye: DRAW 3 AT x, y
320 xe = x: ye = y: RETURN
330 xe = FN r(xl): ye = FN r(yl)
340 DRAW 3 AT xe, ye
350 ex = v-v2*RND(1): ey = v-v2*RND(1)
360 RETURN
370 REM ---star movements
380 x = xx(i): y = yy(i)
390 IF NOT x THEN 430
400 XDRAW 1 AT x, y
410 x = q*(x-xc)+xc
420 y = q*(y-yc)+yc
430 IF x < v OR y < v OR x > xl OR y > yl THEN x = FN r(xl): y = F
N r(yl)
440 xx(i) = x: yy(i) = y
450 DRAW 1 AT x, y
460 RETURN
470 REM ---initialization
480 GOSUB 730
490 st = 50

```

CONTINUED ON PAGE 14 . . .



SPEEDYWRITE WORKSHOP

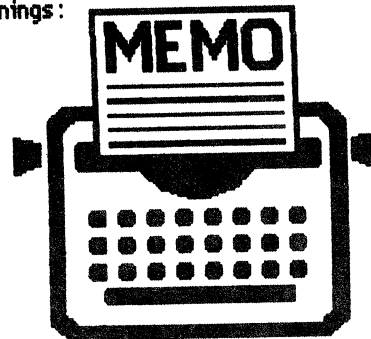


Unlike SmartWriter, SpeedyWrite V2.0 can do much more than load and save files. SpeedyWrite's (SW2) powerful filer can delete, copy and rename files. The SW2 filer even allows the use of a "wildcard character" which allows ambiguous file management.

One of the SW2 filer's most interesting features is that it uses filetypes. The filetype is the letter, displayed to the right of the filename in the directory, that tells what kind of file it is. Backup files are distinguished by their lower case filetypes. The following chart displays all the filetypes and their meanings:

FILETYPE MEANING

A	Text File
B	Database
C	Configuration file
H	SmartWriter File
M	IMacro File
U	Utility File



The SW2 Filer also allows you to select the drive you wish to use. SW2 not only allows you to use the tape and disk drives, but also accesses an extra drive called 'E'. This is a ramdisk which has a capacity of 10K even if you don't have a memory expander! The 64K Memory Expansion allows you to have a 72K ramdisk that may be used for copying files or for the database. Although SW2 can't use any larger expander than the 64K, special adapters may be released in the future.

Another great feature of SW2's filer is that it allows the use of Specifiers. Specifiers are somewhat like the "ambiguous filenames in CP/M. The specifiers may have wildcard characters (equivalent to the "*" in CP/M). The importance of the wildcard character is that it allows you to delete, copy, load, and catalog files with similar references.

The delete command is just what it implies. It deletes files (correctly) from your medium. By using the wildcard character you may even delete more than one file at once. Before any file deletion is made SW2 will display the files that are to be deleted and will ask you if you are sure.

The copy selection will allow you to copy from one drive to another. If you have only one drive, SW2 allows you to copy the file into the ramdisk and back onto a different medium. The copy selection also allows you to copy more than one file at a time.

The rename command allows you to rename any file in any drive, including the 10K ramdisk. The init command allows you to initialize tapes, disks and even the ramdisk. Any data in the medium you choose will be destroyed. If you INIT the 10K ramdisk (72K if you have the 64K card) the ramdisk will be cleared.

Because new disks need to be specially formatted, SW2 supplies a disk formatting program. This program may be used by first booting SmartBASIC, inserting your SW2, and then typing 'BRUN FORMAT'. Then follow the prompts.

To retrieve and change a file's status, choose the STATUS command on the SW2 Filer menu. Next choose your drive and enter your filename and reset the protection status by using the characters shown in the SEC. 6-7, chapter 6 of the SW2 manual.

Next month we'll have some tips on using a dot matrix printer with SW2.



REVIEWS



CHESS CHAMPION by Digital Express

Review W. Motel

This is the latest from Sol Swift at Digital Express. It is a great Chess game for the Adam. It includes excellent graphics, online instructions, ability to save/load games, do custom board setup, and have computer play at 10 different levels. It also has use of the Eve Speech Synthesizer or the Orphanware Business Systems "Talker". Control is via the Keyboard or Front Controller.

At the start of the game, you have the option to either load a previously saved game or setup the game. GAME SETUP gives you 3 options: Standard game of regular chess; Custom Game where you set up the pieces as you want; and thirdly Edit Game where you can alter a game in progress.

Game play screen shows you the current board setup and any captured pieces. You have four menu selections.

1. Pick up piece (for normally moving)
2. View Help Notes
3. Take back last move
4. Castle Maneuver

When moving (Pick up Piece), the arrow keys move a white square over the piece you wish to move. Hit enter and you now can move the piece. Hit enter again and you put the piece down.

Help Notes are available for general information on Chess and on each individual piece and its move pattern.

When it is Adam's turn, the message "thinking" shows at the bottom of the screen as it considers the possible moves. If you want to force it to make its move, just hit

Ctrl and the F. This forces the computer to make the best move it has evaluated to that point. As with most Chess games for the computer, the computers turn is an evaluation of all the possible moves it has and a determination of which it sees as the best one. This is what takes time.

When its your turn, hitting the ESCape key gives you 5 additional options, plus the status of the current game. The game status includes the play level, number of moves so far, type of game (std/custom), and the current value of the white (you) and black (Adam) side. The value is based on standard values for captured pieces. The 5

options are:

1. Continue the game
2. Store/Load
3. Change Play Level (0 - 9, 9 the hardest)
4. Restart/Edit the game
5. Toggle speech on/off

Whenever a game is started, the level is 1 and sound is off. They suggest that experienced player will most likely want to play at level 5 or 6. You can store/load up to 52 games per disk. These are stored by letters A - Z, a - z.

Currently you are always white and Adam is black. They do give a suggestion of how to "play" 2 people by using the on-screen board without computer evaluation, but this is mainly a human-computer played version.

Graphics are excellent. The board is nicely colored light/dark red-brown (colors on my TV at least) with great drawn chess pieces in white and black. The pieces are very well defined. The board takes up the middle half of the screen, with the respective white and black piece boxes each taking up the left and right quarter of the screen. The board is grid identified (A - H) by (1 - 8). After the Adam moves, a message also displays the coordinates of the location moved from and to.

This is another great piece of software from Sol, even though he states in a message file that he is not entirely satisfied with it. If you like chess or want to try playing it, this is a wonderful way to do it.

Recommended: A+



TRIVIA WORDSEARCH

FOR USE WITH MR T SEARCH

BY WAYNE MOTEL

This is an exciting collection of 20 word search puzzles for use with the Mr. T Search master game. An extra twist is that they double as a trivia quiz. The topics range from serious to silly. They can be used for school study to party games. Self contained formatted wordlist doc file can be printed for stand alone trivia questions.

All 20 puzzles contain both the wordlist file and an already completed ready-to-go puzzle. The puzzles include 20 x 15, 26 x 15, and the print-only 26 x 22 size. Wordlists average 25 words. 4 puzzles cover the States. These cover the 50 states in 4 groups. This is good as a school study tool, as the wordlist can be printed showing the state and its capital and nickname. Creating the wordsearch puzzles and solving it reinforces the information in a fun way.

The other topics include the following:

- Old time Radio shows and their sponsor
- TV Game shows and their moderator
- Comic Strips and their writer
- US Inventors and their invention
- Rock and Roll Groups Leader? and the ???
(Such as Diana Ross and the Supremes)
- Current Songs and the artist doing them
- US Authors and their works
- and more.

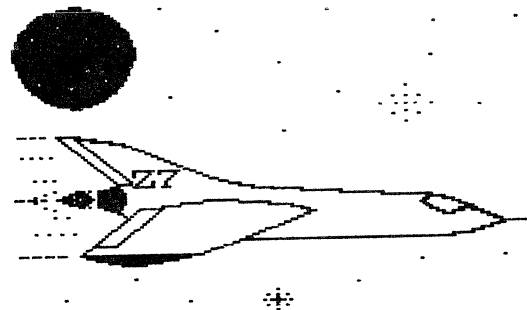
The various topics give a nice range a puzzles for all ages. Using the Authors wordlist as an example of how the trivia portion is built in, you have a total of 24 words, the first 12 are titles and the last 12 are the corresponding authors. This is how the word list appears in the already created puzzle. Loading the separate wordlist in to create another puzzle forces the wordlist to be sorted, thereby mixing up the order. The separate SmartWriter file also has the wordlist, that you can rearrange any way you want for printing on your printer. Lots of options, lots of fun, and a good double value for your money.

RATING - A (PRICE \$ 7.95)

After Burner By SEGA

Review W. Motel

The arcade hit is finally here for the home on this 4 megabit cart. This is twice the size of OutRun, which was the first 2 MegaBit (Double Size) cart. Keep in mind that the game unit can still only hold X amount of data at one time. The increased cart size gives you some better graphics, but most of the increase is used for holding the additional screens/rounds that the arcade games have. These are loaded as needed. If you are not familiar with the arcade game, then you probably don't care to even read this review, but I'll explain anyway. You are flying an F 14 Thunder Cat Jet. Your view is from behind the jet, not out the cockpit window. Your pre-programmed flight path takes you through 18 stages, where you encounter aerial combat with various types of enemy planes over land, water, during day and nighttime. Although there is a bonus fuel docking screen, where you must dock with the fuel line within a set time for bonus points, this is not a flight simulator game, but a flight combat game. You can move the plane slight up/down, bank slightly left/right, or go into a roll (rotate left/right 360 degrees). This is very useful in avoiding enemy fire. Enemy planes come from the side and behind you, but shoot missiles at you only when they turn and approach you. You can shoot them either way. Your arsenal consists of air-to-air missiles which must be right on target. ou also have a Vulcan cannon (perhaps a gift from Mr. Spock), that is in essence, guided missiles. When the target is locked in (you see it displayed) and you fire, this will follow the enemy and hit it, as long as you keep the enemy in sight until the hit. Of course, while keeping that plane in sight, you also have others attacking you. Your firepower is unlimited, so you don't have to worry about running out of ammunition. One fire button is used for the cannon, the other for the missiles. You start out with 3 planes and get additional at 5,000,000 and 15,000,000 points.



This seems like a very good adaptation of the arcade game, although you don't get the airplane to sit in like in the arcades. Although the useless ground detail is not as abundant as the arcade version, the graphics that are directly related to the game play are very close. Your

Jet is large and detailed, as are the enemy aircraft. Little or no flickering was noticed. The game was very playable, even on my smaller 13 inch TV. Since this is a large 4 megabit cartridge, so is the price. However, at 4 token (\$1.00) plays in the arcade, you'll still save money with the cartridge. You should like this one.

RATING - A+

CONTINUED FROM PAGE 12...

```

500 DEF FN r(f) = v+f*RND(1)
510 DIM xx(st), yy(st)
520 TEXT: HGR: HOME: HCOLOR = 3
530 xc = 140: yc = 96
540 q = 1.05: v = 5: v2 = v*2
550 xl = 255-v2: yl = 159-v2
570 FOR i = 1 TO st: xx(i) = FN r(xl): yy(i) = FN r(yl): DRAW 1 AT
xx(i), yy(i): NEXT
580 DRAW 2 AT xc, yc
590 GOSUB 330
600 bd = 0: sf = 0: GOSUB 690
610 RETURN
620 REM ---shot fired
630 PRINT CHR$(7); : sf = sf+1
640 IF ABS(xe-xc) > v OR ABS(ye-yc) > v THEN 690
650 DRAW 4 AT xe, ye: PRINT CHR$(7); : DRAW 5
660 XDRAW 3 AT xe, ye
670 XDRAW 4 AT xe, ye: PRINT CHR$(7); : XDRAW 5
680 bd = bd+1: GOSUB 330
690 VTAB 20: PRINT
700 VTAB 21: PRINT " HITS: "; bd; " SHOTS FIRED: "; sf
710 IF sf THEN PRINT " BATTING AVERAGE: "; : zx = bd/sf: z1 = INT(
zx*1000): zx = z1/1000: PRINT zx; " "
720 RETURN
730 REM ---set up shape table
740 a = 50001
750 READ d: IF d >= 0 THEN POKE a, d: a = a+1: GOTO 750
760 POKE 16766, 81: POKE 16767, 195
770 SCALE = 1: ROT = 0
780 RETURN
790 DATA 5,0,12,0,14,0,24,0,50,0,109,0
800 DATA 5,0
810 DATA 36,252,147,42,109,45,222,51,46,0
820 DATA 56,63,63,55,55,55,46,46,110,73,73,73,44,44,36,39,39,63,
63,4,44,223,51,28,7,0
830 DATA 219,35,39,39,39,44,37,39,36,37,45,53,53,53,45,37,44,44,
44,36,45,46,54,54,45,46,53,55,62,54,53,53,53,53,55,55,39,60
831 DATA 63,62,62,62,38,39,39,55,55,55,63,60,60,36,39,63,39,44,5
,0
840 DATA 60,60,60,60,44,45,45,37,39,39,39,45,45,45,53,54,54,46,4
5,45,55,55,55,55,55,62,55,55,62,36,60,63,39,37,37,0
850 DATA -1
1000 POKE 17059, 0: POKE 17115, 240: POKE 17126, 15: TEXT: END

```

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