DISK #27

For the Serious User Of Apple][Computers

COMPUTIST

Issue No. 27 $3.75

Softkeys For:

Microzines 1-5
Microzines 7-9
Phi Beta Filer
Sword of Kadash
Miner 2049er
Learning with Fuzzywomp
Bookends (ProDOS)
Apple Logo II
Murder on the Zinderneuf

Core:

The Games of 1985: Part II

Feature:

Daleks: A Game that Learns

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COMPUTIST
PO Box 110846-T
Tacoma, WA 98411

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Many of the articles published in COMPUTIST detail the removal of copy protection schemes from commercial disks or contain information on copy protection and backup methods in general. We also print bit copy parameters, tips for adventure games, advanced playing techniques (APT's) for arcade game fanatics and any other information which may be of use to the serious Apple user.

COMPUTIST also contains a special CORE section which focuses on information not directly related to copy protection. Topics may include, but are not limited to: tutorials, hardware/software product reviews and application and utility programs.

What Is A Softkey Anyway? Softkey is a term which we coined to describe a procedure that removes, or at least circumvents, any copy protection on a particular disk. Once a softkey procedure has been performed, the resulting disk can usually be copied by the use of Apple's COPYA program (on the DOS 3.3 System Master Disk).

Commands And Controls: In any article appearing in COMPUTIST, commands which a reader is required to perform are set apart from normal text by being indented and bold. An example is:

PR#6

Follow this with the RETURN key. The RETURN key must be pressed at the end of every such command unless otherwise specified.

Control characters are indicated by being boxed. An example is:

6 CTRL-P

To complete this command, you must first type the number 6 and then place one finger on the CTRL key and one finger on the P key.

Requirements: Most of the programs and softkeys which appear in COMPUTIST require one of the Apple][series of computers and at least on disk drive with DOS 3.3. Occasionally, some programs and procedures have special requirements. The prerequisites for deprotection techniques or programs will always be listed at the beginning of the article under the "Requirements:" heading.

Software Recommendations: The following programs (or similar ones) are strongly recommended for readers who wish to obtain the most benefit from our articles:

1) **Applesoft Program Editor** such as Global Program Line Editor (GPLE).
2) **Sector Editor** such as DiskEdit, ZAP from Bag of Tricks or Tricky Dick from The CIA.
3) **Disk Search Utility** such as The Inspector, The Tracer from The CIA or The CORE Disk Searcher.
4) **Assembler** such as the S-C Assembler or Merlin/Big Mac.
5) **Bit Copy Program** such as Copy][Plus, Locksmith or The Essential Data Duplicator
6) **Text Editor** capable of producing normal sequential text files such as Applewriter][, Magic Window][or Screenwriter][.

You will also find COPYA, FID and MUFFIN from the DOS 3.3 System Master Disk useful.

Super IOB: This program has most recently appeared in COMPUTIST No. 22. Several softkey procedures will make use of a Super IOB controller, a small program that must be keyed into the middle of Super IOB. The controller changes Super IOB so that it can copy different disks. To get the latest version of this program, you may order COMPUTIST No. 22 as a back issue or order Program Library Disk No. 22.

RESET Into The Monitor: Many softkey procedures require that the user be able to enter the Apple's system monitor during the execution of a copy protected program. Check the following list to see what hardware you will need to obtain this ability.

Apple][Plus - Apple //e - Apple compatibles: 1) Place an Integer BASIC ROM card in one of the Apple slots. 2) Use a non-maskable interrupt (NMI) card such as Replay or Wildcard.

Apple][Plus - Apple compatibles: 1) Install an F8 ROM with a modified RESET vector on the computer's motherboard as detailed in the "Modified ROM's" article of COMPUTIST No. 6 or the "Dual ROM's" article in COMPUTIST No. 19.

Apple //e - Apple //c: Install a modified CD ROM on the computer's motherboard. Don Lancaster's company (Synergetics; 746 First Street; Box 809-HC; Thatcher, AZ 85552; free voice HelpLine 602-428-4073) sells the instructions necessary to make this modification. Making this modification to an Apple //e will void its warranty but the increased ability to remove copy protection may justify it.

Recommended Literature: The Apple][Reference Manual and DOS 3.3 manual are musts for any serious Apple user. Other helpful books include: *Beneath Apple DOS*, Don Worth and Peter Leichner, Quality Software, $19.95; *Assembly Language For The Applesoft Programmer*, Roy Meyers and C.W. Finley, Addison Wesley, $16.95; and *What's Where In The Apple*, William Lubert, Micro Ink., $24.95.

Keying In Applesoft Programs: BASIC programs are printed in COMPUTIST in a format that is designed to minimize errors for readers who key in these programs. To understand this format, you must first understand the formatted LIST feature of Applesoft.

An illustration- If you strike these keys:

10 HOME:REMCLEAR SCREEN

a program will be stored in the computer's memory. Strangely, this program will *not* have a LIST that is exactly as you typed it. Instead, the LIST will look like this:

10 HOME : REM CLEAR SCREEN

Programs don't usually LIST the same as they were keyed in because Applesoft inserts spaces into a program listing before and after every command word or mathematical operator. These spaces usually don't pose a problem except in line numbers which contain REM or DATA command words. The space inserted after these command words can be misleading. For example, if you want a program to have a list like this:

10 DATA 67,45,54,52

you would have to omit the space directly after the DATA command word. If you were to key in the space directly after the DATA command word, the LIST of the program would look like this:

10 DATA 67,45,54,52

This LIST is different from the LIST you wanted. The number of spaces you key after DATA and REM command words is very important.

All of this brings us to the COMPUTIST LISTing format. In a BASIC LISTing, there are two types of spaces; spaces that don't matter whether they are keyed or not and spaces that must be keyed. Spaces that must be keyed in are printed as delta characters (Δ). All other spaces in a COMPUTIST BASIC listing are put there for easier reading and it doesn't matter whether you type them or not.

There is one exception: If you want your checksums (See "Computing Checksums" section) to match up, you *must not* key in any spaces after a DATA command word unless they are marked by delta characters.

Keying In Hexdumps: Machine language programs are printed in COMPUTIST as both source code and hexdumps. Only one of these formats need be keyed in to get a machine language program. Hexdumps are the shortest and easiest format to type in.

To key in hexdumps, you must first enter the monitor:

CALL -151

Now key in the hexdump exactly as it appears in the magazine ignoring the four digit checksum at the end of each line (a "$" and four digits). If you hear a beep, you will know that you have typed something incorrectly and must retype that line.

When finished, return to BASIC with a:

E003G

Remember to BSAVE the program with the correct filename, address and length parameters as given in the article.

Keying In Source Code The source code portion of a machine language program is provided only to better explain the program's operation. If you wish to key it in, you will need an assembler. The S-C Assembler is used to generate all source code printed in COMPUTIST. Without this assembler, you will have to translate pieces of the source code into something *your* assembler will understand. A table of S-C Assembler directives just for this purpose was printed in COMPUTIST No. 17. To translate source code, you will need to understand the directives of your assembler and convert the directives used in the source code listing to similar directives used by your assembler.

Computing Checksums Checksums are four digit hexadecimal numbers which verify whether or not you keyed a program exactly as it was printed in COMPUTIST. There are two types of checksums: one created by the CHECKBIN program (for machine language programs) and the other created by the CHECKSOFT program (for BASIC programs). Both programs appeared in COMPUTIST No. 1 and The Best of Computing. An update to CHECKSOFT appeared in COMPUTIST No. 18. If the checksums these programs create on your computer match the checksums accompanying the program in the magazine, then you keyed in the program correctly. If not, the program is incorrect at the line where the first checksum differs.

1) To compute CHECKSOFT checksums:

LOAD filename
BRUNCHECKSOFT

Get the checksums with

&

And correct the program where the checksums differ.

2) To compute CHECKBIN checksums:

CALL -151
BLOAD filename

Install CHECKBIN at an out of the way place

BRUN CHECKBIN,A$6000

Get the checksums by typing the starting address, a period and ending address of the file followed by a CTRL-Y.

xxx.xxx CTRL-Y

And correct the lines at which the checksums differ.

Coping with COMPUTIST

Welcome to COMPUTIST, a publication devoted to the serious user of Apple][and Apple][compatible computers. Our magazine contains information you are not likely to find in any of the other major journals dedicated to the Apple market.

Our editorial policy is that we do NOT condone software piracy, but we do believe that honest users are entitled to backup commercial disks they have purchased. In addition to the security of a backup disk, the removal of copy protection gives the user the option of modifying application programs to meet his or her needs.

New readers are advised to read this page carefully to avoid frustration when attempting to follow a softkey or when entering the programs printed in this issue.

We are still hardcore...

but hardcore COMPUTIST is now just called COMPUTIST magazine. You can still call us anything you want. Our emphasis and our purpose have not altered one byte. Will softkeys become just KEYS? Will Input become just PUT? Will Readers' Softkey & Copy Exchange become just RS&CEX? Nahhhh!

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Issues missed due to non-receipt of Change-Of-Address (above) may be acquired at the regular back issue rates (see page 32).

We are NOT

PIRATES!

but we're not fools, either.

We're serious programmers and software users who just want to have backup copies of any software we own. COMPUTIST magazine shows us HOW TO MAKE BACKUPS OF COMMERCIAL SOFTWARE regardless of the maker's attempt to stop us from having legal copies. Don't let them stop you from protecting your own rights.

Remove copy-protection

from your valuable library of expensive software. The publisher of COMPUTIST has been showing subscribers how to unlock and modify commercial software for the past 4 years. Don't be one of the users abused by user-FIENDLY locked-up software. Subscribe.

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Pen or compatible word processor
scissors (optional)

Now that HARDCORE has changed its name to plain old 'computist', I've been assigned the regrettably redundant responsibility of changing all the Diskbusters T-shirts. Instead, using my own imaginary initiative, I've come up with a reasonable facsimile of an original idea...

"Why not," I asked myself, "call all the old Diskbusters T-shirt something catchy like: Hardcore Classic?"

"Wow!" I answered myself, "Then we could sell people the NEW computist T-shirts this summer!"

(I've heard that some people suspect that there's a rumor that such an artifact does not yet exist...VAPORWEAR...)"

If you like my idea, then PLEASE order the CLASSIC Hardcore Computist DiskBusters T-shirt (simply known as CLASSIC T-shirt)

1) Fill out the order form below using the Pen and then insert the order form with appropriate $$$ or acceptable substitutes into the envelope, and then pen-in the address onto the envelope, and then attach the stamp and that's it.

Enjoy!

I want the CLASSIC! so rush me _____ (total) Classic DISKBUSTERS T-SHIRTS in the sizes indicated below. I have enclosed $9.95 (plus tax and shipping) for each shirt.

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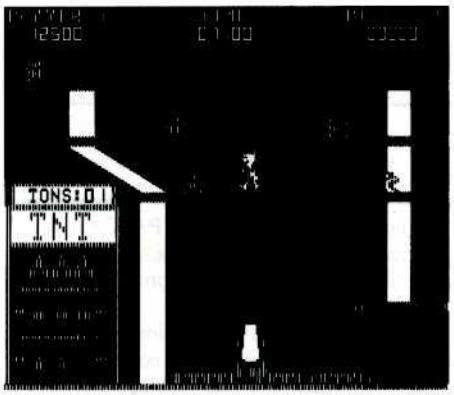

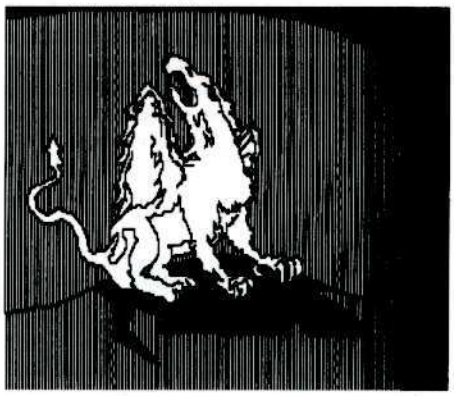

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softkeys

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Please address letters to:

COMPUTIST
Editorial Department
PO Box 110846-K
Tacoma, WA 98411

Include your name, address and phone number.

Correspondence appearing in the INPUT section may be edited for clarity and space requirements. In addition, because of the great number of letters that we receive and the small size of our staff, a response to each letter is not guaranteed.

Our technical staff is available for phone calls between 1:30 pm and 4:30 pm (PST) on Tuesdays and Thursdays only.

A Little of Everything

COMPUTIST is indeed the best! And now, I think I can add to it. I have recently deprotected two of the programs on the Most-Wanted list.

First: Hayes Terminal Program

1) Copy the disk with COPYA.

2) Go to track $12, sector $B.

3) Edit the following on the COPYA'd disk:

Byte:	Change to:
77-78	A9 00
82-83	18 EA
89-8A	A9 00
93-94	A0 00

Second: Newsroom

The Newsroom was previously on the most wanted list but disappeared in COMPUTIST No. 22. Why? If its absence was a mistake, here's how to deprotect it:

1) RUN COPYA

2) □C

3) Type:

```
CALL -151
B942:18
B988:18
3D0G
70
RUN
```

4) Then on the COPYA'd disk, the following edits are necessary:

TRACK	SECTOR	BYTE	FROM	TO
0	0	C1	BB	AA
		C3	AD	DE
	2	9E	DE	ED
		A3	BB	AA
	3	35	ED	DE
		3F	BB	AA
		42	38	18
	6	F9	BB	AA
4	3	0A	00	02
6	0	03	BB	AA
16	0	E5	0E	00
	1	F7	AD	DE

What's the deal on Everywhere Software? I have never heard of their RDOS deprotector programs. Are they new? I haven't even seen a pirated copy. If those programs can do as claimed, I and certainly many other COMPUTIST readers are interested. RDOS-protected games have always been difficult to back up. Oh, for those who have COPYA-able (deprotected) RDOS disks and "Bag-of-Tricks", use the latter to re-init the RDOS based game, only set it for ascending, skew 11. It speeds up disk access quite a bit! (Of course, make sure it is set to preserve data or tracks!).

Now, as for COMPUTIST No. 22, there is a bug in the Super-IOB instructions. It said the checksums that were different from version 1.2 whould be shaded. Somebody forgot to shade them. The difference starts in line 360 or so. That, I guess, is the only typo. At least, as far as I can tell, nothing has hampered my 1.5 from working.

Finally, the Cumulative Index and the EDD III listings were quite useful. However, those were printed long ago. It is time to update both and reprint them, I think.

Doctor Dracks.
Address Uknown

Dr. Dracks: *When a program disappears from the most wanted list it is because we have received a softkey for it. Due to publication delays, the softkey for such a program can ALWAYS be found a couple issues down the road. Such is the case with Newsroom. The softkey for it appeared in COMPUTIST No. 23.*

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If you wish more information about Everyware Software, contact:

Everyware Software
c/o R. Colby
6314 57th Ave
Riverdale, MD 20737

The Super IOB v1.5 bug you speak of was corrected in COMPUTIST No. 23. The other bugs you mention are corrected in this issue.

Popping Pascal

I noticed the interest in PASCAL-based programs in COMPUTIST No. 24 so here are a couple of softkeys from two programs written in PASCAL.

Both programs use a protection scheme I call a deceptive track gap, i.e., a couple of glitch bytes are written into the track gap just before the beginning of the first address header. Since byte copiers have a tendency to clean-up or ignore bytes in the track gap a copied disk can be detected. Scanning the disks for "LDA $C0EC", the instruction needed for reading data, quickly reveals the offensive routines. So to deprotect each program just make a backup with any standard copy program and perform the following sector edits.

Widespread

TRACK	SECTOR	BYTE	FROM	TO
20	8	80	AD	A9
20	8	81	E9	00
20	8	82	C0	F0
20	8	83	A9	43

Hayes Terminal Program

TRACK	SECTOR	BYTE	FROM	TO
12	B	6D	04	29

Bruce Jones
Pueblo, CO

Night Mission Revisited (again)

Let me begin by saying that I subscribe to four different computer magazines and yours is the most useful and informative. Thanks for a great publication.

input

I read with great interest William Vandervoort's letter in COMPUTIST No. 24. I also had problems with the softkey for Night Mission Pinball. I tried your suggestion but it still would not work. After a little study here is what I came up with.

After you initialize your new diskette, open up the drive door and reboot your system before you proceed. This way, you can be sure that there is no DOS connected. Now proceed as outlined in the article. When you move the first stage code at $800 to $D800 you are told to make the following modifications:

D803:D8
D8DE:D8
D8B6:F7

One more change is needed or the drive will not stop:

D8B5:01

It is the same case when you move the next stage code to $E800. The code at $E80D should be 4C 01 F7. I followed the artricle after I made those two changes and it worked perfectly.

One quick question. Do you or any of your readers know of an APT for PAC MAN by Atarisoft? After I deprotected my copy I was looking at it with a sector editor. Along with the usual copyright notice there was a message that said "RANK OR CARTOON? RANK(1-21) CARTOON(1-3)" but I could not find out how to get into it. Hope this letter helps someone who is having trouble with A2-PB1. Thanks for a great magazine.

Terry Yancey
Laceys Spring, AL

Striking Out

Yesterday I purchased a copy of SPELLWORKS, newly arrived at a local dealer's ($49.95). Although no backup or mention thereof is included, it turns out to have a sophisticated copy scheme a la DAZZLEDRAW. When I attempted to do a routine backup copy, one side of the original disk refused to boot. The problem with complicated boot protection schemes is that they are fragile.

I called ALS who said that they would furnish a new disk at no extra charge. They also told me that there was a bug related to file saving in my supposedly new version and that they would ship the updated version. They informed me backup disks were available for $25! The salesman I spoke with defended their policy saying that the program was a *steal* at the price. I agree, but I think it is the end user who is the victim. I suggest that users avoid this software like the plague-or at least until someone discovers how to deprotect it and passes that information along. (Obviously, I have no idea whether or not the program itself is a good one.)

I have absolutely no sympathy for software publishers who moan and complain about piracy. It is interesting that we don't hear the same sanctimonious complaints from companies who sell unprotected software-maybe they are too busy hauling their profits to the bank. At this point in time, after many similar experiences, *I think it is the moral obligation of every end user to do his/her utmost to discover how to deprotect these copy-protected programs and publish that information for all to see.* Note that I am not saying that the programs themselves should be passed around, only the deprotection methods. Piracy, indeed! Cold war is more like it.

Fortunately for the end-user, COMPUTIST is there to bail us out.

Donald L. Schubert, Ph. D.
San Diego, CA

Double Lines with Print Shop

In COMPUTIST No. 23, Ray Werner wrote to ask how to modify his PRINT SHOP to print without line spacing between the graphic lines. On most printers this can be done without modification of the Print Shop program. Instead, the printer should be instructed to print with no space between the printed lines. The following program does this on my Epson:

```
10) PR#1
20) PRINT CHR$(27); 1
30) END
```

To stop the graphic printing you can turn off the printer to reset it to its defaults. (This can be harmful to your computer). The graphic printing can also be stopped by running the same program as above but change the number 1 in line 20 to a 2.

In order to load these instructions, boot the computer with a system disk. Run the above program. (Be sure that the printer is on.) Boot PRINT SHOP. You are all set to print graphics. This method should work with any program, but may not work on non-Epson printers.

Other useful commands are PRINT CHR$(27); "G" for Double Strike; PRINT CHR$(27); "E" for Emphasized Print and PRINT CHR$(27); "W"; 1 for Double Width printing. Any of these commands can be inserted for line 20.

Most printer manuals have a list of these printer commands. The printer should "remember" these instructions even after another program is booted.

Davis McCown
Hurst, TX

A Different Strike Eagle

I am a new subscriber to COMPUTIST although I've been aware of the magazine through friends for much longer. I've been slowly learning the concepts of softkeying yet still don't consider myself quite adept at the art. I recently purchased a copy of F-15 Strike Eagle and having tried unsuccessfully to make a completely operational backup was quite happy to see your article in COMPUTIST No. 24. However, when I began to inspect my disk for the code you outlined, I found nothing of the sort.

On my disk, track $22 is formatted as track $21 and like your tracks $05 and $06, contains no information. I've found code which resembles your published disassembly at track $10 sector $0C. This code seems to accomplish basically the same thing as your code except at tracks $21 and $22. I tried replacing the 8D 01 02 with EA EA EA at both occurrences and copied track $22 with a nibble copier. This allowed a successful boot but this didn't solve all my problems. My version of Strike Eagle requires that an authorization code be entered prior to embarking upon a mission. After entering the appropriate code and pressing <return> the disk spins and, in the case of my backup disk, the grinding of the drive head re-aligning can be heard for a moment and the cockpit view comes up except the message "HARDWARE FAILURE" is displayed. The plane controls are dead at this point. I've searched the disk for any code which would be similar to this that I've sent but to no avail.

I don't expect you to be able to figure anything out from what I've told you but if my copy is in fact a different version with a different protection scheme then I'm sure there are other COMPUTIST readers out there having my same problem. I'll be working to softkey my version and hope the folks at COMPUTIST inform their readers of this situation and encourage others to attempt a softkey as well-since I'm not very good at it. Just for the record my Flight Operations Manual indicates technical order #2-F-86B-1; 15 JUNE 1985, change 5.

Keep up the good work!

Dan Williams
Pensacola, FL

input

Mr. Williams: COMPUTIST has recieved several letters from people claiming the F-15 softkey doesn't work. We have therefore concluded that there are most probably several versions of this popular program. Stay tuned to COMPUTIST for updates in the F-15 saga.

Copying the Uncopyable: EDD III

I have enjoyed and used, through all its name and color revisions, the COMPUTIST magazine since its inception. I have a complete set of the magazine, including the old CORE's. And I agree with those who insist that the magazine is one of the most worthwhile on the shelf of a serious Apple user.

In an issue some time ago, a writer stated that EDD III could copy itself. Some parameter changes must be involved-changes which I have not been able to identify. Have you or has some reader, come up with parameter changes that would allow this disk to be backed up? (I own Copy II+, 4.3, 4.4, 5.2, and 5.5, as well as Locksmith 4 and 5, and of course EDD III.) So parameters that would work on any of these would be gratefully received. I do applaud Utilico for providing you with the latest parameter list (COMPUTIST No. 24). And the Utilico staff has been very helpful in the few instances I have made a telephone call for help.

I sincerely hope you can provide some assistance that would help me back up EDD III.

Al Gilbert
Yucca Valley, CA

Mr Gilbert: *Appearing on page 7 of COMPUTIST No. 10 there is a softkey for EDD III which is a continuation of the softkey for EDD I included in COMPUTIST No. 8.*

p.s. If you have the old "Hardcore Computing" issues 1 - 3 plus updates (which were printed before the Cores) then you truly have a complete set and should be commended.

65C02 Troubles

I recently (within the last 6 months) ordered a new 65C02 microprocessor for my Apple][Plus. I received it in good condition in a reasonable amount of time and the price was fair. My good luck ended there however, the 65C02 will not work properly on my Apple][Plus. I've tried every possible combination of cards/slots/configurations up to and including pulling all of the interface cards and it still will not work properly. What it does is pretty strange, but definitely an unacceptable malfunction. It installs properly and boots up with no problem. It will not run my BASIC hello program though!

The program is a standard Pronto DOS greeting program.

It loads and starts to run the program but drops out of line 10 with a "SYNTAX ERROR LINE 10" every time! No matter what I do I can not get a complete BASIC program to run with the new processor. Even machine language programs bomb out at weird times or display strange results. So, the bottom line is the new processor has been a complete wash-out. Help! What can I do? Is it just a bad IC or am I doomed to be without a 65C02 processor in my Apple][Plus? Please let me know what I should do.

Walt Campbell
APO New York, NY

Mr. Campbell: *While it is possible that you do have a bad chip, other factors should be examined.*

For example, due to many timing problems that were corrected with the 65C02, on some Apple]['s it is necessary to replace the 74LS257's located at B6 and B7 of your motherboard with 74F257's. I feel that you should definitely try replacing these chips.

We have also noted that more programs than estimated will not function correctly with the 65C02. Two for example are Sensible's Disk Organizer and Pronto DOS.

bugs

COMPUTIST No. 23:

Core Wheel of Money:

To get this program working, line 1030 of this program should read:

```
1030 RE=50 * (INT (RND (W) * 18 + .5 ) + 2) :W$
     = W$ + "!^^$" + STR$ (RE )
```

COMPUTIST No. 24:

Direct Sector Access:

The BSAVE command in the middle of the first column on page 16 should have an L parameter of $A4 instead of $3A4

Softkey for Xyphus:

The command of step 7 should read:

```
1010 TK= 0 :ST= 0 :LT= 33 :CD= WR
1040 IF BF THEN 1080
```

COMPUTIST No. 25:

Input:

Step three (3) of the "Mickey Mouse Protection" letter should say "BLOAD MICKEY-CODE, A$4000" instead of "LOAD BOOT."

Most Wanted List

Need help backing-up a particularly stubborn program?

Send us the name of the program and its manufacturer and we'll add it to our Most Wanted List, a column (updated each issue) which helps to keep COMPUTIST readers informed of the programs for which softkeys are MOST needed. Send your requests to:

COMPUTIST
Wanted List
PO Box 110846-K
Tacoma, WA 98411

If you know how to deprotect unlock, or modify any of the programs below, let us know. You'll be helping your fellow COMPUTIST readers and earning MONEY at the same time. Send the information to us in article form on a DOS 3.3 diskette.

Mouse Calc Apple Computer
Apple Business Graphics Apple Computer
Flight Simulator II Sub Logic
Factory Sunburst Communicating
Jane Arktronics
Bookends Sensible Software
Visiblend Microlab
Sundog FTL Games
Sundog, V2 FTL Games
Lifesaver Microlab
Catalyst Quark, Inc.
Gutenburg Jr. & Sr. Micromation LTD
Prime Plotter Primesoft Corp
Zardax Computer Solutions
The Handlers Silicon Valley Systems
Milliken Math Series (NEW) Milliken Publishing
The Apple's Core: Parts 1-3 The Professor
King's Quest Sierra On-line
Fun Bunch Unicorn
Willy Byte Digital Dimension
Trivia Fever Professional Software Inc.
Terrapin Logo v2.00 Terrapin Software
The Boston Computer Diet Scarborough Systems
Conan Datasoft
Cycloid Sirius Software
Crisis Mountain Synergistic Software
Adventure Microsoft
Agent U.S.A. Scholastic
Olympic Decathalon Microsoft

* see also No. 22, page 10 - original softkey.

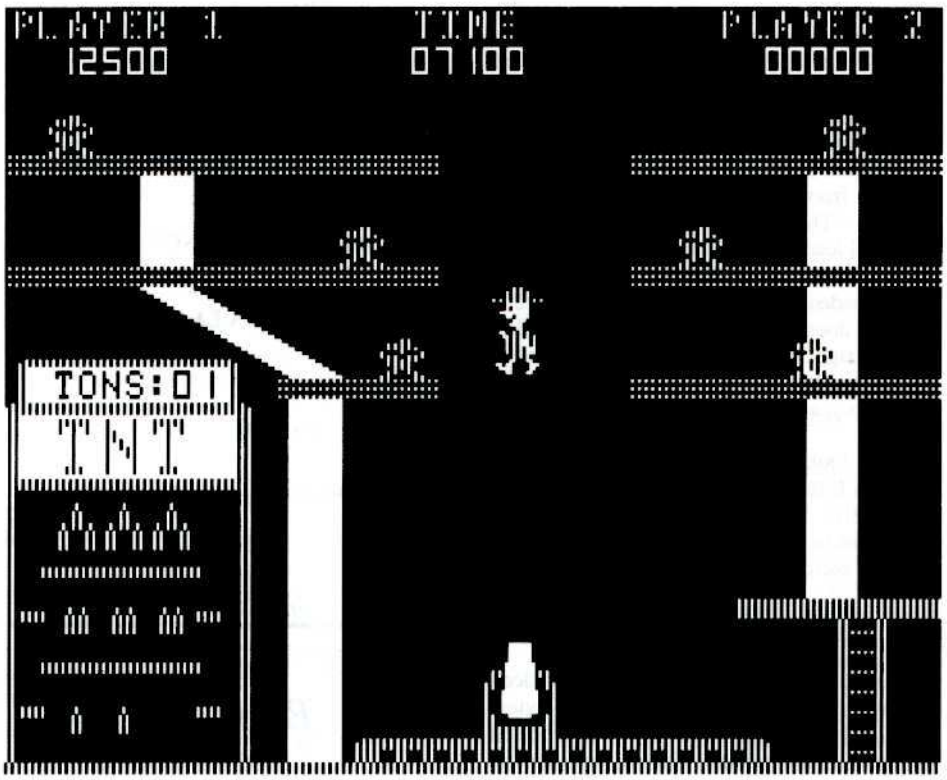
readers' softkey & copy exchange

Dan Elliot's Softkey for

Another Miner 2049er

Microlab
2699 Skokie Valley Road
Highland Park, IL 60035

Requirements:
48K Apple][(and up)
One disk drive
A blank disk
Super IOB v1.2 or 1.5
Miner 2049'er



page 10

After several attempts at Tom Phelps' Softkey for Miner 2049'er in COMPUTIST No. 22, I came to realize that I had a different release of this popular game with its own different copy protection. My version of Miner 2049'er was released in late 1983 or early 1984. Looking closely at the sector edits of Mr. Phelps' softkey and comparing bytes at the same location on my Miner 2049'er original, I found several discrepancies. Fortunately, COMPUTIST No. 22 also included a softkey for The Heist (also from Microlab) by Bill Bood. reading through the softkey for The Heist, I noticed that the address epilogue had been altered from SDE AA to $9E E7 and the data epilouge from $DE AA to $D5 AA. These marks were identically altered on my copy of Miner 2049'er, and when I checked with CIA, I noticed that the "Change From" bytes for The Heist were identical to the values found on my Miner 2049'er disk. With this many similarities between the two Microlab programs, I tried the Heist controller on my Miner 2049'er disk, and amazingly, it worked! Mr. Bood deserves the credit for this one.

The Super IOB controller at the end is The Heist's controller modified for Super IOB v1.5's Fast routine. Just install it into Super IOB v1.5 and copy the disk. That's all there is to it.

The sector edits given here are performed by the controller and are listed here merely for your viewing pleasure.

Track	Sector	Byte	From	To
$00	$02	$9E	$D5	$DE
$00	$03	$35	$D5	$DE
$00	$03	$9B	$E7	$AA
$00	$03	$91	$9E	$DE
$00	$08	$38	$4C	$08
$00	$08	$39	$6A	$B0
$00	$08	$3A	$BA	$8E

controller

```
1000 REM HEIST/MINER 2049er
1010 TK = 0 : LT = 35 : ST = 15 : LS = 15 : CD = WR : FAST
     = 1
1020 GOSUB 490 : RESTORE : GOSUB 170 : GOSUB 610
1030 GOSUB 490 : GOSUB 230 : GOSUB 310 : GOSUB 610
1040 IF PEEK (TRK ) = LT THEN 1070
1050 TK = PEEK (TRK ) : ST = PEEK (SCT ) : GOTO 1020
1060 HOME : PRINT "COPY^ DONE" : END
5000 DATA 158 ,231 ,213 ,170
5010 DATA 7^ CHANGES
5020 DATA 0 ,2 ,158 ,222
5030 DATA 0 ,3 ,53 ,222
5040 DATA 0 ,3 ,145 ,222
5050 DATA 0 ,3 ,155 ,170
5060 DATA 0 ,8 ,56 ,8
5070 DATA 0 ,8 ,57 ,176
5080 DATA 0 ,8 ,58 ,142
```

controller checksums

```
1000  - $356B     5010  - $54AC
1010  - $2544     5020  - $4A5C
1020  - $F372     5030  - $CD34
1030  - $256B     5040  - $5F59
1040  - $88F7     5050  - $37B8
1050  - $CA37     5060  - $C021
1060  - $8F76     5070  - $E861
5000  - $3545     5080  - $16AC
```

Scott McCandless' softkey for...

Learning with Fuzzywomp

Sierra On-Line
36575 Mudge Ranch Rd.
Coarsegold, CA 93614

Requirements:
Apple][
COPYA
A sector editor
A disk searcher

Sierra On-Line has been publishing software for sometime in a simple-to-copy format, which COPYA will copy quite easily. However, Sierra On-Line would not allow it to be quite that easy for us, the consumer. That's a Typical Software Publisher for you. They have added a nibble count routine on the disk. Finding and eliminating it is the toughest part.

After noticing that the disk could be copied with COPYA, but would not boot past the title screen because the nibble count did not match, I decided to track down and find the nibble count routine. I started by marking the tracks on my drive's head cam and watching what the

drive did during the boot. I guessed that the nibble count must be on track 0 because the arm would seek track 0 before loading in a selected program.

I used Copy][Plus 5.0 to read in track 0 and dumped each sector to the printer for closer observation. I noticed that sectors 5 and 6 were different from those of a normal DOS disk. I thought, "This must be the right place."

Next, I loaded the Hello program and noticed that it BRUNed "INT.MAIN", so I BLOADed that. It loaded in at $800. Apparently, what this program does is load in 5 or 6 files and display the title page. Looking a little further down the code, I noticed a JMP $1800. I looked up $1800 in memory and noticed that it was the menu routine.

After looking the menu routine over, I noticed a JSR $8B00, LDA $1FF8, CMP $1D, BCS $18B7. Looking up the code at $8B00, it turned out to be an exact copy of what was on track 0, sector 5. Bingo! I found it.

Removing the Protection

Next, I NOPed out the JSR $8B00 (replaced the instruction with three No OPeration bytes-$EA EA EA). I typed $1800G, which executed the menu screen, made a selection, watched the drive arm NOT seek track 0, and patted myself on the back thinking it worked. But, BEEP...reboot.

Darn it, I missed something. I went through the above steps once again and noticed that even though the nibble count call was eliminated, I still had the blasted check for a successful count to deal with (the LDA $1FF8, CMP $1D, BCS $18B7). I NOPed out those bytes and tried it from the menu again. This time it worked!

All I had to do now was find that sequence of bytes on the disk and NOP (EA) them all. Then the disk was deprotected.

Step By Step

1) Boot the 3.3 Master disk and start COPYA.

2) Copy the original disk onto a blank disk.

3) Get out your disk search utility and search your new disk for the following sequence:

```
20 00 8B AD F8 1F C9 1D
```

I found this sequence at track 4, sector E and track $A, sector E, both at bytes $AB-B4. Looking at the free sector map, track 4 appeared to be empty, so I concluded track $A was the one I was looking for.

4) Read in track $A, sector E, and store the following at bytes $AB-BA:

```
EA EA EA EA EA EA EA EA EA EA
```

That's it!

Alternate Method:

1) Copy the original disk with COPYA.

2) Load in the file with the offending routine in it.

```
BLOAD BN.OBJ
```

3) Enter the monitor and NOP (EA) the code.

```
CALL-151
18A7:EA EA EA EA EA EA EA EA EA EA
```

4) Save the new and improved file.

```
BSAVE BN.OBJ,A$1800,L$7F8
```

5) Boot and enjoy...

Doni G. Grande's softkey for...

Bookends (ProDOS ver)

Sensible Software, Inc.
24011 Seneca
Oak Park, MI 48237

Requirements:
COPYA
Sector editor
A disk search utility

Bookends is a program for use in keeping track of bibliographical data. The data may be printed in any format required. Searches may be done for authors, keywords or any word mentioned in an entry. The newest version is for a 64K Apple running ProDOS, which is the version required for this softkey. Boot code tracing using the techniques I described in the softkey for Flashcalc (COMPUTIST No. 23 page 14) was used to discover the protection on the Bookends original disk.

The procedure to make a COPYAable version of Bookends is as follows:

1) COPYA the original Bookends disk.

2) Using your disk searcher, search for the following sequence of bytes:

```
BD 8C C0 10 FB 49 D5 D0 F7
```

3) Change the final $F7 to $56 and write the sector back to disk. On my particular version (2.06), the byte to change was on Track $01, Sector $0D, Byte $38 (using DOS sectoring).

Tim Beckmann's softkey for...

Apple Logo II

Requirements:
Super IOB v1.5
A sector editor

The protection on Apple Logo II is quite similar to the protection found on earlier releases of Apple Logo. On the older version, track 1 was the protected track that a nibble count was performed on. On the current version, track $0D is the nibble count track. Luckily the rest of the disk is in normal DOS 3.3 format. To locate the nibble count routine, I searched the disk for the bytes 89 C0 ($C089 reversed; the location that turns on the drive) and found it in four places. When listing these sectors out, I found two nibble count routines. One nibble count routine was left over from the older version of Logo and the other is the nibble count used on the new version. If you want to check how similar the routines are the old one is on track 0, sector A and the new one is on track 2, sector 9. I changed the nibble count routine so it would ignore the results.

Step By Step

1) Install the controller with this softkey in Super IOB v1.5 and copy the Logo disk.

2) Make the following changes to the disk using a sector editor.

	Track	Sector	Byte	From	To
	2	9	$89	$A0	$4C
	2	9	$8A	$00	$78
*	2	9	$~~9B~~ 8B	$84	$21

You should now have a COPYAable version of Apple Logo II. By the way, this controller demonstrates a way of using the Fast Controller on a track-by-track basis. Now you can treat each track individually while still taking advantage of the speed of Version 1.5.

* A2 No 31, page 6 - correction

controller

```
1000 REM APPLE LOGO II CONTROLLER
1010 TK = 0 :ST = 15 :LT = 1 :LS = 15 :FAST = 1 :CD
     = WR
1020 T1 = TK : GOSUB 490
1030 LT = TK + 1 : GOSUB 610:1040 IF PEEK (BUF ) =
     MB THEN 1060
1050 TK = TK + 1 + (TK = 12 ) : IF TK < 35 THEN 1030
1060 TK = T1 : GOSUB 490
1070 LT = TK + 1 : GOSUB 610
```

readers' softkey & copy exchange

```
1080 TK = TK + 1 + (TK = 12 ) : IF PEEK (BUF ) < MB
     AND TK < 35 THEN 1070
1090 IF TK < 35 THEN 1020
1100 HOME : PRINT "DONE^ WITH^ COPY" : END
```

controller checksums

```
1000  - $356B      1060  - $802A
1010  - $992C      1070  - $4A19
1020  - $9680      1080  - $7156
1030  - $1C1F      1090  - $405B
1040  - $D043      1100  - $4CFC
1050  - $E98C
```

Lord David's softkey for...

Murder on the Zinderneuf

Murder on the Zinderneuf
Electronic Arts
2275 Campus Drive
San Mateo, CA 94403

Requirements:
64K Apple][Plus, //e, or //c
Super IOB V1.5
A blank disk

Murder on the Zinderneuf is an interesting mystery game from Electronic Arts in which you are a famous detective assigned to solve the murder of one of the passengers on the airship Zinderneuf. The graphics seem a bit primitive, but the game presents an intriguing puzzle anyway. So does the protection.

The protection scheme on this one is similar to the one used in Archon (COMPUTIST No. 21, Pg.10). The "start of data" bytes have been changed from $D5 AA AD to $D5 BB CF. Those can be taken care of with the use of Super IOB. Our controller will be programmed to read the original disk using the $D5 BB CF data header, and write to a normal format with the $D5 AA AD header. On the way, Super IOB will change a couple of bytes on the new disk so Electronic Arts' RWTS will be able to read the normal headers of $D5 AA AD.

Trk	Sect	Byte#	From	To
2	3	$47	$BB	$AA
2	3	$51	$CF	$AD

Not only that, there is a nibble count on track 5.25 (yes, a quarter track). Three bytes will be changed on the copy so that the nibble count is not checked.

Trk	Sect	Byte#	From	To
1	$C	$00	$4C	$60
1	$E	$8C	$06	$1A
1	$F	$00	$4C	$60

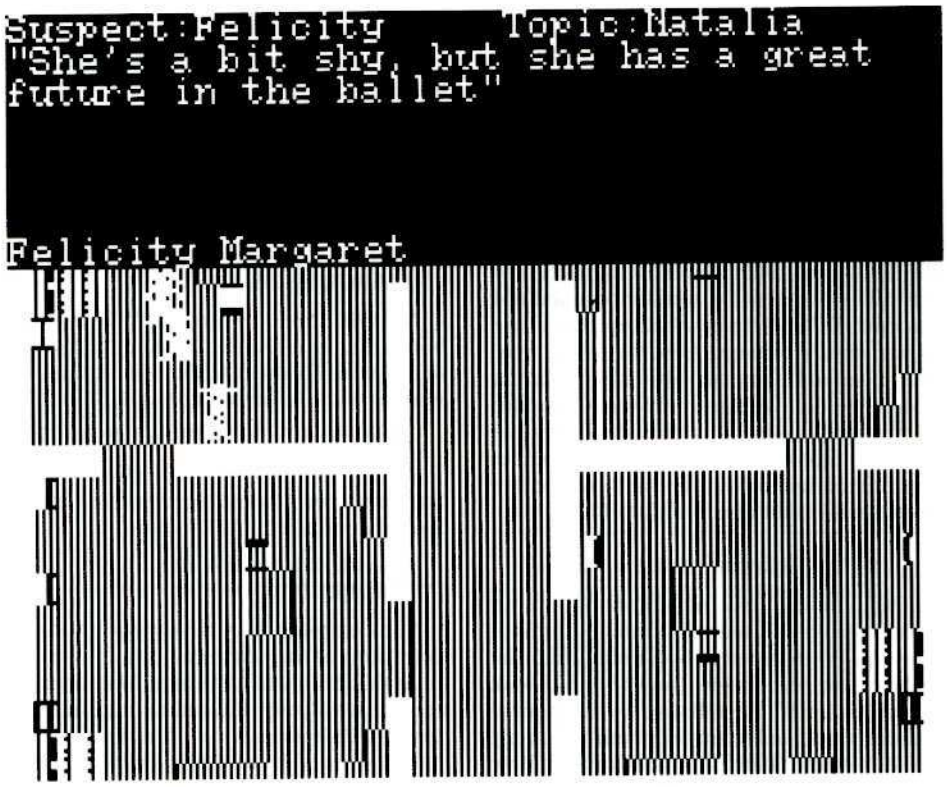
Just install the controller into Super IOB v1.5 and RUN it. It will make the necessary changes to EA's DOS and skip tracks 5 and 6 while copying (we don't need the nibble count tracks). You should now have a COPYAable Murder on the Zinderneuf. Enjoy it!

controller

```
1000 REM MURDER/ZINDERNEUF CONTROLLER
1010 TK = 0 : ST = 15 : LT = 1 : LS = 15 : FAST = 1 : CD
     = WR
1020 T1 = TK : GOSUB 490 : IF TK > 3 THEN RESTORE
     : GOSUB 210
1030 LT = TK + 1 : GOSUB 610
1035 IF TK = 2 THEN GOSUB 210
1040 IF PEEK (BUF ) = MB THEN 1060
1050 TK = TK + 1 + (TK = 4 ) * 2 : IF TK < 35 THEN
     1030
1060 GOSUB 310 : GOSUB 230 : TK = T1 : GOSUB 490
1070 LT = TK + 1 : GOSUB 610
1080 TK = TK + 1 + (TK = 4 ) * 2 : IF PEEK (BUF
     ) < MB AND TK < 35 THEN 1070
1090 IF TK < 35 THEN 1020
1100 HOME : PRINT "DONE^ WITH^ COPY" : END
5000 DATA 213 ,187 ,207
5010 DATA 5^ CHANGES
5020 DATA 1 ,12 ,0 ,96
5030 DATA 1 ,14 ,140 ,26
5040 DATA 1 ,15 ,0 ,96
5050 DATA 2 ,3 ,71 ,170
5060 DATA 2 ,3 ,81 ,173
```

controller checksums

```
1000  - $356B      1090  - $AE73
1010  - $992C      1100  - $E422
1020  - $72BC      5000  - $7E3C
1030  - $801B      5010  - $D9A8
1035  - $CB92      5020  - $526E
1040  - $F394      5030  - $EA64
1050  - $823D      5040  - $5209
1060  - $7547      5050  - $81C4
1070  - $652A      5060  - $360A
1080  - $8950
```



Microzines

by L.A. Carreira

Requirements:
48K and Applesoft in ROM
Super IOB
A sector editor

This article presents softkeys for the first five Microzines. The general method used is: copy the Microzine with Super IOB, alter the HELLO program to fix a minor bug, and add a normal DOS to the new backup. Each case is just slightly different from the other three. Microzine #1 uses an especially different address header (we'll use the Swap Controller on that one), and #2 is unable to copy the graphics controller (take that from another deprotected microzine). From there on, the protection methods get simpler.

Microzine #1

The premiere issue of Microzine uses an extra byte in the address header to prevent copying. When inspected with a utility like The Nibbler, the headers for tracks $3 to $22 look like $D5 AA 97 FF followed by the normal volume, track, and sector information. To copy these tracks we'll need to modify DOS. Boot a normal DOS, get into the monitor and move the RWTS down to $1900.

CALL-151
1900<B800.BFFFM

Start by changing the last byte of the address header.

1A6A:97

Insert a JSR (Jump SubRoutine) to $B8B8 follwed by a NOP (No OPeration) in the address read routine. This will replace the "LDA #0, STA $27".

1A6D:20 B8 B8 EA

At $19B8 ($B8B8 when the RWTS is moved back up) store a routine to ignore the last byte of the strange address header and duplicate the function of the removed "LDA #0, STA $27".

19B8:BD 8C C0 10 FB A9 00 85 27 60

$B8B8 is normally a "write a byte" routine but we will only be reading with this RWTS. Save the modified RWTS with

BSAVE RWTS.MICRO,
A$1900,L$800

Use Controller #1 with this article and copy both sides of the Microzine disk.

At this point you have all of Microzine. To run properly you will need to copy the DOS (tracks 0-2) from a normal or fast DOS 3.3 disk to both sides of the new disk. Delete the binary HELLO program and replace it with:

```
10 TEXT :HOME :VTAB 10: HTAB 10:
    PRINT "MICROZINE BACKUP"
20 D$ = CHR$(13) + CHR$(4)
30 PRINT D$;"BLOAD HRCG"
40 PRINT D$;"RUN HELLO1"
50 END
```

Microzine #2

Modify line 1010 of Controller #2 to read

```
1010 TK = 5:ST = 0:LT = 35:CD = WR
```

and copy both sides. Copy the DOS of a normal or fast disk to both sides of your new backup disk. Use your favorite sector editor and change bytes $44, $45, $48, and $49 on track $11, sector $0 (both sides) to an $FF. To run properly you need a copy of the APEX graphics controller on both sides. Rather than undo the mess on tracks 3, 3.5, and 4 it is easier to grab a copy from V1.3, V1.4 or V1.5. This is a 20 sector binary file called APEX or HRCG. Copy this file from one of your unprotected Microzine copies.

Load in the HELLO program and type

```
48 PRINT:PRINT CHR$(4);"BLOAD APEX"
```

and re-save HELLO. Remember to change the HELLO on both sides and put a copy of APEX on both sides.

1 - 5

Microzine #3

Use Controller #2, as is, in Super IOB to copy side one of V1.3. Then modify line 1010 to read

```
1010 TK = 2:ST = 0:LT = 34:CD = WR
```

and copy side two. Modify line 1010 again to read

```
1010 TK = 0:ST = 0:LT = 1:CD = WR
```

and copy track 0 of side 2.

Load the HELLO program from side 1 and type

```
34 POKE -16300,0: GOTO 40
```

and re-save HELLO on side 1. At this point, you should copy the DOS from a normal or fast disk onto side 1 (only) of your backup of Microzine V1.3.

Microzines #4 and #5

Copy both sides with Controller #2 in Super IOB. When finished, load in the HELLO program and type

```
34 POKE -16300,0: GOTO 40
```

Re-save the HELLO program. Do this to both sides. Finish it off by copying a normal or fast DOS to both sides.

controller #1

```
1000 REM MICROZINE #1 CONTROLLER
1010 TK = 3 :ST = 0 :LT = 35 :CD = WR
1020 T1 = TK : GOSUB 490 : GOSUB 360 : GOSUB 1070
1030 GOSUB 430 : GOSUB 1000 :ST = ST + 1
1040 IF (TK = 17 AND ST = 2 ) THEN ST = ST + 1 : GOSUB
     1000
1050 IF ST < DOS THEN 1030
1060 IF BF THEN 1080
1070 ST = 0 :TK = TK + 1 : IF TK < LT THEN 1030
1080 GOSUB 490 :TK = T1 :ST = 0 : GOSUB 360 : GOSUB
     1130
1090 GOSUB 430 : GOSUB 1000 :ST = ST + 1
1100 IF (TK = 17 AND ST = 2 ) THEN ST = ST + 1 : GOSUB
     1000
1110 IF ST < DOS THEN 1090
1120 ST = 0 :TK = TK + 1 : IF BF = 0 AND TK < LT THEN
     1090
1130 IF TK < LT THEN 1020
1140 HOME : PRINT "DONE^ WITH^ COPY" : END
1150 PRINT : PRINT CHR$ (4 ); "BLOAD^
     RWTS.MICRO"
```

controller #2

```
1000 REM MICROZINES 2-5 CONTROLLER
1010 TK = 4 :ST = 0 :LT = 35 :CD = WR
1020 T1 = TK : GOSUB 490 : GOSUB 170
1030 GOSUB 430 : GOSUB 100 :ST = ST + 1 : IF ST <
     DOS THEN 1030
1040 IF BF THEN 1060
1050 ST = 0 :TK = TK + 1 : IF TK < LT THEN 1030
1060 GOSUB 490 :TK = T1 :ST = 0 : GOSUB 230
1070 GOSUB 430 : GOSUB 100 :ST = ST + 1 : IF ST <
     DOS THEN 1070
1080 ST = 0 :TK = TK + 1 : IF BF = 0 AND TK < LT THEN
     1070
1090 IF TK < LT THEN 1020
1100 HOME : PRINT : PRINT "DONE^ WITH^ COPY" :
     END
```

controller #1 checksums

```
1000 - $356B      1080 - $0B07
1010 - $3565      1090 - $4CED
1020 - $9998      1100 - $83EA
1030 - $C48E      1110 - $E27A
1040 - $20CC      1120 - $C834
1050 - $3AC4      1130 - $330A
1060 - $C9A7      1140 - $CD21
1070 - $B136      1150 - $7D79
```

controller #2 checksums

```
1000 - $356B      1060 - $F442
1010 - $3862      1070 - $FC47
1020 - $C223      1080 - $EE72
1030 - $D422      1090 - $09C0
1040 - $BAC7      1100 - $BCD2
1050 - $2CA4
```

Microzines

by Phil Pattengale

Requirements:
Apple][,][Plus, //e, //c
Means of resetting into the monitor (optional)
COPYA
A sector editor
One of the Microzines #7-9 or Secret Filer
A blank disk

The Microzines are an excellent example of children's software, with one exception: they are copy-protected. Anyone with children knows that children tend to reduce the life expectancy of software. Below I will tell how I deprotected some issues of Microzine, followed by step-by-step instructions.

The first thing I do with any disk I purchase is try to back it up. When I tried to copy it with COPYA, it gave me the UNABLE TO READ message. Anytime I get this I immediately disable DOS's error checking. Exit COPYA and enter the monitor (CALL-151). Anytime DOS encounters an error it jumps to the subroutine at $B942. Here it simply sets a flag and returns to where it was. All we need to do is simply tell it not to set the flag. So, we type

B942:18

The $18 is the opcode for the CLC (CLear Carry) instruction. The carry is the error flag DOS uses. Now we type

3D0G
70

to return to basic and delete the line that loads in the binary file for COPYA. Now we rerun COPYA and it successfully copies the disk! As we cross our fingers and hope that was all we needed to do, we boot the disk. The screen will fill with inverse characters and then reboot. Apparently there are other checks to be eliminated.

My next strategy then, is to boot code trace the disk. Since it does not get to the BASIC prompt, it can be assumed that the protection, or at least some of it, lies in the boot. The BASIC prompt appears AFTER the booting process is completed and before the HELLO program is run. (Some disks do not use DOS and therefore do not ever have a cursor, but those are another story).

In order for any disk to boot, track zero, sector zero must be readable by the disk drive controller program on the disk drive interface card. Since this is true, we should be able to follow the booting process, but by inserting breakpoints, we can stay in control. To do this, we must first power down, and power back up. Hit Reset before DOS loads in and then enter the monitor.

CALL-151

Now, the next step is to clear memory by storing a zero in a memory location and then copying it to all the others in a leapfrog manner.

800:00
801<800.BFFFM

(see "Special Tricks With the Monitor" in your Reference Manual.)

Next, we copy the disk controller ROM program down to an area in RAM so that we can modify it, and thus control it.

9600<C600.C6FFM

If we look at $96F8 we see that it is a jump to $0801. This stage of the boot loads in the next stage at $0800-$08FF. After it has loaded it in, it jumps to the beginning of the second stage at $0801. This jump to the second stage is where we insert our first breakpoint. In order to stay in control, we must tell the first stage not to jump to the second, but jump to the monitor when it is done instead. We change the JMP $0801 at $96F8 to JMP $FF59 (the monitor).

96F8:4C 59 FF

To start this code up, type

9600G

After a few seconds the computer will beep and give a monitor prompt (*) and the drive will continue running. It is not reading or writing, it is just on because we interrupted it in the middle of a boot. Type

C0E8

to turn it off. If we look at $0801 we see that it is practically standard (trust me, it is). It exits the second stage at $08C3. The second stage loads in the third stage at $B700-$BFFF. It stores the address of the third stage at $08FD and $08FE. The code at $08C3 loads in the values at those two locations (a $00 and a $B7) and jumps to that address (in the Apple, virtually all references to memory locations are backwards, with the second half of the number first, so that means that the program will jump to $B700). Now we must change both the code at $9600 and at $0800 so we can load in the third stage. First, we modify the second stage's exit so that it goes to the monitor, and not to the third stage. This means we put a JMP $FF59 at $08C3:

8C3:4C 59 FF

and we must reset some counters for the second stage.

8FE:B6 09

Since the first stage would, when loading the second stage in, erase our changes we will tell the first stage to load the second stage

7 - 9

someplace else, at $2000 for example. To do this we must put a $20 at $9659.

9659:20

We must next remove our first breakpoint by telling the first stage to jump to our modified second stage at $0801.

96F8:4C 01 08

With these changes we can start up the boot again,

9600G

and it will jump to the monitor, instead of executing the code at $B700. When we get the monitor prompt, turn the drive off

C0E8

and we can look at $B700 and see what the third stage of the booting process looks like. At $B700 we see that there is a JSR to $BB00 (Jump SubRoutine). The code following this JSR is also pretty much standard. The third stage will load in the rest of DOS and then load and run the HELLO program. Since that JSR $BB00 was not normally there, I assumed it would probably be the protection routine, and if we eliminated that JSR, the disk would most likely work. In order to eliminate it I booted my disk search program and searched for a JSR $BB00 (20 00 BB), and when I found it, I replaced it with NOP's (EA EA EA). When I rebooted the disk it didn't reboot. However, it also didn't run the program. I was left in BASIC and when I ran the HELLO program, it worked fine! I was right! $BB00 contained the protection. However, it also apparently contained some more good code because it didn't load the HELLO program and run it like it should have. I booted my sector editor and changed the NOP's back to a JSR $BB00. I retraced my steps and when I reached my last step, I looked at the code at $BB00. It was a short memory move routine. It copied itself down to $200-$2FF and then returned to $B703 and executed the rest of the code there. We can execute this move code by typing

BB00G

After it has moved the code it will return to the monitor. We can now look at $200 and we know that the code starts at $20C because the move code occupied $BB00-$BB0B. After it was moved to $200, the move code was overwritten by our 200L command, because $200-$2FF is the keyboard entry buffer. However, since our command (200L) was only five characters long (the return key counts too!) we did not destroy the other routine which begins at $20C ($BB0C before the move).

I went back to $B703 and followed through it looking for a jump to $20C but did not find one. I was sure that $2C0-$2FF was the protection code because it was strange to move normal code to the keyboard buffer. So I proceded to take a closer look at it. The first thing it does is a JSR to a routine at $02CF that calls RWTS. That means it is reading something in. After the subroutine, there are a lot of direct disk accesses (C08y,X; where the y is a number between 8 and E). After each of these there are CMP (CoMPare) commands, and if the compares fail they all jump to $0293. At $0293, there is a routine that sets up the reboot routine and then jumps to it. Since my COPYA copy rebooted, that means those failures are part of the protection that we need to eliminate. If the code passes all of the tests, it falls through to $0286. Here it sets up its exit and finishes up the load. That is where we want to end up. Since we fail most (if not all) of the protection's tests, and end up at $0293, all we need to do is change $0293 from setting up the reboot to a jump to $0286! What this accomplishes is that even if we fail all the protection's tests, we still will end up where we would have ended up if we had passed the tests!! So, booting up our trusty sector editor/disk searcher, we search the disk for the code at $0293 (C6 2A D0 8D). We will find it at track $00, sector $05, byte $93. Change it to a JMP $0286 (4C 86 02) and write it back out. Reboot the disk, and Hurray! it works!! A deprotected and easily backed up Microzine. I backed up issues #7-9 and then put the originals away. Side two can be copied the same way, but the sector modification isn't necessary.

Step by Step

1) Boot a normal 3.3 disk.

2) Defeat DOS's error checking and return to BASIC.

CALL -151
B942:18
3D0G

3) Copy both sides of the disk with COPYA.

4) Use a sector editor to change side 1, track 0, sector 5, bytes $93-95, from $C6 2A D0 to $4C 86 02 (write it back out to the disk) and you've just cracked your Microzine!

Notes

Microzines 1-6 use at least three different copy protection schemes. Therefore, this will only work for issues 7-9, Secret Filer, and perhaps any new issues. After deprotection, you can copy Secret Filer's files to a normal or fast DOS, but you will need to make extra room on the disk to get all of the Microzine on it. I imagine the sector edits would work on other Scholastic software.

Microzines

by Eric Ondler

If you were unsuccessful in copying the Microzines using any of the other methods in this issue, perhaps this will one work for you. The method here should be able to take care of most of them.

What we will do is start by preparing a normal DOS 3.3 disk with extra sectors stolen from track 2, track 17 (the catalog track), and track 35, which is not usually formatted by DOS. This will give us 8K more space on the disk. Some of the later Microzines need this extra space for programs.

Second, we will patch DOS to ignore differences between the normal and protected formats, and use FID to copy the individual files.

1) Boot a DOS 3.3 master disk (or a fast DOS) and enter the monitor.

```
PR#6
CALL -151
```

2) Patch DOS so that it will boot 36 tracks instead of 35.

```
BEFE:24
```

3) Initialize a blank disk and delete the HELLO program.

```
INIT HELLO
DELETE HELLO
```

Do this on both sides of the disk.

4) Get out your sector editor and make the following changes to your freshly initialized disk.

Track	Sector	Byte	From	To
$11	$0	$C4	$00	$FF
$11	$0	$C5	$00	$FF
$11	$0	$34	$22	$23
$11	$0	$40	$00	$FF
$11	$0	$41	$00	$E0
$11	$0	$7D	$00	$3E
$11	$6	$01	$11	$00
$11	$6	$02	$05	$00
$02	$1	$92	$69	$A9

The first two free up the sectors on track $23 and the next one tells DOS that the disk has 36 tracks. The next two free up unused sectors $5-$F in track 2. Next, sectors in the catalog track ($11) are freed for use. The edits to sector 6 tell DOS that it is the last sector in the catalog. The last one patches DOS to allow it to use the catalog track for data.

5) Load FID from your System Master disk into memory and enter the monitor.

```
BLOAD FID
CALL -151
```

6) Now we're going to modify DOS so that FID can read files from the Microzine without trouble.

Ignore read errors:

```
B942:18
```

Ignore end of data markers:

```
B925:18 60
```

Ignore end of address markers:

```
B988:18 60
```

Cause other errors to go unreported:

```
BE48:18
```

Ignore last byte of data header:

```
B8FB:29 00
```

Allow DOS to store data on track $11:

```
B292:A9
```

7) Start FID running.

```
803G
```

8) Insert the desired Microzine disk and copy it with the "=" (wildcard) option with no user prompting (unless you like to hit "Y" and "Return" every twenty seconds). Don't forget to copy both sides.

One little note: Steps 1-4 can be used to make extra disk space for most any application you want. The only drawback is that the number of files in the catalog is reduced. Steps 5-8 can be used to copy files from other modified DOSes to normal DOS.

softkey for...

Phi Beta Filer

by Klaus Iden

Phi Beta Filer
Scarborough Systems, Inc.
25 North Broadway, Tarrytown
New York, NY 10591

Requirements:
Apple][Plus, //e, or //c
A way to enter the monitor at will
Super IOB
A blank disk

Phi Beta Filer is an excellent introductory filing program. It is written in BASIC and is relatively easy to deprotect.

The program uses a high speed DOS called Diversi-DOS. However, we can use regular DOS on our blank diskette. The protection on the program diskette consists of altered ending marks ($FF FF instead of $DE AA) and altered data checksums. The data disk is not protected. A short binary file called DG PATCH on the disk alters the RWTS for reading either the program or data disk. Some simple modifications to this file (done by the Super IOB controller) will allow the use of a normally formatted program diskette.

The procedure for the softkey consists of initializing a blank disk using a regular DOS and SCARBOROUGH as the name of the HELLO program. Next we boot the original and reset into the monitor, save the RWTS, and use a swap controller and Super IOB to transfer the program to an unprotected format.

Step By Step

1) Initialize a blank disk using regular DOS, with SCARBOROUGH for the HELLO program.

```
INIT SCARBOROUGH
DELETE SCARBOROUGH
```

2) Boot the original PBF disk and reset into the monitor.

3) Now move the RWTS to a safe location, reboot normal DOS, and BSAVE the RWTS to a normal disk.

```
1900<B800.BFFFM
C600G
BSAVE RWTS.PBF,A$1900,L$800
```

4) Install the Super IOB controller with this softkey into Super IOB. This is just a Swap Controller with some sector edits added. Run Super IOB and copy the PBF disk. The resulting disk is now a COPYAable version of Phi Beta Filer.

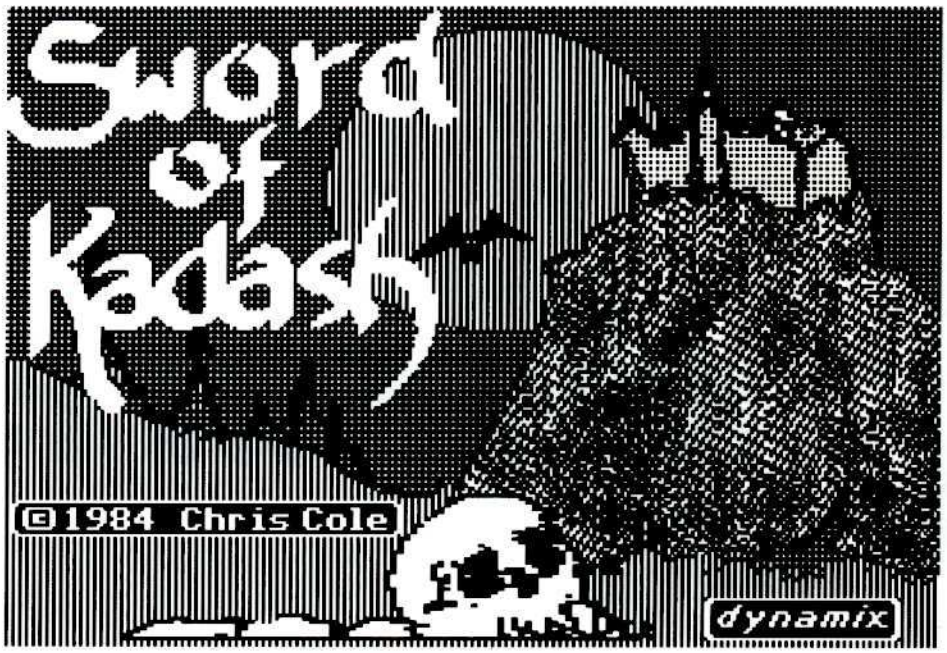
controller

```
1000 REM PHI BETA FILER CONTROLLER
1010 TK = 3 :ST = 0 :LT = 35 :CD = WR
1020 T1 = TK : GOSUB 490 : GOSUB 360 : ONERR GOTO
     550
1030 GOSUB 430 : GOSUB 100 :ST = ST + 1 : IF ST <
     DOS THEN 1030
1040 IF BF THEN 1060
1050 ST = 0 :TK = TK + 1 : IF TK < LT THEN 1030
1060 RESTORE : GOSUB 310 : GOSUB 490 :TK = T1 :ST
     = 0 : GOSUB 360
1070 GOSUB 430 : GOSUB 100 :ST = ST + 1 : IF ST <
     DOS THEN 1070
1080 ST = 0 :TK = TK + 1 : IF BF = 0 AND TK < LT THEN
     1070
1090 IF TK < LT THEN 1020
1100 HOME : PRINT "COPY^ DONE" : END
5000 DATA 5^ CHANGES
5010 DATA 22 ,14 ,4 ,76
5020 DATA 22 ,14 ,5 ,62
5030 DATA 22 ,14 ,6 ,3
5040 DATA 22 ,14 ,7 ,234
5050 DATA 22 ,14 ,8 ,234
10000 IF PEEK (6400 ) < > 162 THEN PRINT CHR$ (4
     ) "BLOAD^ RWTS.PBF,A$1900"
```

controller checksums

```
1000  - $356B      1090  - $FEAF
1010  - $3565      1100  - $BFEE
1020  - $6170      5000  - $B572
1030  - $7771      5010  - $D53F
1040  - $6342      5020  - $6CAA
1050  - $ABA3      5030  - $278C
1060  - $D729      5040  - $F4DF
1070  - $DF2C      5050  - $7F0F
1080  - $8587      10000 - $615C
```

Softkey for



by Michael R. Ditz

Sword of Kadash
Penguin Software
830 Fourth Ave.
P.O. Box 311
Geneva, IL 60134
$29.95

Requirements:
48K Apple][and up
Super IOB v1.2 or 1.5
Original Sword Of Kadash disk
2 blank disks (or front and back of one)

After buying Sword of Kadash, a friend of mine began to play it a lot. The worst thing that could happen to a person when purchasing a new disk is to have it crash. Well, it happened to him. He sent the disk back to the company and got a replacement. This gave him a working copy, but he wanted backups in case of another, or maybe more serious, disk failure. So I decided to help him by making it COPYAable.

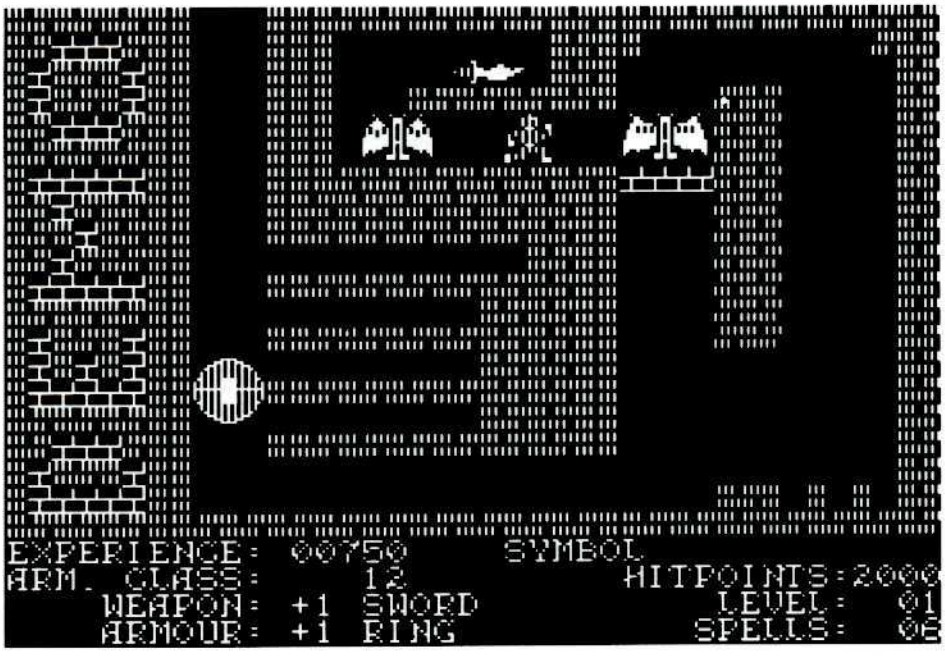
The Protection

The first thing I did in my quest for backups was to watch the boot-up process. I noticed the Applesoft prompt at the bottom of the screen. This meant that there is at least a semi-normal DOS on the disk. I used my sector editor to see if I could read in a sector normally, but I couldn't.

So I got out The Linguist, from CIA, and got a raw nibble dump of track $6. I just picked any random track that might have data on it, and examined it to find the markers. I saw that the address field headers and data field headers were normal, but the data field epilogs were changed from a normal DE AA, to DA AA. I went back to the sector reader and told it to look for these epilogs. Expecting to read in the sector, I got the irritating grinding sound of the drive. That meant I had missed something when I did my disk snooping. I thought I might try ignoring the checksums, something that usually works. Well, I made the changes and it read in! I tried to read from track $7, but it wouldn't work. A nibble dump of that track revealed that they tried to make my work difficult by changing the address headers to D4 AA 96, as opposed to a normal D5 AA 96.

Knowing these changes, I was able to read from that track. I tried reading from track $8 and found that I had to change the headers back to D5 AA 96. This told me that odd tracks had headers of D4 AA 96 and even tracks had the normal D5 AA 96. The protection scheme is the same on both sides of the disk.

Something important was revealed to me when I was reading other tracks. The front side of the disk only uses tracks $0 to $11. I searched the back and found data on all of the tracks, $0 through $22. I found no nibble count of any kind on either side so we don't have to worry about that. No DOS was found on side two either. Now that we know all of this, we can write a controller.



The Controller

I had to write the controller so that it would do many different things. First of all, it had to figure out if it is on an odd or even track so it will know which markers to use. It also has to do some pokes into DOS to tell it to ignore the checksums. Last of all, I told it to ignore the data epilogs. That's easier than changing them. I wrote two separate controllers, one for the front side which uses tracks $0 to $11, and one for the back side which uses tracks $0 to $22. The controllers ran with no problems, until I tried to boot the copy. The drive began to grind and wouldn't stop. This means that errors are occurring during boot. It turns out that DOS is looking for the protection. So, since the front has almost normal DOS, I edited the disk to ignore errors.

This can usually be accomplished by changing track $0, sector $3, byte $42 from $38, to an $18. This clears the error flag after

the drive reads from the disk. I didn't have to worry about the back because it's all data and no DOS. I crossed my fingers as it booted. It worked! I made a character disk to test the back and had no problems.

A CATALOG

As I was looking through the front side of the disk, I noticed that it has a catalog. It is made up of the eight files listed below.

```
B 008 BOOT
B 002 DISKROUT
A 002 KADASH
B 086 HIMEM
B 026 LOMEM
B 027 SUPERHIMEM
B 033 TITLE
I 002 APPLESOFT
```

The Applesoft program called KADASH is the boot-up program. It prints an introduction and runs the binary file called BOOT. The programs HIMEM, LOMEM, and SUPERHIMEM are the main program. The file named TITLE is the graphics screen that you see at the start of the game. The file DISKROUT must be a disk access program. APPLESOFT, is an Integer Basic version of the program KADASH. The back of the disk contains all the room data and character information for the game. Do some of your own disk snooping and try to make some APTs!

All Together

Then, for convenience, I put both controllers into one. Before the copy is made, it will ask you if you want to copy the front or the back of the disk. The program will set the changes for you. All you have to do now is install the controller and copy the front and the back of the original. You now have a COPYAable Sword of Kadash.

1) Load in Super IOB v1.2 and type in the controller at the end of this article.

2) Run Super IOB.

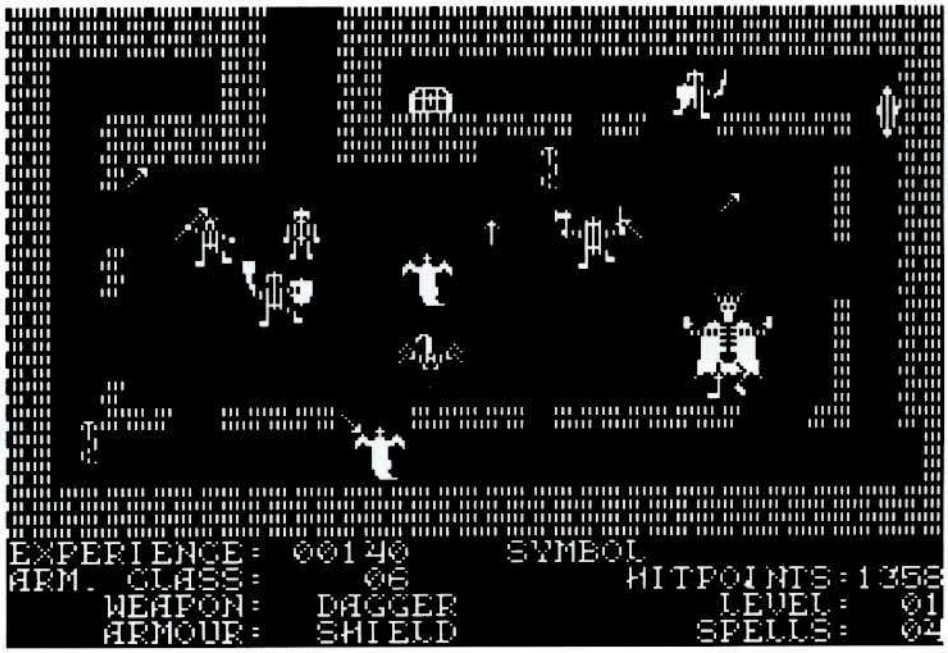
3) Insert the disks, and when it asks you which side, enter 'F'.

4) Copy the front.

5) Re-run and select 'B', for the back of the disk.

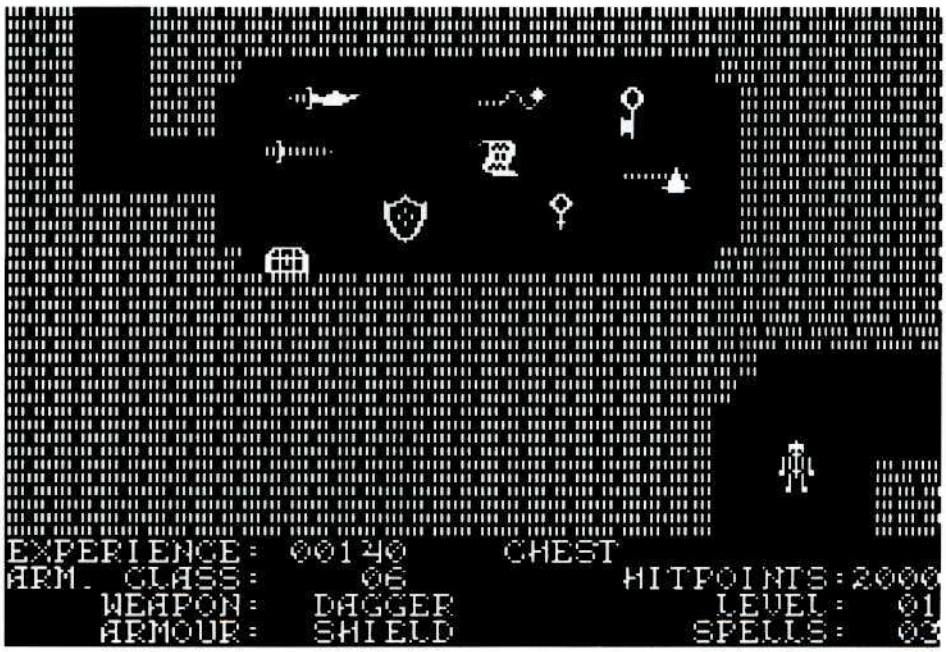
6) Copy the back.

You now have a deprotected copy of The Sword of Kadash. Enjoy!



controller

```
1000 REM KADASH CONTROLLER
1010 VTAB 12 : INPUT "(F)RONT^ OR^ (B)ACK^ OF^ KADASH?===>" ;S$
1020 IF S$ < > "F" AND S$ < > "B" THEN PRINT CHR$ (7) : GOTO 1010
1030 TK = 0 :ST = 0 :LT = 18 :CD = WR : IF S$ = "B" THEN LT = 35
1040 T1 = TK : GOSUB 490
1050 POKE 47405 ,24 : POKE 47406 ,96 : POKE 47497 ,24 : POKE 47498 ,96
1060 POKE 47445 ,213 : IF TK / 2 < > INT (TK / 2 ) THEN POKE 47445 ,212
1070 GOSUB 430 : GOSUB 100 :ST = ST + 1 : IF ST < DOS THEN 1070
1080 IF BF THEN 1110
1090 ST = 0 :TK = TK + 1 :PO = 212 : IF TK / 2 = INT (TK / 2 ) THEN PO = 213
1100 POKE 47445 ,PO : IF TK < LT THEN 1060
1110 GOSUB 490 :TK = T1 :ST = 0 : GOSUB 230 : IF S$ = "B" THEN 1130
1120 RESTORE : GOSUB 310
1130 POKE 47405 ,208 : POKE 47406 ,19 : POKE 47497 ,208 : POKE 47498 ,183
1140 GOSUB 430 : GOSUB 100 :ST = ST + 1 : IF ST < DOS THEN 1140
1150 ST = 0 :TK = TK + 1 : IF BF = 0 AND TK < LT THEN 1140
1160 IF TK < LT THEN 1040
1170 HOME : PRINT : PRINT "DONE^ WITH^ COPY" : END
5000 DATA 1^ CHANGES ,0 ,3 ,66 ,24
```



controller checksums

```
1000 - $356B      1100 - $AE1F
1010 - $C600      1110 - $98C7
1020 - $BDE8      1120 - $EAB4
1030 - $26F1      1130 - $09D2
1040 - $9EAC      1140 - $2ED6
1050 - $BB2F      1150 - $7DA0
1060 - $6299      1160 - $7078
1070 - $6A9C      1170 - $6824
1080 - $AC08      5000 - $9114
1090 - $03C5
```

The Games Of 1985 Part II

by Jeff Hurlburt

This month we conclude our annual reviews with the emphasis on adventures. These are games which tend to present complex objectives, incorporate some form of character development, and favor reasoning over reflexes.

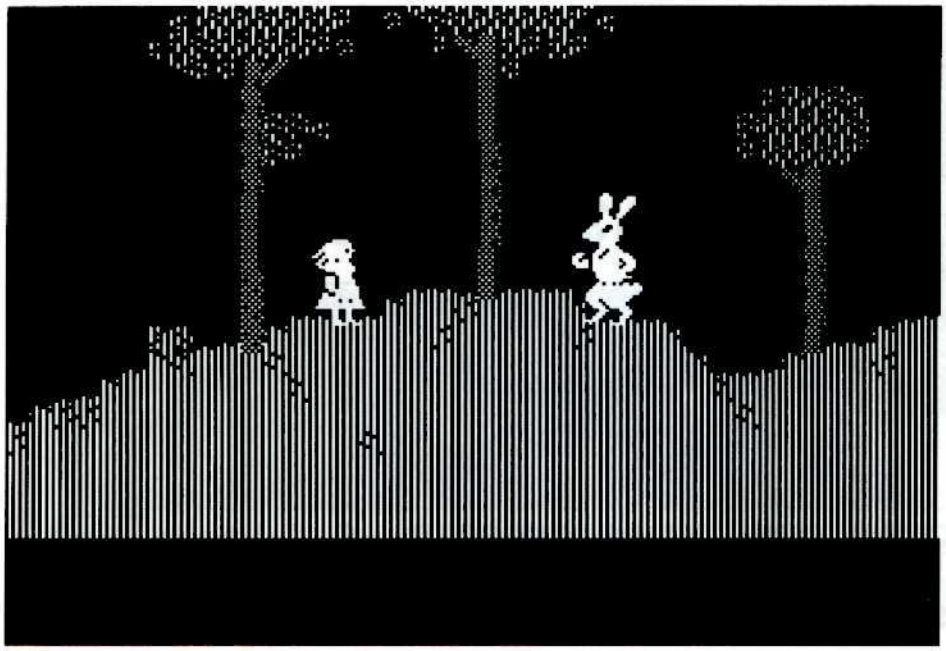
Because adventures are usually fairly involved, game descriptions would be impossibly verbose without a few special terms, some of which take a bit of explaining. The quality of a game's **parser**, for instance, relates to how well the program seems to understand your inputs. In text adventures good parsing makes it easy to try out ideas. Poor parsing requires you to figure out how the program wants you to say something. In effect, you play the parser instead of the game. A **maze adventure** locates play in some sort of labyrinth which need not actually look like a maze. In *The Bard's Tale* you travel the streets of Skara Brae, while in *Shadowkeep* you explore a series of mazes. Both games involve threading a series of narrow, limited-access passages. Finally, some "adventures" turn out to be arcades with a game save feature. These are **extended arcades**.

Long play generally adds up to good value, but makes for difficult shopping. Unlike arcades, what you see in a few minutes of play testing an adventure at your favorite software parlor won't tell you much about the game. Hopefully, the descriptions, commentaries, and ratings will help you zero in on the right stuff: the best values for your adventure gaming money.

Comments and ratings reflect my evaluation based upon playing a game and watching others play. Each game is rated in five areas plus an overall rating on a ten-point scale: 10=SUPERIOR, 07=GOOD, 05=FAIR, and 03=POOR.

Graphics (GRFX) is the first area rated. It concerns quality of artwork, clarity, impact, smoothness, speed, and realism.

Good **Support Materials** (S.M.) include clear, thorough directions for play. In some cases attractiveness, tutorial value, or effectiveness in creating an atmosphere may be important.



Playability (PLAY) relates to how much extraneous activity is required to play the game. Good parsing, rapid save and restore functions, efficient menus, smooth controls, and readily available help screens are features that enhance playability.

Difficulty (DIFF) is self-explanatory for single-player games. For others it relates to how difficult it is to achieve a decent level of play.

High **Interest** (INTR) games are good at attracting and holding player attention. Typically, these are the adventures you can't wait to continue and the arcades you play, and replay, for hours at a time.

The **Overall** (GAME) rating ammounts to a summary of player reaction(s) during tryouts.

For educationally-oriented games, an additional rating (/ED) of **educational** value is included.

Alcazar: The Lost Fortress

(Maze Adventure)

Compatible: 48K Apple][+, //e, //c
Requirements: One disk drive, joystick

Your quest for wealth and power at last brings you to a strange landscape dotted with brooding castles long abandoned to wild beasts. If the legends speak truth, mere leagues to the east is your goal, ancient Alcazar with its fabled throne, crown, and untold riches.

Whichever of several routes you choose, two or more castles must be overcome. Each, including Alcazar itself, is a multi-level maze of chambers, pitfalls, and hidden shafts patrolled by tigers, giant spiders, and even less savory magical creatures. Your main weapon is a revolver with only six shots; but more specialized weapons, fresh revolvers, and other items crucial to success are sprinkled about the mazes. Some, such as rope to repair bridges, a raft to cross the lake, and magic carpets let you circumvent entire castles. Play need last only about an hour, so there is no game save option; however, random distribution of major items guarantees that each game is different.

An informative display and nicely graduated pacing place the emphasis squarely on decision-making, though arcade skills get a fair workout as well. Good use of sound rounds out an attractive adventuring package good for many replays.

Available from: Activision, P.O. Box 7287, Mountain View, CA 94039. (415) 960-0410. Cost: $39.95

GRFX	S.M.	PLAY	DIFF	INTR	GAME
07	06	08	07	07	07

Alice In Wonderland

(Maze Adventure)

Compatibile: 64K Apple][+, //e, //c
Requirements: One disk drive, joystick optional

A summer's day picnic is always fun, especially with that nice Rev. Dodgson to tell such interesting stories. Still, when an oversized, watch-toting rabbit rushes by, the only thing for a normal, curious little girl to do is follow. In Windham's version of the Lewis Carroll classic, your objective is to explore Wonderland, unravel its mysteries, and return to the mundane world (before you miss too many French lessons).

Designed for new readers, *Alice in Wonderland* employs arcade style displays and character movement with other adventuring functions (e.g. "TAKE", 'USE", 'ASK", 'SCOLD", etc.) handled via menu. While some forty Wonderland/Looking Glass personages supply clues, riddles, and useful songs, a major concern is to approach obstacles with the proper perspective. Therefore, collection and careful use of size-changing cakes and potions is very important.

Despite its intended audience, winning the game is hardly a breeze. A modicum of arcade skill is required and Wonderland is easily a complicated enough place to reward mapping. Long playing and colorful, this is a thoroughly enjoyable adventure. (Just ask Alice.)

Available from: Windham, One Kendall Square, Cambridge, MA 02139. (617) 494-1225. Cost: $26.95

GRFX	S.M.	PLAY	DIFF	INTR	GAME
08	07	07	08	07	07

Amazon

(Picture/Text Adventure)

Compatibile: 64K Apple][+, //e, //c
Requirements: One disk drive, joystick optional

Yet another NSRT-backed expedition to the Amazon has met a violent fate. Determined to locate an ancient mine which, if legends are correct, should be a source of a rare form of emerald important to national defense, the agency turns to you. If National Satellite Research Technology's best field operative can't find the Lost City of Chak and its mine, who can?

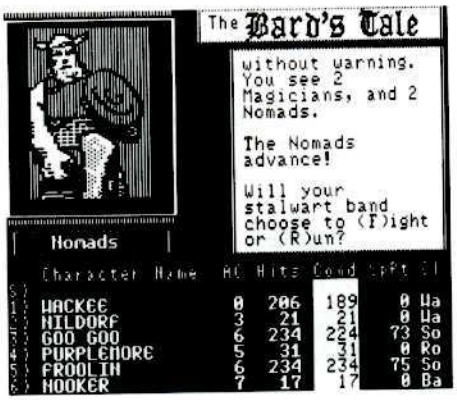
When your first contact, an Amazon expert, is found murdered it's clear that things could get rough; and, once in the Amazon, they do. Cannibals want your head, corrupt soldiers want your money and/or your life, and an active volcano is ready to blow just in case you manage to offend the wrong god. At least your portable computer/satellite link provides exact positioning; and Paco, your ex-contact's pet parrot, is a gold mine of information.

Beautiful graphics, decent parsing, and an interesting story line quickly involve you in one of the better exploration-oriented challenges. Offering three difficulty levels, *Amazon* is good for several evenings of hi-tech jungle adventuring.

Available from: Telarium, One Kendall Square, Cambridge, MA 02139. (617) 494-1200. Cost: $39.95

GRFX	S.M.	PLAY	DIFF	INTR	GAME
08	08	08	07	07	07

The Bard's Tale



(Maze Adventure for one to six players)

Compatibility: 64K Apple][+, //e, //c
Requirements: One disk drive, second drive optional

The evil wizard Mangar the Dark has tightened his grip upon the once prosperous hamlet of Skara Brae. A spell of Eternal Winter isolates the town, and only a few days ago, all the militiamen simply disappeared! Now horrible creatures lurk in abandoned buildings and, at night, roam the streets working mayhem.

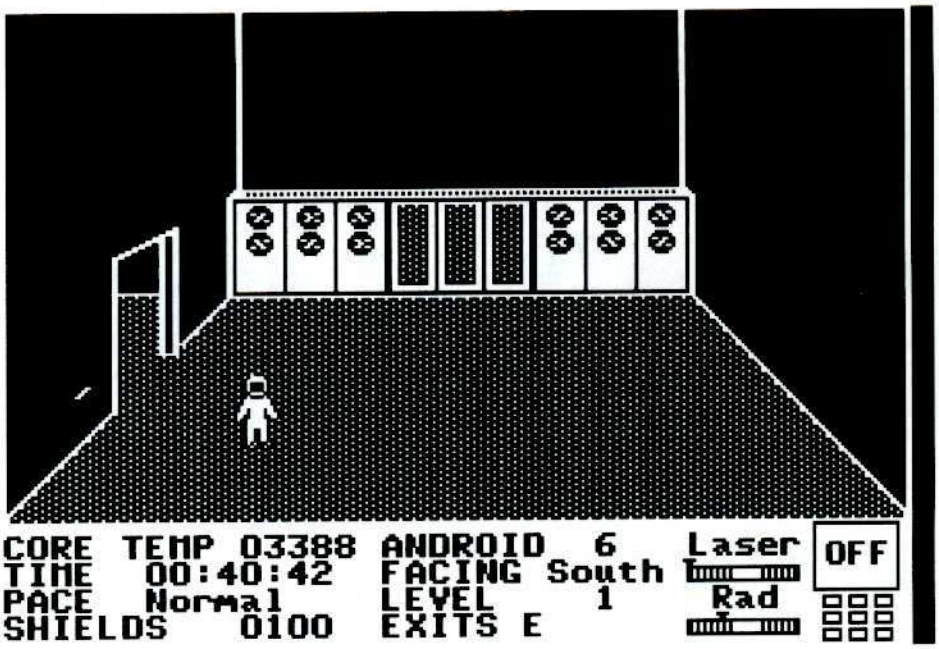
In this first installment of Electronic Arts's "Tales of the Unknown" series you lead a party of daring young warriors, magicians, rogues, and bards determined to free Skara Brae. From your base at the Adventurer's Inn you, at first, venture forth only by day in search of less dangerous monsters (and their booty!), clues to the locations of dungeons said to harbor vital artifacts, and sometimes a good tankard or two to wet your spellsinger bard's ready lips.

Spread across a 32x32 grid, Skara Brae is packed with curious places to explore and such challenging oddities as guardian statues, mysterious temples, and unapproachable (?) gates. The display shows a very realistic forward view of buildings and, during combat, monsters. A nice touch is a sky that darkens as night falls.

The Bard's Tale is an engaging long play adventure with the ingenious property of permitting transfer of characters from *Ultima III* and *Wizardry*. (Moving a few of my advanced Ultima characters into the Inn solved the problem of night monsters very nicely.)

This option should probably be employed with care, since developing characters from scratch is one of the best parts of the game. Well documented and superbly crafted, *The Bard's Tale* is guaranteed adventuring fun for many long evenings.

Available from: Electronic Arts, 2755 Campus Drive, San Mateo, CA 94403. (415) 571-7171. Cost: $49.95



GRFX	S.M.	PLAY	DIFF	INTR	GAME
09	08	08	08	09	09

Countdown To Shutdown

(Maze Adventure)

Compatible: 48K Apple][+, //e, //c
Requirements: One disk drive, joystick

North America's chief power source, an automated reactor complex the size of a small city, has developed a small glitch... well, actually, it's overheating. If your Android Crisis Team can't repair the malfunction before core temperature reaches 10000 degrees centigrade, shutdown will plunge most of the continent into protracted darkness.

Your task in *Countdown* is formidable. Many of the eight-level installation's 2000-plus rooms are guarded by anti-intrusion droids; nearly half of the elevators don't work; and some of the floors have been blown out leaving gaping pits. Somewhere down on level eight is the reactor core, but no one seems to know exactly where. Fortunately you direct a team of up to eight science, repair, and combat androids entirely capable of making the best possible use of shields, weapons, repair kits, and other supplies strewn about the complex.

Featuring the fastest, smoothest, most attractive display of any major maze adventure.

Countdown to Shutdown incorporates just enough droid-zapping arcade action to spice play. Versatile controls and an excellent, multi-team capability game save round out an adventure package that's sure to be a trend setter.

Available from: Activision, P.O. Box 7287, Mountain View, CA 94039. (415) 960-0410. Cost: $39.95

GRFX	S.M.	PLAY	DIFF	INTR	GAME
09	07	08	08	09	09

The Crimson Crown

(Picture/Text Adventure)

Compatible: 64K Apple][+, //e, //c
Requirements: One disk drive

Old soldiers fade away but a juicy monster lives forever in sequels. Thus, having rescued Princess Sabrina and "destroyed" the evil vampire of *Transylvania* fame, you find that your work remains unfinished. Demonstrating a singular lack of good sportsmanship, the vampire has not only returned, but killed good King John, stolen the magical Crimson Crown, and now threatens to sieze the entire kingdom.

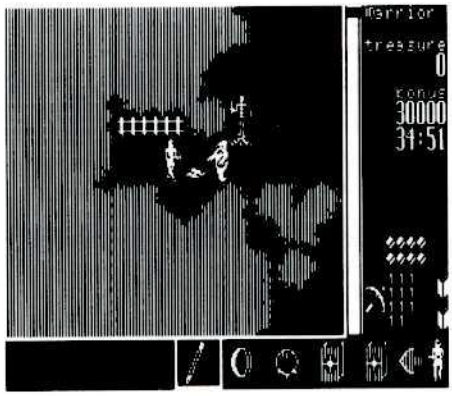
Accompanied by Sabrina and her brother Erik, you set off on a quest to scotch the vampire and recover the crown (without which Erik may not ascend the throne). Since the vampire seems to be busy terrorizing peasants, there is plenty of time to deal with riddle-spouting gryphons, possesed cats, and bad tempered zombies, in addition to getting to know a friendly sage. Finding the enemy's stonghold is your main problem, and a wizard may help, if you retrieve a powerful artifact stolen by a wicked witch who lives in the west.

This game has something for everyone, including well-done graphics and even a frog prince. Every bit as challenging as its predecessor, *The Crimson Crown* is picture-text adventuring at its best.

Available from: Penguin Software, P.O. Box 311, Geneva, IL 60134. (312) 232-1984. Cost: $39.95

GRFX	S.M.	PLAY	DIFF	INTR	GAME
08	08	08	07	08	08

Gemstone Warrior



(Extended Arcade)

Compatible: 64K Apple][+, //e, //c
Requirements: One disk drive, joystick optional

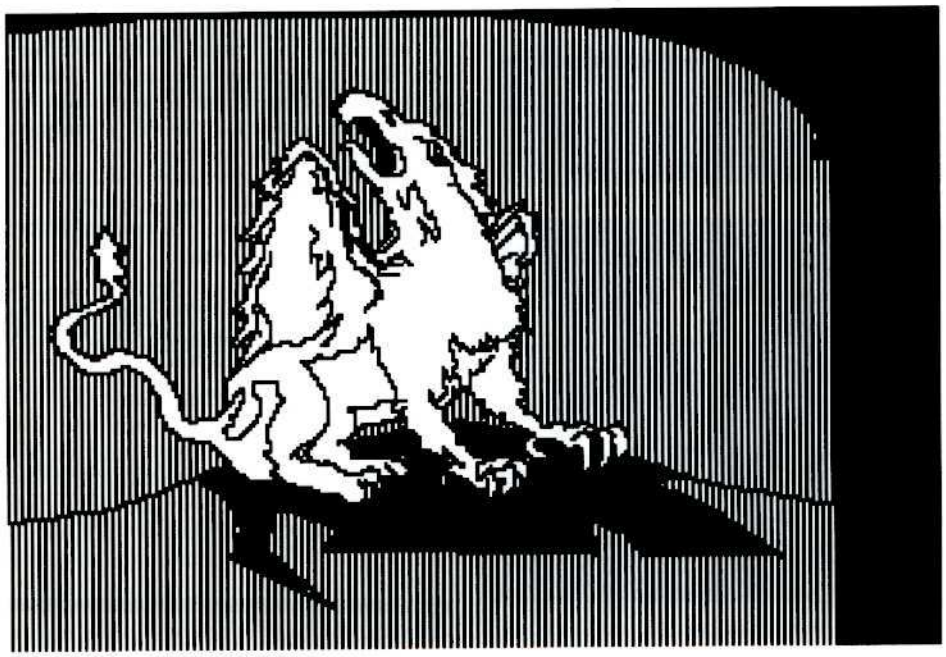
When demons stole the great Gemstone, humanity was deprived of its chief source of magic. Now threatened with extinction, all mankind turns to you, mightiest of warriors: fight your way through the Underworld and recover the five pieces of the Gemstone. Only thus may humankind be saved.

Gemstone Warrior is a high-energy adventure set in a colorful maze of caverns and corridors. Untroubled by thoughts of monster welfare, peace, or similar avatar-like ideals, your basic objective is to kill anything that moves. Dead bodies, coffins, and chests yield gold, healing potions, extra lives, protective spells, and magic weapons, as well as restocking arrows and fireballs. With fifteen different magical artifacts (several of which have unknown uses), a major part of play is learning when to use which item. Gold, plus a juicy bonus if you rescue the stone, determines your score. The top five scores are retained on disk.

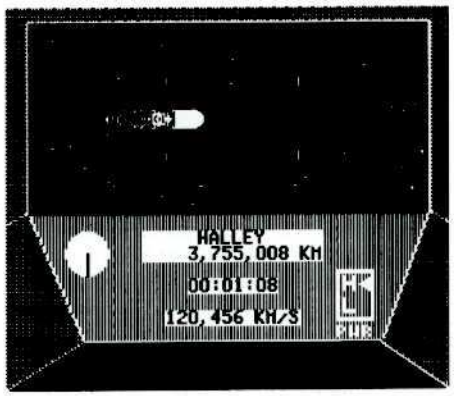
Tight controls and a good leveling scheme result in very challenging but winnable play for beginners and berzerker-class arcaders alike. The simple game save works well and, if you are killed, restart is almost immediate. Exceptionally addictive, *Gemstone Warrior* ranks solidly among arcade maze gaming's best.

Available from: Strategic Simulations (SSI), 883 Stierlin Road, Building A-200, Mountain View, CA 94043-1983. (415) 964-1200. Cost: $34.95

GRFX	S.M.	PLAY	DIFF	INTR	GAME
08	06	08	08	07	08



The Halley Project



(Space Flight Simulation)

Compatible: 48K Apple][+, //e, //c
Requirements: One disk drive, joystick and tape cassette optional

From among thousands of applicants, you are one of the few selected to qualify for "The Halley Project", a top-secret deep space exploration program. Completing each of ten qualification/training missions advances you one rank, beginning with "Raven", then "Shrike", all the way through the exalted designation "Starbird". Should you prove to be one of the elite, the project and the galaxy are yours!

Each mission begins with launch from a secret base on the comet and ends when you return having met all objectives. ('Land on any planet warmer than Callisto", 'land on any moon smaller than Titan" are typical objectives.) While it is only necessary to complete a mission to advance, each is timed; along with each player's record, best mission times are maintained on disk.

The Halley Project incorporates a twelve-constellation star map (showing bodies of 6th magnitude or brighter) and a remarkably accurate "real time" model of the solar system. Except for loss of the console screen view (star map) during hyperspace jumps, the model appears to operate in all aspects of play including the zoomable ('radar") display of the solar system. Planets and moons revolve, rotate, and actually change size depending on distance.

Complete down to a cockpit view of terrain when you land and a briefing tape, *The Halley Project* has it all. Boot the disk, start the tape, douse the lights, and get set for a fantastic gaming experience.

Available from: Mindscape, 3444 Dundee Road, Northbrook, IL 60062. (312) 552-6922. Cost: $44.95

GRFX	S.M.	PLAY	DIFF	INTR	GAME
09	10	08	06	09	10

Hitchhiker's Guide to the Galaxy

(Text Adventure)

Compatible: 48K Apple][Plus, //e, //c
Requirements: One disk drive

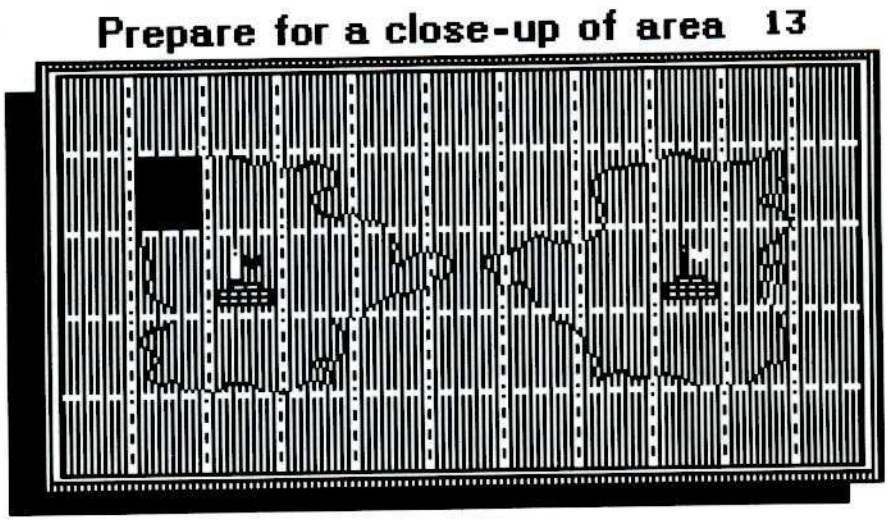
It's bad enough when your home is on the Demolition Department's Top Ten, but what do you do when a new interstellar bypass means the demolition of your planet? You hitch a ride on the nearest Vogon spaceship, of course.

Based on the best-selling novel, *Hitchhiker's Guide To The Galaxy* quickly diverges into a kind of open-ended adventure which you win by accumulating all 400 game points. Accompanied by the eccentric alien, Ford Prefect, your odyssey includes encounters with the notorious Bugblatter Beast of Traal, personality switches, lessons in poetry appreciation, and a real braintwister of a maze.

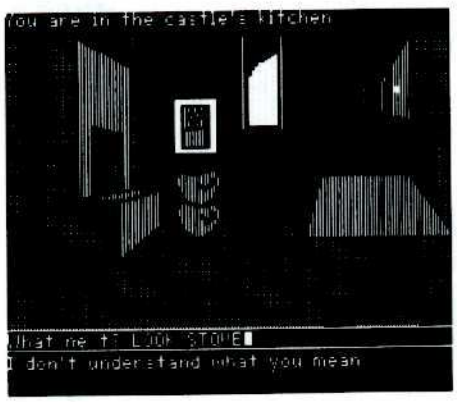
Incorporating Infocom's excellent parsing, *Hitchhiker's Guide* is often entertaining but often frustrating as well. While the occasional requirement that a command be repeated several times enhances the atmosphere of hapless wandering, it also makes solution testing unnecessarily tiresome. Documentation and support trinkets set a new quality standard, but all the fluff in Aurthur Dent's pockets won't save this one.

Available from: Infocom, 125 Cambridge Park Drive, Cambridge, MA 02140. (617) 492-1031. Cost: $39.95

GRFX	S.M.	PLAY	DIFF	INTR	GAME
NA	10	08	09	04	05



Lantern of D'Gamma



(Picture/Text Adventure)

Compatible: 48K Apple][Plus, //e, //c
Requirements: One disk drive

When King Louis d'Gamma discovered his castle would soon fall to treacherous retainers, he hid his treasure as well as clues to its whereabouts and a magic lantern. Since the traitors were no good at either puzzles or math, the legendary hoard remains to this day, unclaimed and waiting for someone like you to solve the ancient mystery.

Lantern of D'Gamma is intended as a fun way to involve young adventurers in using middle school math skills. While the interesting worksheets may help, the game is more likely to produce a bumper crop of English majors, all dedicated to writing better computer adventures. Aside from weak parsing, there are numerous fatal traps and no provisions for saving a game. (I typed in "SAVE" at one point and the game simply bombed.)

Hopefully, *Lantern* will be recalled before it puts out too many lights.

Available from: Milliken Publishing Co.; P.O. Box 21579, St. Louis, MO 63132-0579. (314)-991-4220. Cost: $34.95

GRFX	S.M.	PLAY	DIFF	INTR	GAME/ED
07	07	02	08	07	03 /03

Mindwheel

(Text Adventure)

Compatible: 48K Apple][+, //e, //c
Requirements: One disk drive. Second drive and 80-column card optional

Convinced that modern civilization teeters on the brink of disaster, you agree to become the subject of a uniquely hazardous experiment in mind travel. If all goes well, Dr. Virgil's neuro-matrix will enable you to explore four dead, yet still powerful minds, journey back to mankind's dawn, and return with the Wheel of Wisdom.

Each of the four minds (a rock music star, a dictator, a poet, and a scientist) imposes its own reality and images. Your task in each reality is to locate helpful items and uncover clues to the Wheel's "location". As might be expected, the more interesting, more alien situations arise near the boundaries between minds.

Mindwheel is called "an electronic novel" (as opposed to other adventures) largely because it is an extension of a hardback manual/unfinished novel included in the package. While the nicely illustrated book is something of a treasure in itself, the game depends too much upon battering the player with hints and not enough upon good parsing and individual initiative.

Available from: Broderbund, 17 Paul Drive, San Rafael, CA 94903. (415) 479-1170. Cost: $44.95

GRFX	S.M.	PLAY	DIFF	INTR	GAME
NA	10	08	06	07	07

The Other Side

(Conflict Resolution Simulation for two players or teams)

Compatible: 48K Apple][+, //e, //c
Requirements: One disk drive. Modems and second computer optional

The Other Side challenges opposing players to achieve economic stability and peace through cooperation, symbolized via a "bridge" to which each side contributes pieces. Completing the bridge ends the game and both teams win. (One version awards victory to the side which places the last piece.)

Since both sides want peace, success might appear to be a foregone conclusion; not so! Whether you play the game using modems or a single computer, neither side ever sees the other's moves. Contact is limited to "Hotline" messages entered during a "communications" phase of each turn.

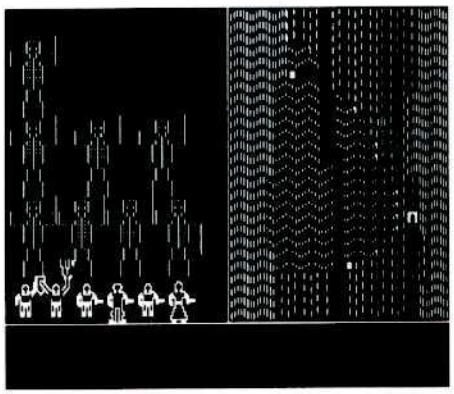
More important, you are not the sole arbiters of national policy. Each side possesses a Computer Assisted Defense (CAD) system which cares only about the "bottom line" and security. Should CAD decide you have let your side down or detect any hostile moves by the other side, it will attempt to sieze control, and its agressive moves will almost certainly provoke a similar response by the other side's CAD. Regaining control and avoiding a ruinous conflict can demand exceptional restraint as well as management skill from both teams.

Complete with duplicate diskettes, manuals, plastic coated maps and modem software, *The Other Side* is an engrossing, realistic model of super power confrontation. If your gaming group has been looking for something really different, you just found it.

Available from: Tom Snyder Productions, 123 Mt. Auburn Street, Cambridge, MA 02138. (617) 876-4433. Cost: $69.95

GRFX	S.M.	PLAY	DIFF	INTR	GAME/ED
08	10	07	08	08	08 /09

Phantasie



(Map-Maze Adventure for one or more players)

Compatible: 48K Apple][+, //e
Requirements: One disk drive

Evil times have befallen the once peaceful island country of western Gelnor. Led by the mighty sorcerer Nikademus, monsters and the dreaded Black Knights plunder at will. But newly arrived on Gelnor, you are amazed to find a quest worthy of your mettle. Now all that remains is to gather a party of equally valiant souls and rid the land of its plague.

Borrowing from such favorites as *Questron* and *Wizardry*, SSI's *Phantasie* offers advanced character development, sixteen 20x26 half-screen terrain maps, and ten 16x16 dungeons. Each party may include six members drawn from a roster of nearly forty player-created characters. Several parties may be active at the same time, spread through different regions of the island.

Whereas in games like *Ultima* practically all the action occurs on the map, *Phantasie* uses its maps purely as locators. Most action, such as purchases, training, reading scrolls, etc. is via text screens. A simple, minimum animation heros vs. monsters picture symbolizes combat.

Phantasie is a major, well documented adventure featuring one of the more complex scenarios (even the gods get into the action). Multi-party capability facilitates involving several players in the quest, and exceptionally flexible character management makes it easy to identify with your heros. As tough as it is addictive, your *Phantasie* awaits you.

Available from: Strategic Simulations, 883 Stierlin Road, Building A-200, Mountain View, CA 94043-1983. (415) 964-1200. Cost: $39.95

GRFX	S.M.	PLAY	DIFF	INTR	GAME
06	07	07	08	09	09

Ring Quest

(Picture/Text Adventure)

Compatible: 64K Apple][+, //e
Requirements: One disk drive

The Ring of Chaos has enslaved the noble sorceress, Lisa, and all space-time is threatened by its destructive influence. As bearer of the Ring of Order, your mission is to free Lisa before reality is disrupted beyond retrieval.

Nominal sequel of *The Quest*, *Ring Quest* returns you to the magical land of Balema, accompanied once more by Gorn, your water swilling strong-arm. Far to the north is your

ultimate goal, the sorceress' mountain stronghold. As though its shield of green lightning were not adequate, you soon encounter other obstacle including trolls, manticoras, amorous ogresses, and greedy seers. Good mapping is amply rewarded in this adventure, where Lisa is liable to pop in at any moment to cast a teleport spell, bewitch Gorn into confusion (hard to detect), or dry up your water supply.

Offering decent graphics, two (optional) arcade sequences, and one of the more creative scene-setter booklets, *Ring Quest* is a moderately challenging, fun to play collection of puzzles. Although experienced adventurers will cut through this one like a piece of cheese, the game is well suited to beginners.

Available from: Penguin Software, P.O. Box 311, Geneva, IL 60134. (312) 232-1984. Cost: $34.95

GRFX	S.M.	PLAY	DIFF	INTR	GAME
07	07	08	06	07	07

Shadowkeep

(Picture-Maze Adventure)

Compatible: 64K Apple][+, //e, //c
Requirements: One disk drive, SpeeDemon optional

Since its seizure by a mighty demon, the Shadowkeep has been the focus of evil, a power which now threatens to engulf the earth. As the last, best hope of civilization, you with your eight comrades must invade the grim tower, overcome its guardians, and dispatch the dark lord.

Featuring animated color graphics with good perspective effects, *Shadowkeep* is a long-play adventure in the mold of "Dungeons & Dragons" and *Wizardry*. Many commands such as "get gold" or "Rubywand, invoke the Rod of Power" are in simple English, with purchases, combat, etc. handled via prompt windows. As in D&D, your quest leads through successively greater perils, necessitating an ongoing concern for character growth and the acquisition of magical artifacts.

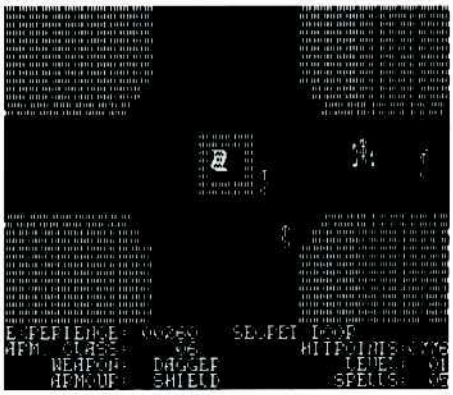
Each of the keep's nine 16x16 mazes offers its own special rewards including weapons, spell scrolls, and passwords to other mazes. Adversaries run the gamut from "death sheep", trolls, and gargoyles through ghosts and ogres. Like the members of your party, monsters vary widely in such attributes as strength, dexterity, and the ability to use magic.

Though slow and not altogether free of minor bugs, *Shadowkeep* ranks high among my favorites. Handsome displays, unusual scope for character development, and diversity of challenges make this one good for many hours of maze busting, monster bashing entertainment.

Available from: Telarium, One Kendall Square, Cambridge, MA 02139. (617)-494-1200. Cost: $39.95

GRFX	S.M.	PLAY	DIFF	INTR	GAME
08	08	06	08	08	08

Sword of Kadash



(Maze Adventure)

Compatible: 48K Apple][+, //e
Requirements: One disk drive, joystick optional

Just as you begin to wonder if there really are worse things than being ripped off and abandoned in the Persian desert, up rides a party of brigands whose leader makes an offer that's hard to refuse. Enter the Fortress of the Dragon and retrieve the fabled Sword of Kadash, or wash the blistering sands with your blood.

Having volunteered, you soon discover why no one has ever returned from the dread fortress. Besides monsters, elaborate traps, and curses, you must contend with backlash from your own weapon and the maze itself. Armor, weapons, monster repulsion spells, and other goodies do litter the labyrinth; but the price is usually a hefty chunk of precious hit points.

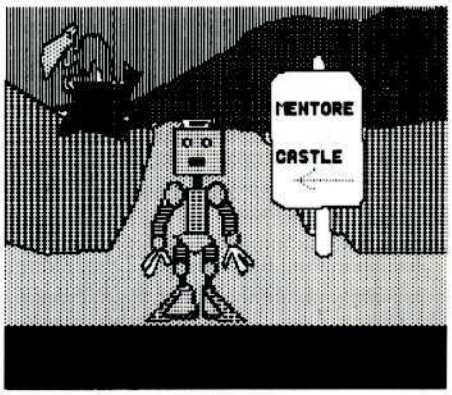
Unfortunately, the major barrier to success has little to do with the scenario or player skill. Learning about traps costs lives (experience and possessions are reset to zilch in each case). Lose your last life and your record is wiped out. You must reboot the master, make another playable copy, and start from scratch.

Responsive controls, attractive displays, and smooth animation go far towards making *Sword of Kadash* fun to play, and several of the chambers do pose interesting problems. Poor mechanics, however, make a potentially great game close to unplayable.

Available from: Penguin Software, P.O. Box 311, Geneva, IL 60134. (312) 232-1984. Cost: $34.95

GRFX	S.M.	PLAY	DIFF	INTR	GAME
08	05	04	09	08	05

Tracer Sanction



(Picture/Text Adventure)

Compatible: 48K Apple][+, //e
Requirements: One disk drive

Known only as "the Wing", the galaxy's most infamous criminal genius has eluded planetary lawmen for years. Finally, the Stellar Intelligence Agency has taken a hand in the matter assigning you, its top field operative, to shut down the Wing once and for all.

Tracer Sanction launches you on a chase spanning eight worlds ranging from backwater fuel depots through castle-crowned estates and a burdgeoning metropolis. While the search for clues, locating contacts, and acquisition of useful tools constitute the meat of the mission, an ongoing concern is your short budget. "The Company" supplies a one-man hyperdrive spacer and just enough sols to get started. Finding the money to keep the ship fueled is your problem. Puzzles and perils abound; but your trusty jetpack and a poetically inclined android help even the odds.

Somewhat in the style of *Sherwood Forest* or *Gruds in Space*, *Tracer Sanction* is cute if

not especially demanding. Attractive graphics and several clever gimmicks add up to hours of quality entertainment.

Available from: Activision, P.O. Box 7287, Mountain View, CA 94039. (415) 960-0410. Cost: $39.95

GRFX	S.M.	PLAY	DIFF	INTR	GAME
07	06	08	06	07	07

Ultima IV: Quest Of The Avatar

(Map-Maze Adventure)

Compatibility: 64K Apple][+, //e, //c
Requirements: One disk drive. Second drive and Mockingboard optional

Having blasted Mondain, dispatched the evil enchantress, and sabotaged Exodus, you are ready for the most awesome of undertakings. In *Ultima IV* your goal is to demonstrate mastery of eight virtues ranging from "compassion" through "spirituality" and so become an archetype of goodness, an avatar.

Your quest spans town, abbey, and shrine-dotted lands spread across a 256x256 map. Monsters abound, with conflicts on the surface and in dungeons resolved via a slightly elaborated version of *Ultima III*'s mini-arcade type combat. A notable improvement is an option to break off a fight and flee (though at the cost of some "valor" points).

You do not, however, merely hack your way to holiness. Runes, mantras (for meditation), and shrines must be located and correctly utilized. This entails exhaustive questioning of inhabitants who turn out to be surprisingly verbose. Sailing ships and moon gates remain the staple modes of long distance travel; but sometimes you will need to hop a balloon (especially if you plan to do mapping).

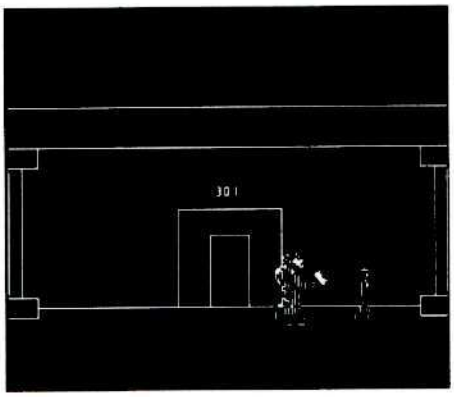
Two significant departures from earlier *Ultimas* involve spells, each of which must be mixed according to a specific recipe, and character creation. Based upon the results of a kind of placement test, you are assigned a profession and attributes for one character. The other seven members of your party must be discovered and recruited individually. Like yourself, each comes with preassigned attributes.

Supported in the usual fine *Ultima* style, including a superb musical score for Mockingboard, *Quest of the Avatar* is a tour de force of game programming technique. Still, I prefer to design my own characters; and questing for niceness imposes many unwelcomed restraints (e.g. slaughtering guards and ripping off herb vendors are definite no-no's). If you are ready for a super-long play, multi-faceted challenge and don't mind becoming a saint, this one is for you.

Available from: Electronic Arts, 2755 Campus Drive, San Mateo, CA 94403. (415) 571-7171. Cost: $59.95

GRFX	S.M.	PLAY	DIFF	INTR	GAME
09	10	08	10	08	08

Werewolf!!?



(Maze Adventure)

Compatible: 48K Apple][+, //e, //c
Requirements: One disk drive, Mockingboard optional

There are evil doings at the old castle. Dr. Orloff is determined to awaken a demon lord of the underworld; and someone has to thread the monster-patrolled labyrinthine dungeons, find the mad scientist, and persuade him to stop before property values take a permanent nosedive. As the only stranger in town, you're elected.

Melding maze, text, and arcade elements, *Werewolf!!?* presents an '82 vintage monsters-and-mazes look but plays more like a text adventure. Along with gorillas, acid pits, poison gas, and other hazards, you will find amulets, room keys, safe combinations, weapons, and other goodies as well as entertaining riddles and even clues from "previous lives". Arcade-class quickness is helpful, but much less important than good mapping, notes, and puzzle-busting.

Admittedly, *Werewolf!!?* takes a good deal of getting into. Hardly a graphics/sound showcase, the real fun begins once you discover patterns of maze construction, locate "security offices", and otherwise learn the ropes. Offering multiple winning strategies and puzzles within enigmas, the game is a fine challenge for experienced maze adventurers.

Available from: Gambit, P.O. Box 70858, Houston, TX 77270-0858. Cost: $36.95

GRFX	S.M.	PLAY	DIFF	INTR	GAME
06	06	07	08	08	08

Wishbringer

(Text Adventure)

Compatible: 48K Apple][+, //e, //c
Requirements: One disk drive

It's not easy being a postal clerk in a small town like Festeron. When things are slow (like near quitting time) you are liable to wind up making special deliveries and not get home 'til after dark. So why did have to volunteer to find the old lady's pet cat Wishbringer?

Why did she give you a funny looking canister "to help" you on your mission? And why, in twentieth century Festeron, is there a big ugly troll blocking your way across this bridge?

Cozy, friendly Festeron has, you soon realize, undergone a decidedly peculiar transformation. In a setting drawn from My Little Golden Book of Nightmares, townspeople adopt sinister alter egos, poodles become hellhounds, harmless hillsides develop underground passages, and marching boots patrol the streets ready to snatch curfew breakers. Still, despite the mechanations of a mysterious personage known only as "the Evil One", you remain undaunted. There are princesses to rescue, a far-out video game to try, and that darn cat has to be somewhere.

*Wishbringer*is a whimsical yet challenging bit of escapism offering puzzles with the unusual property of being solvable by mundane or magical means. Nicely crafted and well supported, this game belongs near the top of your "must get" list.

Available from: Infocom, 125 Cambridge Park Drive, Cambridge, MA 02140. (617) 492-1031. Cost: $39.95

GRFX	S.M.	PLAY	DIFF	INTR	GAME
NA	08	08	07	08	08

War With the Daleks: Exploring

Artificial

By H. Zeh & Jeff Hurlburt

The game "Hexapawn" was introduced by Martin Gardner in the March, 1962 *Scientific American* to show how a computer can improve its game-playing ability by learning from its mistakes. Among the earliest vehicles for investigating artificial intelligence, hexapawn is played on a 3x3 grid with three chess pawns per side. Victory goes to the player who advances a piece to the third rank, eliminates all opposing pieces, or leaves an opponent with no legal moves. There are no draws.

Lacking access to anything like today's personal computer, Gardner fashioned his hexapawn-playing "robot" from 24 matchboxes. Each was labeled with a position the robot might encounter with color coded arrows indicating legal moves. Matching colored beans (M&M's, etc.) in a box "generate" moves according to which is selected at random by the user. If the robot loses, the last move is eliminated by removing the corresponding bean. Eventually no bad moves are left and the robot has mastered the game.

"Daleks" recasts hexapawn as a battle between the human race and the robot Daleks of "Dr. Who" fame. You direct the humans and the evil Davros (your computer) directs his robot creatures. Semiconductor memory replaces the matchboxes and the program takes care of move generation, record keeping, and game display.

Since, with best play, the second player always wins, the computer could be programmed against defeat simply by removing all losing moves. This is essentially the direction of current chess playing programs: plenty of built-in smarts, but no capacity for learning. For a given position and playing level, if Sargon or Mychess makes an error there is nothing to prevent a repetition in some later game.

"Daleks", conversely, posseses no evaluation routines, instead selecting its move randomly from those available in the move "tree". Each loss trims away some portion of the tree. The earlier the loss, the larger the branch lopped off. The better the human plays, the more quickly Davros improves. Thus the machine demonstrates legitimate, if elementary, learning ability. (However, every time the game is RUN Davros's skill level is reset to zero.)

Each game continues through two or more moves until the outcome is decided; whereupon the "Games Won" scoreboard is updated and a new game begun. (After the first game, there is also an option to play back the previous game.) Alas, Davros learns all too quickly. After fifteen or twenty games you may indeed find your humans well on the way towards being exterminated in every conflict!

The Program

The program uses a brute-force method of selecting its moves by means of program lines rather than using an extreme amount of data. After the human selects the first move, the computer will pick a move at random from the choices that have not been disallowed by previous losses. Then, depending on the previous moves, the program goes to the proper subroutine (previously calculated to "know" what the board looks like) and gives the human the move choices. The second and third moves become increasingly complex as the "tree" branches out (pun intended).

Note that the human can only move the left and center pieces for his first turn. The right pawn has been ignored because it would duplicate the left pawn's moves in a mirror fashion. The program would increase in size (and complexity) considerably, simply to include something redundant.

If you want to try more on the subject, try having the computer learn to play tic-tac-toe, or create a computer environment for a simulated robot that learns to avoid walls by experience. (Data arrays will make larger tasks simpler.) Ideas like these form the basis for the science of artificial intelligence.

Important Variables

```
DM(I): Possible Dalek moves
 P(I): Partitioning of moves
       ('boxes' for Dalek 2nd & 3rd moves)
    B: Current 'box' from which a Dalek
       move is selected
 S(I): Screen locations for piece
       placement. (Board squares are
       numbered 0-8 starting
       at upper left)
    R: Current move. Tens digit: starting
       square, units digit: destination
       square#.
 M(I): Move save for a game to permit
       replay.
FM, SM, TM: 1st, 2nd, 3rd Dalek move #'s
    H: Human wins count
    D: Davros wins count
```

Daleks program

```
1000 REM "DALEKS" HEXAPAWN PLAYER
```

Intelligence

```
1010 TEXT : HOME : DIM DM(55) ,P(23) :B$ = CHR$ (46) :BP = - 1052 :B = 0 : FOR I = 0 TO 8 : READ S(I) : NEXT I : FOR I = 1 TO 55 : READ A : IF A < 0 THEN A = ABS (A) :B = B + 1 :P(B) = I
1020 DM(I) = A : NEXT I :D$(1) = "HUMAN" :D$(2) = "DAVROS" : GOTO 1310
1030 IF R = 0 THEN RETURN
1040 M = M + 1 :M(M) = R
1050 S1 = INT (R / 10) :S2 = S(R - S1 * 10) :S1 = S(S1) :F1 = PEEK (S1) :F2 = F1 - 128 : IF F1 = 160 THEN STOP
1060 POKE S1 ,F2 : GOSUB 1140 : POKE S1 ,160 : POKE S2 ,F2 : CALL BP : GOSUB 1140 : POKE S2 ,F1 : RETURN
1070 PRINT "HUMAN: ^ YOU^ WILL^ MOVE!" : RETURN
1080 GOSUB 1130 :X = 0 : FOR I = K1 TO K2 : IF DM(I) = 0 THEN NEXT I : RETURN
1090 X = INT ( RND (1) * (K2 + 1 - K1) ) + K1 : IF DM(X) = 0 THEN 1090
1100 RETURN
1110 HOME : HTAB 7 : PRINT "D^ ^ ^ A^ ^ ^ L^ ^ ^ E^ ^ ^ K^ ^ ^ S" : RETURN
1120 GOSUB 1140 : GOSUB 1160 : GOSUB 1140 : RETURN
1130 FOR TT = 1 TO 444 : NEXT TT
1140 FOR TT = 1 TO 222 : NEXT TT : RETURN
1150 GOSUB 1140 : GOSUB 1160 : GOSUB 1140 : GOSUB 1070 : GOSUB 1140 : RETURN
1160 VTAB 19 : HTAB 1 : CALL - 958 : RETURN
1170 VTAB 24
1180 HTAB 4 : PRINT "ANY^ KEY^ >>^ " ; : CALL - 756 : RETURN
1190 REM SETUP
1200 FOR J = 5 TO 17 STEP 4 : FOR I = 4 TO 16 : VTAB J : HTAB I : PRINT B$ : NEXT I ,J
1210 FOR J = 4 TO 16 STEP 4 : FOR I = 5 TO 17 : VTAB I : HTAB J : PRINT B$ : NEXT I ,J
1220 FOR I = 0 TO 2 : POKE S(I) ,196 : POKE S(I + 3) ,160 : POKE S(I + 6) ,200 : NEXT I
1230 VTAB 8 : HTAB 27 : PRINT "GAMES^ WON" : VTAB 10 : HTAB 25 : PRINT D$(1) "^ ^ ^ " D$(2) : HTAB 27 : PRINT H; : HTAB 35 : PRINT D : RETURN
1240 GOSUB 1160 : GOSUB 1070 : CALL BP : CALL BP : RETURN
1250 FOR I = 1 TO M :R = M(I) : GOSUB 1050 : IF I < M THEN GOSUB 1160 : VTAB 19 : GOSUB 1180
1260 NEXT I : GOSUB 1160 : HTAB 4 : PRINT D$(W) "^ WINS!" : GOSUB 1170 : RETURN
1270 PRINT "M-^ MOVE^ AHEAD" : PRINT "L-^ CAPTURE^ FROM^ LEFT" : PRINT "R-^ CAPTURE^ FROM^ RIGHT" : GET A$ : RETURN
1280 PRINT "C-^ CAPTURE" : PRINT "M-^ MOVE^ AHEAD" : GET A$ : RETURN
1290 PRINT "YOUR^ ONLY^ OPTION: ^ MOVE^ AHEAD." : GOSUB 1140 : RETURN
1300 GOSUB 1120 : PRINT "MY^ DALEKS^ WILL^ MOVE!" : GOSUB 1140 : RETURN
1310 GOSUB 1110 : VTAB 12 : HTAB 5 : PRINT "WANT^ INSTRUCTIONS?^ (Y/N)^ " ; : GET A$ : PRINT A$ : IF A$ = "Y" THEN GOSUB 2570
1320 HOME : GOSUB 1110
1330 REM * HUMAN MOVE 1
1340 GOSUB 1200 : GOSUB 1150
1350 IF W THEN PRINT "P-^ PLAY^ BACK^ LAST^ GAME"
1360 PRINT "L-^ MOVE^ LEFT^ AHEAD" : PRINT "C-^ MOVE^ CENTER^ AHEAD" : GET A$
1370 IF A$ = "L" THEN R = 63 :K1 = 1 :K2 = 3 : GOTO 1410
1380 IF A$ = "C" THEN R = 74 :K1 = 4 :K2 = 6 : GOTO 1410
1390 IF A$ = "P" AND W > 0 THEN GOSUB 1250 : GOTO 1340
1400 GOSUB 1240 : GOTO 1350
1410 M = 0 : GOSUB 1030
1420 REM * DALEKS MOVE 1
1430 GOSUB 1300 : GOSUB 1080 :FM = X :R = DM(FM) : GOSUB 1030
1440 REM * HUMAN MOVE 2
1450 GOSUB 1150
1460 B = 0 : ON FM GOSUB 1480 ,1530 ,1560 ,1610 ,1640 ,1710 : IF B = 0 THEN GOSUB 1240 : GOTO 1460
1470 GOSUB 1030 : GOTO 1750
1480 PRINT "T-^ TAKE" : PRINT "C-^ MOVE^ CENTER" : PRINT "E-^ MOVE^ END" : GET A$
1490 IF A$ = "T" THEN B = 11 :R = 73
1500 IF A$ = "E" THEN B = 7 :R = 85
1510 IF A$ = "C" THEN B = 1 :R = 74
1520 RETURN
1530 GOSUB 1280 : IF A$ = "M" THEN B = 13 :R = 85
1540 IF A$ = "C" THEN B = 3 :R = 84
1550 RETURN
1560 PRINT "L-^ TAKE^ FROM^ LEFT" : PRINT "C-^ TAKE^ FROM^ CENTER" : PRINT "M-^ MOVE^ CENTER^ AHEAD" : GET A$
1570 IF A$ = "L" THEN B = 12 :R = 31
1580 IF A$ = "C" THEN B = 4 :R = 75
1590 IF A$ = "M" THEN B = 8 :R = 74
1600 RETURN
1610 GOSUB 1280 : IF A$ = "C" THEN B = 12 :R = 42
1620 IF A$ = "M" THEN B = 6 :R = 85
1630 RETURN
1640 PRINT "MR-^ MOVE^ RIGHT" : PRINT "ML-^ MOVE^ LEFT"
1650 PRINT "CR-^ CAPTURE^ FROM^ RIGHT" : PRINT "CL-^ CAPTURE^ FROM^ LEFT" : GET A$ : GET Z$ :A$ = A$ + Z$
1660 IF A$ = "ML" THEN B = 2 :R = 63
1670 IF A$ = "MR" THEN B = 5 :R = 85
1680 IF A$ = "CR" THEN B = 10 :R = 84
1690 IF A$ = "CL" THEN B = 9 :R = 64
1700 RETURN
1710 GOSUB 1280 : IF A$ = "C" THEN B = 12 :R = 40
1720 IF A$ = "M" THEN B = 8 :R = 63
1730 RETURN
1740 REM * DALEKS MOVE 2
1750 IF B > 11 THEN R = 0 : ON B - 11 GOTO 2450 ,2460
1760 K1 = P(B) :K2 = P(B + 1) - 1 : GOSUB 1080 : IF X = 0 THEN R = 0 : GOTO 2440
1770 SM = X :R = DM(SM) : GOSUB 1300 : IF R > 99 THEN SM = INT (R / 100) :R = R - SM * 100
```

*see No. 29, page 9 - added line 2550

```
1780 GOSUB 1030 : IF SM < 3 THEN R = 0 : ON SM GOTO
     2470 ,2480
1790 REM * HUMAN MOVE 3
1800 GOSUB 1150
1810 B = 0 : ON SM - 7 GOSUB 1840 ,1870 ,1900 ,1930
     ,0 ,1960 ,2000 ,0 ,2010 ,2050 ,2060 ,0 ,0 ,0
     ,2090 ,2120 ,2160 ,0 ,0 ,2190 ,2220 ,2260
     ,0 ,2290 ,2320
1820 IF B = 0 THEN GOSUB 1240 : GOTO 1810
1830 GOSUB 1030 : GOTO 2340
1840 GOSUB 1280 : IF A$ = "C" THEN B = 7 :R = 84
1850 IF A$ = "M" THEN B = 1 :R = 85
1860 RETURN
1870 GOSUB 1280 : IF A$ = "C" THEN B = 10 :R = 84
1880 IF A$ = "M" THEN B = 5 :R = 85
1890 RETURN
1900 GOSUB 1280 : IF A$ = "C" THEN B = 12 :R = 40
1910 IF A$ = "M" THEN B = 12 :R = 41
1920 RETURN
1930 GOSUB 1280 : IF A$ = "C" THEN B = 7 :R = 84
1940 IF A$ = "M" THEN B = 1 :R = 85
1950 RETURN
1960 GOSUB 1270 : IF A$ = "M" THEN B = 12 :R = 30
1970 IF A$ = "L" THEN B = 12 :R = 31
1980 IF A$ = "R" THEN B = 4 :R = 84
1990 RETURN
2000 GOSUB 1290 :B = 12 :R = 30 : RETURN
2010 GOSUB 1270 : IF A$ = "R" THEN B = 12 :R = 40
2020 IF A$ = "L" THEN B = 2 :R = 75
2030 IF A$ = "M" THEN B = 12 :R = 41
2040 RETURN
2050 GOSUB 1290 :B = 12 :R = 52 : RETURN
2060 GOSUB 1280 : IF A$ = "C" THEN B = 2 :R = 84
2070 IF A$ = "M" THEN B = 12 :R = 52
2080 RETURN
2090 GOSUB 1280 : IF A$ = "C" THEN B = 11 :R = 64
2100 IF A$ = "M" THEN B = 6 :R = 63
2110 RETURN
2120 GOSUB 1270 : IF A$ = "L" THEN B = 3 :R = 64
2130 IF A$ = "R" THEN B = 12 :R = 51
2140 IF A$ = "M" THEN B = 12 :R = 52
2150 RETURN
2160 GOSUB 1280 : IF A$ = "C" THEN B = 12 :R = 42
2170 IF A$ = "M" THEN B = 12 :R = 41
2180 RETURN
2190 GOSUB 1280 : IF A$ = "C" THEN B = 12 :R = 40
2200 IF A$ = "M" THEN B = 12 :R = 41
2210 RETURN
2220 GOSUB 1270 : IF A$ = "L" THEN B = 12 :R = 31
2230 IF A$ = "R" THEN B = 4 :R = 84
2240 IF A$ = "M" THEN B = 12 :R = 30
2250 RETURN
2260 GOSUB 1280 : IF A$ = "C" THEN B = 13 :R = 84
2270 IF A$ = "M" THEN B = 9 :R = 85
2280 RETURN
2290 GOSUB 1280 : IF A$ = "C" THEN B = 13 :R = 64
2300 IF A$ = "M" THEN B = 8 :R = 63
2310 RETURN
2320 GOSUB 1290 :B = 4 :R = 63 : RETURN
2330 REM * DALEKS MOVE 3
2340 IF B > 11 THEN FM = SM :R = 0 : ON B - 11 GOTO
     2450 ,2460
2350 K1 = P(B + 11) :K2 = P(B + 12) - 1 : GOSUB 1080
     :TM = X : IF X = 0 THEN FM = SM :R = 0 : GOTO
     2440
2360 R = DM(TM) : GOSUB 1300 : GOSUB 1030 :Z = (TM
     = 36 ) OR (TM = 38 ) OR (TM = 39 ) OR (TM = 47
     ) : IF Z = 0 THEN R = 0 : GOTO 2470
2370 REM * * FOURTH MOVES
2380 FM = TM : GOSUB 1150
2390 IF TM > 36 THEN GOSUB 1290 :R = 41 : GOTO 2450
2400 PRINT "L-^ MOVE^ LEFT^ AHEAD" : PRINT "R-^
     MOVE^ RIGHT^ AHEAD" : GET A$
2410 IF A$ = "L" THEN R = 30 : GOTO 2450
2420 IF A$ = "R" THEN R = 52 : GOTO 2450
2430 GOSUB 1240 : GOTO 2390
2440 GOSUB 1120 : PRINT "URRRKK!^ MY^ GEARS^
     JAMMED!" : GOSUB 1130
2450 A$ = "YOU^ HAVE^ WON...FOR^ NOW." : GOTO
     2490
2460 A$ = "YOU^ HAVE^ BLOCKED^ MY^ DALEKS!" :
     GOTO 2490
2470 A$ = "MY^ DALEKS^ CONQUER!" :W = 2 : GOTO
     2500
2480 A$ = "MY^ DALEKS^ BLOCK^ YOU!" :W = 2 : GOTO
     2500
2490 DM(FM) = 0 :W = 1 :H = H + 1 :X = 27 :S = H
2500 GOSUB 1030 : GOSUB 1120 : PRINT A$ : GOSUB
     1130 : VTAB 11 : FLASH : IF W = 2 THEN D = D
     + 1 :X = 35 :S = D
2510 HTAB X : CALL BP : PRINT S; : GOSUB 1140 :
     NORMAL : HTAB X : PRINT S : GOTO 1340
2520 REM SCREEN LOCS
2530 DATA 1797 ,1801 ,1805 ,1325 ,1329 ,1333
     ,1837 ,1841 ,1845
2540 REM MOVES
2560 REM INSTRUCTIONS
2570 TEXT : HOME : VTAB 10 : HTAB 10 : PRINT
     "ATTENTION,^ HUMAN!" : GOSUB 1130
2580 HOME : HTAB 10 : VTAB 5 : PRINT "THIS^ IS^
     DAVROS," : PRINT : HTAB 7 : PRINT "CREATOR^
     OF^ THE^ DALEKS," : HTAB 10 : VTAB 10 : PRINT
     "ADDRESSING^ YOU!" : GOSUB 1130 : GOSUB
     1130 : HOME
2590 PRINT : PRINT "HUMAN:^ YOU^ WILL^ MOVE^
     FIRST!" : PRINT "HUMAN:^ YOUR^ PAWNS^ ARE^
     REPRESENTED" : PRINT "BY^ THE^ LETTER^
     'H'." : PRINT : HTAB 8 : PRINT "MY^ DALEKS^
     ARE^ THE^ 'D'^S" : HTAB 13 : PRINT "IN^ THE^
     TOP^ ROW."
2600 PRINT : PRINT "HUMAN:^ YOUR^ CREATURES^
     MOVE^ LIKE^ PAWNS--" : PRINT "STRAIGHT^
     UPWARD.^ THEY^ COULD^ CAPTURE" : PRINT
     "DALEKS^ BY^ A^ DIAGONAL^ MOVE."
2610 PRINT : HTAB 6 : PRINT "MY^ DALEKS^ SWOOP^
     ^ DOWNWARD." : HTAB 4 : PRINT "THEY^ WILL^
     EXTERMINATE^ HUMANOIDS" : HTAB 8 : PRINT
     "WITH^ DIAGONAL^ MOVES!"
2620 PRINT : PRINT "HUMAN:^ YOU^ MAY^ WIN^ A^
     FEW^ GAMES--AT^ FIRST" : PRINT : PRINT "IN^
     THE^ LONG^ RUN,^ WE^ WILL^ EXTERMINATE!!"
     : GOSUB 1170
2630 HOME : VTAB 5 : PRINT "^ A^ WIN^ IS^
     OBTAINED^ WHEN:" : PRINT : PRINT : HTAB 5 :
     PRINT "1.^ ALL^ ENEMIES^ ARE^
     EXTERMINATED" : PRINT : HTAB 5 : PRINT "2.^
     THE^ ENEMY^ CANNOT^ MOVE"
2640 PRINT : HTAB 5 : PRINT "3.^ THE^ THIRD^ ROW^
     IS^ REACHED." : GOSUB 1170 : RETURN
```

Daleks checksums

```
1000 - $356B      1830 - $F4AE
1010 - $88D9      1840 - $F4F6
1020 - $88B2      1850 - $D70A
1030 - $CEF0      1860 - $366A
1040 - $DDE9      1870 - $E25E
1050 - $1F7E      1880 - $9EA8
1060 - $2844      1890 - $CC1C
1070 - $E4CA      1900 - $89E9
1080 - $FA76      1910 - $F5C7
1090 - $50FF      1920 - $CFB0
1100 - $080C      1930 - $7288
1110 - $40D3      1940 - $BED6
1120 - $D3B5      1950 - $BAC6
1130 - $0064      1960 - $AEBF
1140 - $6C5A      1970 - $D628
1150 - $4077      1980 - $62A6
1160 - $1E01      1990 - $8A16
1170 - $B05E      2000 - $80B1
1180 - $1BAB      2010 - $39A6
1190 - $FFE3      2020 - $2204
1200 - $6DCB      2030 - $9466
1210 - $E4E9      2040 - $02DB
1220 - $C275      2050 - $5F5C
1230 - $58F1      2060 - $00E0
1240 - $21A9      2070 - $0887
1250 - $8223      2080 - $FE26
1260 - $0937      2090 - $D44E
1270 - $0373      2100 - $DF85
1280 - $645A      2110 - $349A
1290 - $8EBF      2120 - $B00D
1300 - $7EA3      2130 - $F9EB
1310 - $F173      2140 - $CF3D
1320 - $5889      2150 - $8C26
1330 - $1F8B      2160 - $FA17
1340 - $7F60      2170 - $4295
1350 - $3E38      2180 - $647A
1360 - $0E61      2190 - $AA31
1370 - $1A59      2200 - $F47C
1380 - $E685      2210 - $0199
1390 - $EFB8      2220 - $AD92
1400 - $2186      2230 - $9FE7
1410 - $0153      2240 - $BEAA
1420 - $9D21      2250 - $7FB3
1430 - $07DD      2260 - $277C
1440 - $AB6D      2270 - $AD4D
1450 - $B89F      2280 - $1477
1460 - $BF8A      2290 - $488A
1470 - $FC63      2300 - $F85F
1480 - $9884      2310 - $5CF8
1490 - $7310      2320 - $3499
1500 - $EE37      2330 - $913F
1510 - $D346      2340 - $C271
1520 - $BFD6      2350 - $9724
1530 - $60F2      2360 - $97E0
1540 - $1151      2370 - $747E
1550 - $1BB2      2380 - $19A1
1560 - $F9D1      2390 - $0A42
1570 - $FA96      2400 - $8662
1580 - $A655      2410 - $5658
1590 - $EA93      2420 - $B890
1600 - $319A      2430 - $1CF3
1610 - $7137      2440 - $83FB
1620 - $FFDC      2450 - $AC13
1630 - $9276      2460 - $5AEC
1640 - $6445      2470 - $94CA
1650 - $9F26      2480 - $DB86
1660 - $8278      2490 - $015D
1670 - $1099      2500 - $9B07
1680 - $7231      2510 - $21CD
1690 - $1234      2520 - $3533
1700 - $5A76      2530 - $4F73
1710 - $4DFF      2540 - $D3EB
1720 - $A763      2550 - $5108
1730 - $6146      2560 - $03D6
1740 - $DB48      2570 - $36D2
1750 - $7F2E      2580 - $0AEB
1760 - $A839      2590 - $8A34
1770 - $9A61      2600 - $122A
1780 - $48F6      2610 - $2837
1790 - $2BD8      2620 - $CCFD
1800 - $CCF6      2630 - $BF63
1810 - $9764      2640 - $08CD
1820 - $2C06
```

Making 32K or 16K Slave Disks

by Speed Hacker

Requirements:

At least 48K
DOS 3.3 Master
A couple of blank disks
A sector editor

No doubt you've all seen articles in the various boards and magazines that extol the virtues of having a 32K slave disk, and proceed to explain how to create one by removing the top 16K of your RAM chips, booting the system master, and initializing a disk. Well, recently I had occasion to need one of these 32K slaves so that I could print out and study a foreign DOS that would not support the good ol' PR#1.

Well, naturally I tried removing the chips, but since I had a //e it would not work because they are 64K chips. Four 16K banks are tied together on each chip and the hardware will not allow them to be separated. That development caused me to get out my copy of Beneath Apple DOS, to study the way that the System Master disk relocates the code in the first place. It turns out that there is another way to make 32K slaves (or 16K, or whatever K you want for that matter).

On the System Master itself is some code that checks to see how much memory is available and modifies DOS to live at the highest possible location in that computer. The relocator code automatically refigures all the memory references (JMPs, JSRs, etc.) so that DOS can refer to itself. The relocator lives at $1B03 and the start of it looks like this:

```
1B03- A9 BF     LDA #$BF
1B05- 85 41     STA $41
1B07- A2 00     LDX #$00
1B09- 86 40     STX $40
```

$1B04 contains the last page number that DOS will occupy. A 48K DOS occupies pages $9D-$BF, so a $BF is stored as a reference for the loader. It is a simple matter to change the location the relocator is going to load DOS to, and fool it into thinking that is all the memory we have. All we have to do is change the byte at $1B04 from $BF to $7F to make it load DOS at the 32K position, since $7F is the highest page of DOS on a 32K slave disk.

1) Make a temporary duplicate of your system master disk (since we don't want to use the original).

2) Bring out your sector editor and change track Ø, sector $A, byte $Ø4, from a $BF to a $7F. (This is the sector where the relocator starts.)

3) Boot this modified master and INIT another blank disk with it. This is your 32K slave disk. When done, you may erase the modified duplicate master and keep the slave.

There you have it. No chips to pull, and it works the same in a][Plus, a //e, or a //c. A 32K slave comes in handy for capturing a strange program you couldn't get at before, because DOS walked on it. They will also give you 16K of safe memory above DOS.

If you need to make a 16K slave, follow the same procedure above, storing instead a $3F at track Ø, sector $A, byte $Ø4. This makes DOS think that the top of memory is $3FØØ (16K).

A Giant Bug

page 28

In COMPUTIST No. 24, there was an article entitled "Essential Data Duplicator copy parms." We have recieved several phone calls and letters stating that some of the parameters were missing from that article. Upon closer examination, we discovered that we had accidentally omitted the following manufacturers from the list. Our sincerest apologies are expressed for this oversight.

Protections Used By Company

SILI=SILICON VALLEY SYSTEMS
 a. very hard to copy
    t11-t22
    t0-tA parm 28=2
       mode#3 or #4
    tB.25-t10.25 parm 0=1
       mode#2
   or try:
    t0-tA parm 04=10
       mode#3 or #4
    tB.25-t10.25 mode#2
    t11-t22
 b. t0-t8
    t9-t22 mode#2
   or try:
    t0-t8
    t9.25-t22.25 mode#2
    t0-t11
 c. very hard to copy
    t1-t11
    t12.25-t22.25
    t0 parm 28=2
 d. t0 parm 28=1, 2 or 3
    t1.25-t22.25 mode#2
 e. normal

SIMU=SIMULATION CANADA
 a. mode#3 or #4

SIRT=SIR-TECH
 a. drive speed critical
    write-protect boot side!!!
    t0-t22 parm 28=1 or 3
    tA-tE mode#2 or #5 or #6
 b. drive speed critical
    write-protect boot side!!!
    t9-t22 parm 28=1 or 3
    t0-t8 mode#2 or #5 or #6
 c. very hard to copy
    drive speed critical
    write-protect both sides!!
    t0-t21
    t22 parm 28=40 5F=AB
   or try:
    mode#3,#4,#5, or #6
 d. mode#2

SIRU=SIRUS SOFTWARE
 a. normal
 b. t0 parm 28=2 or 3
    t1.5-tD.5 mode#2
 c. t0-t20 (ignore errors)
    t21 parm 12=5 mode#3 or #4
    t22 parm 46=0 47=0 48=0
       parm 2C=D5 2D=FF 28=10
       parm 39=10
 d. t0-t19
    t1A.5-t1D.5
 e. t0 parm 28=2 or 3
    t1.5-t1F.5 mode#2
 f. t1.5-t1B.5
    tD-tE
    t0 parm 28=2 or 3
 g. t0-t6 mode#2
    t9.5-tC.5
 h. recopy tB until it boots
    t0-tA mode#2
    tB parm 12=5 mode#3 or #4

SMIT=SMITH MICRO SOFTWARE
 a. normal

SOCI=SOCIETY/VISUAL EDUCATION
 a. normal or mode#2

SOFA=SOFTAPE
 a. normal

SOFC=SOFTSMITH
 a. normal
 b. t0 parm 28=1
    t1.25-t2.25
    t3-t22

SOFE=SOFTWARE ENTERTAINMENT CO
 a. see DOUB#b
    (uses Lock-It-Up protectn)

SOFG=SOFTWARE GUILD
 a. normal
 b. recopy tracks with errors
    t0-t3
    t4.25-t13.25
 c. recopy trakcs with errors
    t0-t2
    t3.25-t22.25

SOFM=SOFTWARE MASTERS
 a. see DOUB#b
    (uses Lock-It-Up protectn)

SOFP=SOFTWARE PUBLISHING
 a. normal
 b. write-protect before boot
    drive speed critical
    recopy t0 until it boots
    t1-t22
    t0 mode#3 or #4
 c. drive speed critical
    t0-t22 parm 28=40
       mode#1, 2, 3 or 4
 d. drive speed cricital
    write-protect before boot
    t0 mode#3 or #4
    t1-t13
    t14-t22 parm 10=4
       parm 11=3 12=1

SOFS=SOF-SYS
 a. normal

SONO=SONOMA SOFTWORKS
 a. normal

SOUD=SOUTHWEST DATA SYSTEMS
 a. normal
 b. t0-t3 mode#2
    t4-t22

SOUE=SOUTHWEST EDPSYCH SERVICE
 a. normal (recopy t6 if need)

SPEC=SPECTRUM HOLOBYTE
 a. normal

SPIN=SPINNAKER
 a. if "R" error on t9, recopy
      t9 until disk boots o.k.
    drive speed critical
    t0-t22 parm 05=2
   or try:
    mode#2, #5 or #6 parm 05=2
 b. recopy t3 until boot
    "R" error t3 usually o.k.
    t0-t22
    t3 parm 05=12 08=1A 09=FE
      28=53 2B=FA 2C=FF 2D=FF
      39=DB 3A=01 43=00 44=00
      45=00 46=00 47=00 48=00
      57=FA 58=FF 5E=7F 5F=7F

SPRI=SPRINGBOARD
 a. normal
 b. drive speed critical
    no "L" errors allowed
    duplicate drive must
     run very slow
    t0-t22 parm 00=4 05=2
       parm 08=8 09=0 28=40
       parm 85=1 or 2

SRAS=SRA SOFTWARE
 a. normal or mode#2

STAT=STATE OF THE ART
 a. normal

STER=STERLING SOFTWARE
 a. normal

STEW=STERLING SWIFT
 a. normal
   or try:
    t0-t22 parm 28=20

STON=STONEWARE
 a. normal
 b. t0-t5 mode#2
    t6.5-t22.5 mode#2
 c. drive speed very critical
    recopy t3-tD if disk
     doesn't work
    t0-t2
    tE-t22
    t3-tD mode#6 or #5 or #2
   or try:
    tE-t22
    t0-tD parm 15=38 1F=AF
       20=AE mode#6 or #2
 d. recopy t12.25-t13.25 if
     disk doesn't work
    t0-t5
    t6.5-t22.5
    t12.25-t13.25
       parm 28=3 mode#2
 e. very hard to copy
    drive speed critical
    write-protect disk
    t0-t12

WARNING!

You are entering DANGEROUS territory

The

Book of Softkeys

shows you how to softkey
(remove copy-protection from)
commercial software.

Volume I (157 pages) **contains softkeys for: Akalabeth, Ampermagic, Apple Galaxian, Aztec, Bag of Tricks, Bill Budge's Trilogy, Buzzard Bait, Cannonball Blitz, Casino, Data Reporter, Deadline, Disk Organizer II, Egbert II Communications Disk, Hard Hat Mack, Home Accountant, Homeword, Lancaster, Magic Window II, Multi-disk Catalog, Multiplan, Pest Patrol, Prisoner II, Sammy Lightfoot, Screen Writer II, Sneakers, Spy's Demise, Starcross, Suspended, Ultima II, Visifile, Visiplot, Visitrend, Witness, Wizardry, Zork I, Zork II, Zork III, plus how-to articles and program listings of need-to-have programs used to make unprotected backups.**

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Writer's Guide

COMPUTIST

is a monthly magazine dedicated to the serious user of the Apple (or compatible) computer. COMPUTIST welcomes articles on a variety of subjects in all levels of technical difficulty but requires accurate data, technical competence, correct English usage, readable style, and fully defined jargon and buzzwords.

MANUSCRIPT MECHANICS

All manuscripts must be typed or printed on one side of the paper. Text should be double-spaced.

Printouts should use a non-compressed font with both upper and lower case. A letter quality mode is preferred, with each page torn at the perforation only. Pages need not be stapled together. The cover page of each manuscript should contain the following data:

TITLE OF WORK
FULL NAME OF AUTHOR
ADDRESS
PHONE NUMBER

Each page of the manuscript and program listing should include the author's name, the title of the work, and the page number in the upper right hand corner.

The article and any accompanying program **should be submitted as a standard text file on a DOS 3.3 disk.** Label the disk with the title of the work and the author's full name and address. On disk, text must be single-spaced only. Please identify your editing program.

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You will be notified of the status of your submission within 4 to 6 weeks after it is received if the article is a softkey accompanied by an original disk. Please submit completed manuscripts directly; do not query first. Previously published material and simultaneous submissions are not accepted.

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1) Original program/article combinations
2) General articles (Apple computing)
3) Softkeys
4) Advanced Playing Techniques (APT's)
5) Hardware modifications
6) DOS modifications
7) Product reviews (hardware and software)
8) Utilities
9) Bit Copy Parameters

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Observe the following points of style:

A. Always assume that your reader is a novice and explain all buzzwords and technical jargon. Pay special attention to grammar and punctuation; we require technical competence but also good, readable style.

B. Whenever appropriate, a list of hardware and software requirements should be included at the beginning of the manuscript. When published, this list will be offset from the main text.

C. Include the name and address of the manufacturer and the price when a commercial program is mentioned. This is of particular importance in PRODUCT REVIEWS.

D. When submitting programs, first introduce the purpose of the program and features of special interest. Include background information describing its use. Tips for advanced uses, program modifications, and utilities can also be included. Avoid long print statements and use TABs instead of spaces.

Remember: A beginner should be able to type the program with ease.

E. A PROGRAM is not accepted for publication without an accompanying article. These articles, as well as articles on **hardware** and **DOS modifications** MUST summarize the action of the main routines and include a fully remarked listing.

F. GENERAL ARTICLES may include advanced tips, tutorials, and explorations of a particular aspect of Apple computing.

G. SOFTKEYS of any length are acceptable and must contain detailed step-by-step procedures. For each softkey, first introduce the locking technique used and then give precise steps to unlock the copy-protected program. Number each step whenever possible. We accept articles which explain locking techniques used in several programs published by the same company.

H. When altering game programs, the changes made are sometimes extensive enough to warrant the title of ADVANCED PLAYING TECHNIQUE (APT). APTs can deal with alterations to a program, deleting annoying sounds, acquiring more points in play and avoiding hazards. Again, provide step-by-step instructions to complete each APT and explain each step's function. APT's of 100 words or more are preferred.

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Please mail your submissions to:

COMPUTIST
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PO Box 110846-T
Tacoma, WA 98411

► *While reading this advertisement, loudly hum the Soft Wars theme...*

A long time ago,

in a magazine far, far away,

the battle against the Evil Empire of Coptect (software copy-protection) was being waged by a few freedom fighters battling for the right of software users everywhere to make the software more useful and safe for all users by showing them how to unlock and back up their software.

SOFTWARS

► *Read the following while wearing a Dearth Fader mask...*

I, personally, tore off the covers of the old Hardcore Computing magazines. Then I deleted all of the unnecessary editorial material and interviews. And I burnt all those letters that rebels like you wrote to the editor. I updated all the remaining anti-Imperialistic articles and compiled an enormous database of the most effective bit-copiers' parameters. I've packed it all into a single hardcore database in my newest DearthStar and you will never see any of it ever again. Ha, Ha, Ha! I call it:

THE BEST OF HARDCORE COMPUTING.

► *Play with your touch-tone phone for a while...*

beep , bleep , boop , ding , dong

► *Now, with a pseudo-British accent, speak into an empty Foilgers can...*

Arty Do Too, what are you doing with those plans? Give them to who? Not to Luke Slytalker?

► *Watch any used-car commercial on the TV while reading...*

Hi, friends, this is Lucky Luke, your favorite used-Hardcore salesman and this is my friend, Arty Do Too. I will sell you any of the old issues of Hardcore Computing for just an arm, a Swookie monster, and any used sandspeeder...

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