

For The Serious User Of Apple II Computers

COMPUTIST

Issue No. 42

April 1987

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Softkeys For:

Light Simulator

Beach-Head

Racter

Winnie the Pooh

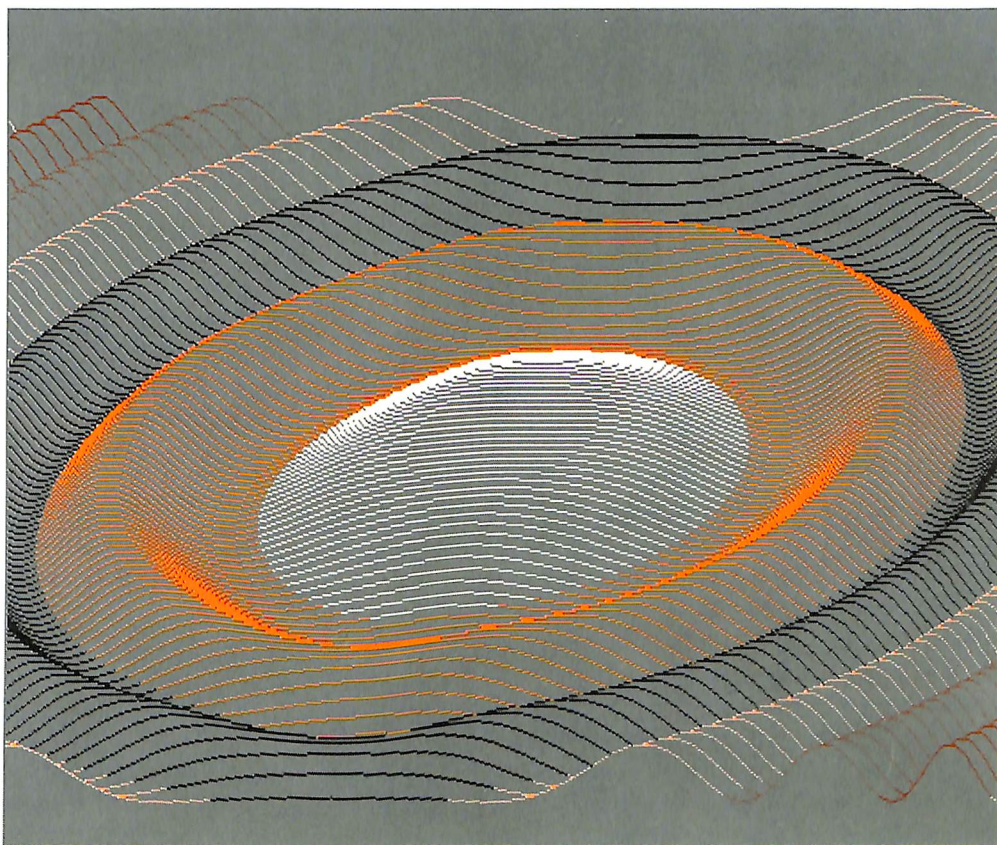
Wizardry 1 & 2

Lucifer's Realm

The PFS Series

Feature:

The games of 1986
in review



Core:

The Auto Duel Editor

(Page 29)

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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.

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.

■ **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 by being in boldface and indented:

PR#6

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

Control characters are specially boxed:

6 **CP**

Press **6**. Next, place one finger on **CTRL** and press **P**. Remember to enter this command line by pressing **RETURN**.

■ **Requirements:** COMPUTIST programs and softkeys require one of the Apple][series of computers and a disk drive with DOS 3.3. These and other special needs are listed at the beginning of the article under "Requirements".

■ Software Recommendations:

1) *Applesoft Program Editor* such as Global Program Line Editor (GPLE).

2) *Sector Editor* such as DiskEdit (from the Book of Softkeys vol I) or ZAP from Bag of Tricks.

3) *Disk Search Utility* such as The Inspector, The CIA or The CORE Disk Searcher (from the Book of Softkeys vol III).

4) *Assembler* such as the S-C Assembler from S-C software or Merlin/Big Mac.

5) *Bit Copy Program* such as Copy][Plus, Locksmith or The Essential Data Duplicator

6) *Text Editor* (that produces normal sequential text files) such as Appewriter II, Magic Window II or Screenwriter II.

COPYA, FID and MUFFIN from the DOS 3.3 System Master Disk are also useful.

■ **Super IOB:** This powerful deprotection utility (COMPUTIST 32) and its various controllers are used in many softkeys. This utility is now available on each Super IOB Collection disk.

■ **RESET Into The Monitor:** Softkeys occasionally require the user to stop the execution of a copy-protected program and directly enter the Apple's system monitor. 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 (COMPUTIST 6 or Book Of Softkeys III) or the "Dual ROM's" article (COMPUTIST 19).

Apple][e - Apple][c: Install a modified CD ROM on the computer's motherboard. Cutting Edge Ent. (Box 43234 Ren Cen Station-HC; Detroit, MI 48243) sells a hardware device that will give you this important ability but it will void an Apple][c warranty.

■ **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 Pieter Lechner, Quality Software; *Assembly Language For The Applesoft Programmer*, Roy Meyers and C.W. Finley, Addison Wesley; and *What's Where In The Apple*, William Lubert, Micro Ink.

■ **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. If you type:

```
10HOME:REMCLEAR SCREEN
```

The LIST will look like:

```
10 HOME : REM CLEAR SCREEN
```

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 commands. There are two types of spaces: those that have to be keyed and those that don't. Spaces that must be keyed in appear in COMPUTIST as delta characters (^). All other spaces are there for easier reading. NOTE: If you want your checksums (See "Computing Checksums" section) to match up, you must only key in (^) spaces after DATA statements.

■ **Keying In Hexdumps:** Machine language programs are printed in COMPUTIST as both source code and hexdumps. Hexdumps are the shortest and easiest format to type in. You must first enter the monitor:

```
CALL -151
```

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). A beep means you have typed something that the monitor didn't understand and must, therefore, retype that line.

When finished, return to BASIC with:

```
E003G
```

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

■ **Keying In Source Code** The source code is printed to help explain a program's operation. To key it in, you will need the S-C Assembler.

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 appears in COMPUTIST 17.

■ **Computing Checksums** Checksums are four-digit hexadecimal numbers which tell if you keyed a program exactly as it appears 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 appeared in COMPUTIST 1 and The Best of Hardcore Computing. An update to CHECKSOFT appeared in COMPUTIST 18. If the published checksums do not match those created by your computer, then you typed the program incorrectly. The line where the first checksum differs has an error.

■ CHECKSOFT Instructions:

```
LOAD filename  
BRUNCHECKSOFT
```

Get the checksums with: **&RETURN** and correct the program where the checksums differ.

■ CHECKBIN Instructions:

```
CALL -151  
BLOAD program 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 **Y** **RETURN**.

```
xxx.xxx Y
```

Correct the lines at which the checksums differ.



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Our editorial policy is that we do NOT condone software piracy, but we do believe that 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 programs to meet his or her needs.

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Issue 42

April 1987

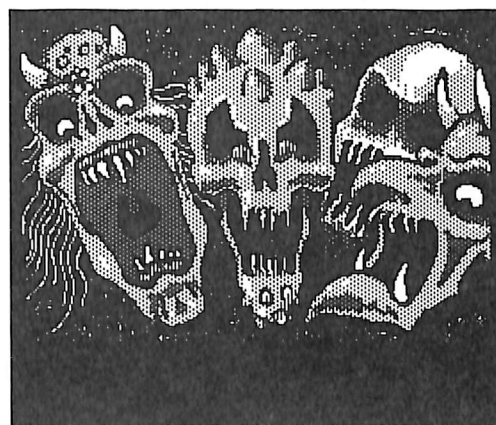
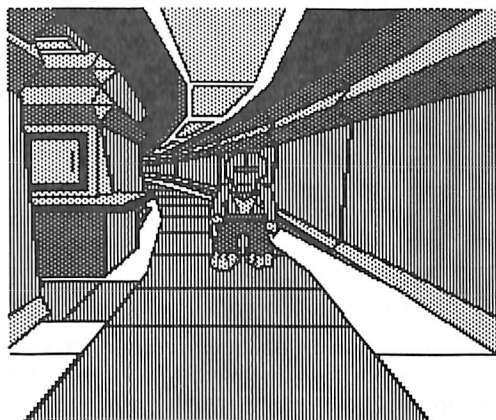
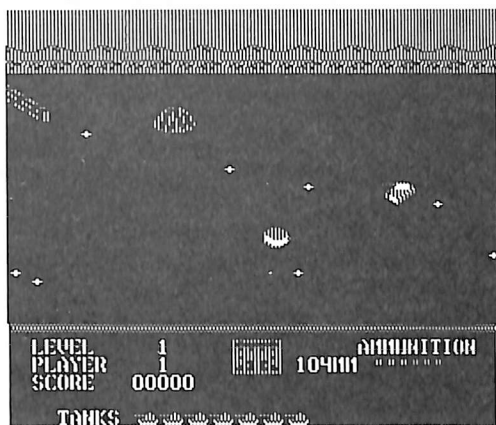
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Graphics from *Trisport's "Light Simulator."*

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softkey:

29 Light Simulator

by Billy Tessio

features:

22 Auto-Duel Editor

With this program, there is no reason to die in Auto-Duel. by Tim Scott

24 Wizard's Crown Editor

With this program, there is no reason to die in Wizard's Crown. by Jeff Hurlburt

26 Questron Mapper

With this program, there is no reason to be lost in Questron. by Jeff and Zeh Hurlburt

core:

16 The games of 1986 in review

This month, we wrap up our game reviews with the emphasis on adventuring. by Jeff Hurlburt

adventure tips:

21 Ultima IV

With these tips, there is no reason to die in Ultima IV. by Doctor Destruction

departments:

4 Input

6 Bugs

7 Readers' Softkey & Copy Exchange

Softkeys for: Access' **Beach-Head** by *Contach*, Ritam's **Monty Plays Scrabble** by *Robert Muir*, Mindscape's **Racter** by *Greg Poulos*, Sierra On-line's **Winnie the Pooh** by *Alan Switzer*, Infocom stuff, **Kabul Spy**, **Prisoner II** by *Jerome Thelia*, Sir-Tech's **Wizardry 1 & 2** by *Bryce D. Swimley*, American Eagle's **Lucifer's Realm** by *R. Wideman*, Software Publishing Corp's **The PFS Series** by *Brian K. Chinn*, Monogram's **Dollars and Sense** by *R. Wideman*, Artworx' **Strip Poker** by *Christopher Dean*, Penguin's **Coveted Mirror** by *Christopher Dean*, Strategic Simulations' **Wizard's Crown** by *Ron Dover*, **The Swordthrust Series** by *Christopher Dean*, Electronic Arts' **Axis Assassin** by *R. Wideman*, Pergamon Press' **Manuscript Manager** by *William Forsyth*, Microlab's **The Crown of Arthain** by *Christopher Dean*, Muse's **Address Book** by *Tony Phalen*, Eduware's **Decimals 3.0** by *Christopher Dean*, Level 10's **Dragonfire** by *Mike Neuliep*

input

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It's Amazing

I found it quite amazing that a disk containing the original program wasn't required for the Light Simulator softkey on page 29 of COMPUTIST No. 42. I wish you would use this (or a similar) technique on other programs as I feel it would save me a lot of money.

Anyway, your softkey didn't work for my version of this program. In fact, I almost had a fatal accident because of this. I thought about suing Tri-Spot Inc. but I decided to attempt to fix the problem instead.

Luckily, the article gave me enough information so I could figure out the answer. Apparently, the switching algorithm is re-wired during the procedure. To fix this, perform the following sector edits on track 0, sector 0 of the copied disk:

Bytes	From	To
\$76-\$7A	0B A0 FF A2 15	02 A0 99 A2 00
\$8C-\$90	0B A0 99 A2 15	02 A0 00 A2 00
\$B5-\$B9	02 A0 99 A2 00	0B A0 DD A2 15
\$C0-\$C4	99 A2 15 20 FB	FF A2 15 20 FB
\$E0-\$E4	02 A0 00 A2 00	0B A0 99 A2 15

Enjoy!

Gordon Lachance
Castle Rock, OR

Codes and Cyphers

Requirements:

Apple][Plus
48K
COPYA
Blank disk(s)

Optimum Resource, Inc., who has produced this program which Weekly Reader distributes, have on two separate pieces of paper indicated that you will be sent a back-up for \$10.00 or if your disk is worn or defective, your old disk and \$10.00.

For a 79 cent disk and about two minutes of your time, one can avoid taking up the company's more valuable time as well as avoid the postage and the wait.

1) Startup COPYA and break it.

RUN COPYA



2) Enter the monitor

CALL-151

3) At the monitor prompt (*), tell DOS to ignore various things about the original disk.

B942:18

B988:18

4) Re-enter BASIC.

3D0G

5) Now, at the Applesoft prompt (I), remove line 70 from COPYA, startup this modified program and copy your disk.

70

RUN

File your master in a safe place, and if you need another backup, COPYA will work on your first copy WITHOUT any of the above rigamarole. Happy Codebreaking!

John Redfield
Fort Smith, AR

Alcazar

After purchasing the game Alcazar: The Forgotten Fortress by Activision, and seeing what a great game it was, I decided to back it up. Knowing that when a company uses a

certain protection scheme it usually stays with it, so I tried out the Space Shuttle softkey in COMPUTIST No. 30.

After a little experimentation, I discovered that instead of having tracks 4, 5, and 6 having modified trailers, 8, 9, and 10 (\$0A), had them. Another difference was that the decoder was on track \$0, sector \$0C, instead of track \$0, sector \$0B.

Here's the softkey:

1) Boot up DOS 3.3, then enter the monitor and change address \$B99C to EA EA.

CALL-151
B99C:EA EA
3D0G

2) Insert the DOS System Master and RUN COPYA to copy the Alcazar disk.

3) Get out a sector editor and read in track \$0, sector \$0C. Change bytes \$00-\$02 from A0 00 98 to 20 E0 42.

This jumps to a subroutine which will enter the needed values at \$0000, \$0001, \$0002, and \$0003 (see Space Shuttle softkey for more details...)

4) On the same track, make these changes:

Beginning Byte	Values
E0:	A9 AF 85 00 A9 BE 85 01 A9 CD
EA:	85 02 A9 CD 85 03 A0 00 98 60

This stores the values \$AF, \$BE, \$CD, and \$CD at the above named addresses.

5) Write the sector back out and put away the original, the disk is now cracked.

Tim Scott
Fargo, ND

The Perfect Perfect Score

In a recent issue, I was glad to see a similar deprotect/backup method for the 6 disk package from Mindscape called, "The Perfect Score." However, I must point out that on the version I have, Mr. Thompson's method does not work on the back of disk 6. It seems that Mindscape wanted to be tricky by not only moving the nibble-count routine to a different area, but also by making the disk a normal DOS format, except for the altered address marks. To clear up the problems here is my "bug squashing" fix.

The Perfect Score fix for disk #6 back.

1) Startup COPYA.

RUN COPYA

input

2) When COPYA is asking you for the source drive, break it.

```
☐☐
```

3) Delete line #70.

```
70
```

4) Enter the monitor and change the data address mark error flags.

```
B942:18 60
```

```
B928:18 60
```

```
B925:18 60
```

5) Return back to BASIC from the monitor.

```
3D0G
```

6) Run the modified version of COPYA.

```
RUN
```

7) Boot up any sector editor and perform the following modifications to your copied disk:

TRACK	SECTOR	BYTE	FROM	TO
\$00	\$05	35	D0	4C
\$00	\$05	36	F1	86
\$00	\$05	37	A0	09

Additionally in COMPUTIST No. 26, the "More Sticky Bears" article. Step #8 should read, "Boot your ORIGINAL Sticky Bear disk." Instead of, "Boot your Sticky Bear disk." I feel this slight typo has made it difficult for me and maybe others to make backups of the disks.

Scott McCandless

Story Maker

I discovered a way to deprotect Scholastic's "Story Maker," a ProDOS based word processor with graphics for children. Using Trax on Bag of Tricks, I noticed that the format is close to standard. The only thing preventing COPYA is the FF FF address and data epilogs instead of the usual DE AA. A normalized copy reboots a split second after you boot it, but will work fine if you boot any version of ProDOS, enter BASIC, insert the copy, and type "--PRODOS". So ...

Requirements:

A few blank disks

COPYA

ProDOS Users' Disk

Scholastic's Story Maker

1) Run COPYA and fix it so that it ignores address and data epilogs.

```
RUN COPYA
```

```
☐☐
```

```
70
```

```
CALL-151
```

```
B988:18 60
```

```
B925:18 60
```

```
3D0G
```

```
RUN
```

2) Copy the program disk (leave side 2 blank for now) and copy each of the picture gallery disks.

3) Prepare side 2 of the program disk by formatting it with ProDOS. I used COPY][Plus, but the Filer utility on the ProDOS Users' Disk works fine for this step and step 4.

4) Copy the files PRODOS and BASIC.SYSTEM from the ProDOS Users' Disk to the side you formatted in step 3.

5) Enter BASIC from the main menu of the ProDOS Users' Disk. Type in the following program.

```
NEW
```

```
10 REM NEW STARTUP BY J. THOMAS
```

```
20 HOME : VTAB 12
```

```
30 PRINT "TURN^ THIS^ DISK^ OVER^ AND^ PRESS^  
<RETURN>."
```

```
40 PRINT : INPUT A$
```

```
50 PRINT CHR$(4) "--PRODOS"
```

6) Save this program on the side you formatted in step 3.

```
SAVE STARTUP
```

7) To use your COPYAable copy of Story Maker, remember to boot side 2 of the program disk first. Enjoy.

John G. Thomas
Trenton, NJ

Xyphus Fix

When the (incompletely) softkeyed copy of Xyphus (COMPUTIST No. 24, pg. 14) is used to make a player disk, the game will drop into BASIC rather than rebooting. This is because Xyphus jumps to the address stored in the reset vector after copying the player disk. To make it reboot instead, DOS must be told to point to the reset vector at \$C600.

To fix this, start up your sector editor and change track \$0, sector \$D, bytes \$52 and \$53

to \$00 C0 (previously \$32 A2). This change can be incorporated into the Xyphus Controller by changing the following lines:

```
5000 DATA 7^ CHANGES
```

```
5060 DATA 0, 13, 82, 0
```

```
5070 DATA 0, 13, 83, 198
```

This will make Xyphus reboot as it should.

John Liska
CT

Championship Lode Runner

I have always enjoyed playing Lode Runner, and when Championship Lode Runner came out. I was first in line, but I was disappointed to find out I could not edit the levels or start at any level I wanted. So I got out my sector editor and started snooping.

1) Deprotect Lode Runner with the softkey in COMPUTIST No. 22.

2) Make a copy.

3) Erase tracks \$03 to \$0B.

4) Using a sector editor, read a blank sector and write it to track \$0C sectors \$00-\$05.

5) Using a sector copy program, copy from Championship Lode Runner onto your copy, track \$03 to track \$06, sector \$01.

Now you can play Championship Lode Runner and have all the features of regular Lode Runner.

Gene Easley
Norwalk, CA

More RDOS Stuff

In trying to implement your article SSI's RDOS in COMPUTIST No. 30, I ran into a problem of having the RDOS saved from the original but after modification, it would not run properly nor could you catalog a disk.

Careful study showed that the line 7CCA:BE is incomplete. It should read as follows: 7CCA:BE N 7CCD:BF N 7CD1:BF. The way the program is currently modified the primary and secondary buffers are written right in the middle of some important code and the program or boot will stop at BC07.

With some of the SSI games, Phantasia being one, you must boot with a 48K disk, BLOAD RDOS 3.3 at \$7200, EXEC RDOS.FIX, and

input

then move RDOS 3.3 to \$B200. Now if you reenter RDOS with D43CG, you can load some of the very large Applesoft programs that will not load when you boot with a 16K slave disk.

I have also discovered, that although the DOS track \$0 has prolog bytes of D5 AA B5, the rest of the disk will have the prolog bytes of D4 AA B7. This is true for a large number of the games I own. All appear to have the QWERTY \$49 EE D0 combination.

I hope that this will allow a few of your readers to break the RDOS to RDOS 3.3 and enjoy the games.

Peter K. Iber
Fort Hood, TX

Other Computers?

This letter is in response to a letter in COMPUTIST No. 35 that was written by David Rivett. I am not sure of others' opinions on the issue of expanding COMPUTIST to non-Apple computers, but I'd like to add my two cents worth.

From everything that I've seen, COMPUTIST has been entirely devoted to serving the Apple community in every way possible to help them get the most out of their machines. I think that COMPUTIST would be missing the boat by giving a few pages to *the competition*. I am sure that many readers would feel that their favorite magazine was selling out to other computers. I feel that giving even just a couple of pages to other brands would severely hurt COMPUTIST.

Let's keep this magazine entirely Apple! Instead of worrying about copy-protection schemes on IBM or Atari software, let's turn our attention to the myriad of Macintosh software out there begging to be cracked. I don't mean to offend anyone out there who use those "other machines," but I'd like to see a COMPUTIST magazine devoted to Apple][, Apple][+, Apple //e, Apple //c, Macintosh, and Macintosh Plus (and as I write this, Apple //gs) users who deserve unlocked software.

Before I close, I'd like to interject a word or two about Mr. Rivett's comments on the Apple market. It is very obvious that Apple will indeed be a part of the technology explosion, contrary to what Mr. Rivett thinks. With everything that I've heard about the new Apple //gs computer, it will make his beloved IBM look pretty silly. Even the Amiga will blush at the sound capabilities of the //gs (although the Amiga is far superior in the graphics department). And who knows what's in store

for us Mac users/hackers. It just proves once again that Apple is the company that is devoted to producing the best computers available. In the Apple //gs, Apple has provided us with a computer with a 16-bit processor, 256K RAM, and features to knock your socks off. Yes, Mr. Rivett, Apple is the computer future.

Bruce Boehrs
Sturgis, SD

Gato Typo

You let a typo creep into my softkey for GATO 1.3 as published in the letters section of issue 36.

Line 5020 should read:

5020 DATA 213,170,150

As 5010 and 5020 are the data statements determining which address headers to use. The softkey as published will quickly degenerate into a grinding of disk drives (and teeth).

Ann Onymous
San Luis Obispo, CA

Senior PROM Owner Speaks Out

As an owner of a Senior PROM for a few months, I found your review in COMPUTIST No. 35 very shallow, critical, and in several instances, incorrect. Most noticeably is the reference to ease of use. I am by no means "a hacker," but I found the Senior PROM very easy to use for making archival backups of my copy-protected software.

It seems that Mr. Knowles hasn't used his Senior PROM for more than 15 minutes, as the review was very shallow and just skimmed over many of the functions I find very useful. When trying my hand at developing my own softkeys I find the copy, format, alter prolog bytes, and disable DOS error checking utilities very handy and easy to use. And having a sector editor instantly available to read and write disks (even when you have no DOS in memory!) is very handy.

Regarding the Sector Editor in the Senior PROM. I had always used the Inspector/Watson Sector Editor from Omega until I purchased the Senior PROM. I found the format of the Senior PROM's sector editor easy to learn since it was so similar to the Inspector, yet much more efficient. The memory and disk search utilities were a joy to use (especially nice is the wildcard

function), and the whole sector editor had a much cleaner look and operation. It was a welcome change for me!

Again, contrary to your article, I found ALL the documentation very extensive and easy to understand, even for a novice programmer like myself. Especially useful was the documentation on copy-protection. This manual covered many of the topics about copy-protection that I find missing in your magazine (I had been a subscriber for quite some time), as it explained what is needed to deprotect many different types of programs. Instead of applying to a single program (like a softkey), the manual provided me with information I could apply to many programs. Since I don't have 95% of the programs that you publish softkeys for, I found this manual much more informative.

Overall, I think the Senior PROM desires a better review than you provided. In the future I suggest you be a little less critical of a product you are evaluating, and concentrate more on what it CAN do, opposed to what you think it should do. Then your readers can decide for themselves whether the particular product is for them or not. Without the facts as to what a product can do, the only service you have provided is letting us know what you want for Christmas this year.

Bob Verplank
West Lafayette, IN

bugs

COMPUTIST No. 42

Softkey for Light Simulator:

Apparently, we forgot to list the controller checksums for the Super IOB controller in this article. We sincerely apologize for this oversight and promise that it may not happen again.

In an attempt to correct our mistake, we have decided to list the controller checksums here for your viewing pleasure. So, without further adieu, we proudly present: The Controller Checksums.

controller checksums

1000 - \$356B	1040 - \$3D7B
1010 - \$DDEE	1050 - \$DA3B
1020 - \$5904	10010 - \$1541
1030 - \$3FCC	

readers' softkey & copy exchange

Contact's softkey for...

Beach-Head

Access Software
2561 South 1560 West
Woods Cross, UT 84087

Requirements:

48K Apple II and up
Super IOB 1.5
Original Beach-Head disk
A blank disk

Beach-Head is a multi-screen action game in which you try to capture an enemy fortress. While trying to capture the fortress, you must perform a wide variety of tasks. These include shooting an anti-aircraft gun, driving a tank, shooting a large gun at other ships, and maneuvering a ship through a mined channel.

The Protection

The original Beach-Head disk is easily copied with no errors using COPYA. However, when I tried to boot this disk, it would load the title screen and then hang up on track 0. I then used an Alaska card to examine the memory at the point where the program was hanging up. The program appeared to be hanging up in a subroutine at \$4029. This routine was looking for three bytes (\$AD, \$AA, \$B3) on the disk. A quick look at the original disk with my nibble editor revealed these bytes in the middle of the sync bytes on track 0.

I searched my copied disk for the routine that starts at \$4029 but couldn't find the routine on the disk. I went back into memory and started looking around and found a routine at \$4000 that scrambled the memory starting at \$4026. Further inspection of memory revealed another routine at \$4166 that scrambled the code even more. Knowing how the data was scrambled I was able to locate the code on the disk and eliminate the problem by placing a ReTurn from Subroutine (RTS or \$60) at the beginning of the subroutine.

After making the change to this byte, I booted the disk. The game ran fine until I tried to play one of the sequences. The program hung up again. The problem appeared to be the same. Inspection of memory revealed the same routine at the same location. This time the code was scrambled even more by routines at \$5000. I used the same methods to bypass this subroutine.

This time when I played the game I had a copy that did not crash or hang up anywhere.

The Softkey

Type in the Super IOB 1.5 controller at the end of this article and run it. The controller will take care of all sector edits and copying.

You are done. Enjoy the game.

controller

```
1000 REM BEACH-HEAD
1010 TK = 0 : LT = 35 : ST = 15 : LS = 15 : CD = WR
      : FAST = 1
1020 GOSUB 490 : GOSUB 610
1025 IF TK = 0 THEN T1 = 0 : TK = 6 : GOSUB 310
      : TK = 0
1030 GOSUB 490 : GOSUB 610 : IF PEEK (TRK ) =
      LT THEN 1050
1040 TK = PEEK (TRK ) : ST = PEEK (SCT ) : GOTO
      1020
1050 HOME : PRINT "COPYDONE" : END
5000 DATA 2^ CHANGES
5010 DATA 0 , 10 , 41 , 154 , 0 , 14 , 41 , 24
```

controller checksums

```
1000 - $356B      1040 - $46BE
1010 - $2544      1050 - $E940
1020 - $08CD      5000 - $FC47
1025 - $D14A      5010 - $FDC4
1030 - $28C3
```

Robert Muir's softkey for...

Monty Plays Scrabble

Ritam Corporation
P.O. Box 921
Fairfield, IA 52556
(515)472-8262

Requirements:

Monty Plays Scrabble disk
COPYA
Sector editor

THE game that my fiancee and I searched months for was a good Scrabble game. I finally found Monty Plays Scrabble in the 1984 edition of the Whole Earth Software Catalog. And what a find! If you like Scrabble then this game is a definite must for those times when you are alone. Unfortunately, of course the disk is protected; and, due to the large amount of disk access, it was imperative to make a copy. Fortunately, it is easy.

1) Boot up DOS 3.3.

2) Drop into the monitor with CALL -151 and change \$B942 from a SEC to a CLC (B942:18) to ignore the address and sector epilogues.

3) Run COPYA and copy the Monty disk.

4) Start up your sector editor and make the following changes:

Track	Sector	Byte	From	To
00	02	9E	DF	DE
00	03	35	DF	DE
00	03	91	DF	DE

That's all there is to it; you now have a COPYAable Scrabble disk. Now what the heck is a VIRL?

Greg Poulos' softkey for...

Racter

Mindscape, Inc.
3444 Dundee Road
Northbrook, IL 60062

Requirements:

Copy II Plus
Super IOB

Racter, from Mindscape, is a very insane and fun-to-play program written in Pascal. At first, it looked rather easy to crack; just change the sector marks. Of course, then it wouldn't boot. While fooling around with it and comparing the first few sectors of the Super IOB copy with a normal Pascal disk, my friend noticed that a few bytes were different. We changed those bytes to normal Pascal bytes- and Racter was cracked. Here is how to crack Racter, in cookbook fashion.

1) Install the controller at the end of this article into Super IOB.

2) Follow the prompts and Super IOB will copy tracks \$1 through \$1F, then tracks \$21 and \$22. You may have trouble with track \$22 but don't worry about it.

3) The other tracks may/will have to be copied by hand. Boot up Copy II Plus. Go to the sector editor and press "P". Then select "DOS 3.3 PATCHED". Hit Escape and read in track 0, sector 0 of your original Racter. Press "P" again and select "DOS 3.3". Now hit Escape and write track 0, sector 0 to your Super IOB copy of Racter.

4) Repeat step 3 with all 16 sectors of track 0 and write all of them back to your Super IOB copy.

readers' softkey & copy exchange

5) Repeat step 3 with sectors \$0-\$F of track \$20 on your original Racter, writing them to your Super IOB copy.

6) Now read in track 0 sector 0 and search for the bytes 20 00 0B. Replace them with 8D 7B 04. Move the cursor up two or three lines and over one to the left, I think, and you will see a \$06. Change that to a \$04.

7) Racter is now cracked. Enjoy it.

I attempted to use Super IOB to copy tracks \$0 and \$20, but upon booting my "cracked" Racter, it did not boot properly. Only when I used the Copy II Plus method did it work.

controller

```
1000 REM RACTER CONTROLLER
1010 POKE 775 ,96 : POKE 47407 ,24 : POKE
      47408 ,96 : POKE 47499 ,24 : POKE 47500
      ,96
1020 ST = 15 : LS = 15 : CD = WR : FAST = 1
1030 TK = 1 : LT = 32 : GOSUB 2000
1040 TK = 33 : LT = 35 : GOSUB 2000
1050 POKE 47407 ,189 : POKE 47408 ,140 : POKE
      47499 ,189 : POKE 47500 ,140
1060 HOME : AS = "ALL^ DONE" : GOSUB 450 : END
2000 GOSUB 490 : GOSUB 610
2010 GOSUB 490 : GOSUB 610 : IF PEEK (TRK ) =
      LT THEN RETURN
2020 TK = PEEK (TRK ) : ST = PEEK (SCT ) : GOTO
      2000
```

controller checksums

```
1000 - $356B    1050 - $FACE
1010 - $2B9F    1060 - $181E
1020 - $0D0C    2000 - $E84A
1030 - $E67D    2010 - $280B
1040 - $4510    2020 - $D160
```



Alan Switzer's softkey for...

Winnie the Pooh

Sierra On-Line, Inc.
Sierra On-Line Building
Coarsegold, CA 93614

Requirements:

Apple II Plus or equivalent
A blank disk
DOS 3.3
COPYA

After buying Winnie The Pooh in the Hundred Acre Wood, from Walt Disney and Sierra On-Line, I quickly decided that I'd better backup the disk before my kids trashed the

original. Using Gary Kowalski's information on Mickey's Space Adventure (Input, COMPUTIST No. 15) I was able to successfully backup my new disk.

First I copied the disk with COPYA and attempted to boot the disk. The logo appeared, the title page booted fine and the background music ran waiting for you to press a key. As soon as you press a key the disk locks up. CATALOGING the disk produced the following:

```
A 002 WINNIE-THE-POOH
B 004 WINNIE HELLO
B 034 LOGO.PIC
B 034 TITLE.PIC
B 007 SOUND.OBJ
B 023 GAME.OBJ
....
```

Like Mickey's Space Adventure I guessed that it was a JSR (Jump SubRoutine) in a binary program that probably did a nibble count. GAME.OBJ looked like the spot to start searching.

First I ran Copy II Plus' catalog feature to find the starting address (\$0900) and file length (\$15ED) of GAME.OBJ. Next I booted DOS 3.3 and loaded GAME.OBJ. I jumped into the monitor with CALL-151 and viewed the start of the file with a 900L, and the second screenful with another L. The first JSR that called outside the program was at \$937 (JSR \$0A17). I deleted (replaced with three NOPs) the JSR, returned to BASIC with 3D0G, and wrote the file back to the disk. The program ran with its normal long boot just fine.

I strongly recommend any of Disney's disks as an excellent purchase if you have kids from second grade through junior high. I also want to thank COMPUTIST for teaching me more about my Apple II than all the other magazines put together. Keep it up.

Step by Step

1) Boot DOS 3.3 and copy Winnie the Pooh by typing:

```
RUN COPYA
```

2) Insert the new copy in drive 1 and type

```
BLOAD GAME.OBJ
```

to load the file.

3) Enter the monitor and remove the offending JSR.

```
CALL-151
900:EA EA EA
```

4) Save the file to the new copy.

```
BSAVE GAME.OBJ,A$900,L$15ED
```

Jerome Thelia's softkey for...

Infocom Stuff, Kabul Spy, Prisoner II

Requirements:

Blank disks
COPYA
A good copier like Super IOB
A sector editor

Here are some quick softkeys:

Infocom

1) Load COPYA.

2) Type:

```
POKE 47355,41
POKE 47356,0
```

3) Type RUN and copy your Infocom disk.

4) Use your sector editor and make the following sector edits:

Track	Sector	Byte	To
0	2	\$5D	\$AD
		\$FB	\$29
		\$FC	\$00

Kabul Spy

1) Use a good copier (Super IOB should work) and copy tracks \$00-\$21 only.

2) Then use a sector editor and make the following sector edits:

Track	Sector	Byte	To
0	0	\$49	\$EA
		\$4A	\$EA
		\$4B	\$EA

Prisoner II

1) Copy Prisoner II with COPYA.

2) Make the following sector edits:

Track	Sector	Byte	To
\$1F	\$0E	\$D5	\$2F
		\$D6	\$AF
		\$D7	\$32



readers' softkey & copy exchange

Bryce D. Swimley's softkey for...

Wizardry 1 and 2

*Sir-Tech Software, Inc.
6 Main Street
Ogdensburg, NY 13669*

Requirements:

Apple II Plus and up
A sector editor
Wizardry 1 or 2
2 blank disks

Utilizing Taco van Ieperen's softkey procedure for the Wizardrys (COMPUTIST No. 20), along with the corrections by "J.C." (Issue No. 23), I was successful in softkeying my version of Wizardry 1 dated 22-JAN-82 and my version of Wizardry 2 dated 10-MAR-82.

For **Wizardry 1**, sector edit track \$22 sector \$04 of the boot side. Starting at address \$A4, enter the following bytes:

```
A0 00 AE 28 8B BD 29 8B
85 0D 91 02 E8 C8 BD 29
8B 91 02 85 0E E8 8E 28
8B 60 00 08 12 3C 07 04
12 50 06 07 12 3E 07 06
12 54 06 J
```

Also, note there are only \$10 checksum values. I was only able to get \$10 values when I performed the boot code trace. But, apparently that's all this particular version of Wizardry 1 requires because it successfully worked!

For the scenario side, sector edit track \$13 sector \$0. Starting at address \$C0, enter the following bytes:

```
AE DC 20 BD DD 20 85 0D
8D 00 20 E8 BD DD 20 8D
01 20 85 0E E8 8E DC 20
8D E8 C0 60 00 43 12 52
07 3F 12 7E 06
```

For the boot side of **Wizardry 2**, sector edit track \$22, sector \$0E. Starting at address \$CB, enter the following bytes:

```
A0 00 AE 7F 8C BD 80 8C
85 0D 91 02 E8 C8 BD 80
8C 91 02 85 0E E8 8E 7F
8C 60 00 94 09 E1 08 23
09 9C 07 95 09 DE 08 23
09 9C 07
```

For side 2, sector edit track \$12, sector \$01. Starting at address \$C0, enter the following bytes:

```
AE D9 20 BD DA 20 8D 00
20 85 0D E8 BD DA 20 E8
8D 01 20 85 0E E8 D9 20
60 00 8E 09 DB 08 15 09
99 07
```

Many thanks to Taco van Ieperen and J.C. for their efforts. I hope this will be useful for those readers who have not yet been successful in softkeying their versions of the Wizardrys.

Brian K. Chinn's softkey for...

The PFS series

*Software Publishing Corp.
1901 Landings Drive
Mountain View, CA 94043
\$125.00 each*

Requirements:

48K Apple II Plus, minimum
COPYA or equivalent
A sector editor with a Byte Search function
A blank disk

In regards to the PFS series software deprotection schemes submitted by G. Wolfe, Softkey Exchange, COMPUTIST No. 14; H. Madison, Input, No. 21; and G. Mochizuki, Input, No. 22. While all three of these methods may be valid for a particular release of PFS software, none of them worked on the PFS disks which I tried to deprotect. I am not implying that any of them are wrong, merely incomplete; however, Mr. Mochizuki's method was the most helpful in explaining what is going on.

The Softkey

Make a copy of your PFS disk with COPYA (or Disk Muncher, etc.). Now break out your favorite sector editor and search for the following byte pattern:

88 98 F0

This is embedded in a section of code that looks like this:

D0 ?? 88 98 F0 ##

The "???" is a small value between \$04 and \$10, and "##" is a medium value between \$27 to \$31. In order to skip the extra-bits check, the BNE ?? (D0 ??) should be made to branch to the address which contains:

A9 FF CD

The proper branch value can be found, in all the cases I've tried, by simply adding \$25 (37) to the value "???", from above. The Copy II+ 5.x sector editor's disassembler is perfect for double checking this. Change this byte and write the sector back to the disk. Repeat this procedure for every occurrence of this byte pattern on the disk. Keep in mind that the number of times this pattern appears on the disk will differ between the programs.

R. Wideman's softkey for...

Lucifer's Realm

*American Eagle Software, Inc.
P.O. Box 46080
Lincolnwood, IL 60646*

Requirements:

COPYA
2 blank disk sides
Sector editor

This is an excellent graphic adventure and well worth the small amount of time it takes to create a de-protected backup. The protection scheme relies upon an altered address epilogue of DF AA instead of the normal DE AA. All that needs to be done to copy it is to defeat checksums and use COPYA. So begin by preparing to run COPYA, but before doing so enter the monitor,

CALL-151

and disable checksums,

B942:18

reenter BASIC,

3D0G

and then copy both sides of the disk.

RUN COPYA

Now, to correct the epilogue bytes in the RWTS, use your favorite sector editor and make the following changes to BOTH sides of your Lucifer's Realm backup:

Track	Sector	Byte	From	To
\$00	\$03	\$91	DF	DE
\$00	\$06	\$AE	DF	DE

After writing out these modifications, you now have a liberated backup of which to enjoy!

readers' softkey & copy exchange

R. Wideman's softkey for...

Dollars and Sense

Monogram
8295 South La Cienega Blvd.
Inglewood, CA 90301

Requirements:

COPYA from DOS 3.3 System Master
Sector editor
Blank disks

If you did not know by now, Monogram uses a Pascal based operating system. This is quite apparent from the familiar screen clear and ever present cursor seen upon booting their software. And those of you who may have tried to create your own backups of their software, you also know by now that they are protected. It is this protection scheme that will be dealt with in this article.

Knowing these two pieces of information can help you quite a bit. The presence of a Pascal operating system of this type usually guarantees that the disk will be perfectly copyable by any normal copier, such as COPYA. And any protection scheme used is limited to the type that looks for some sort of disk signature, such as a nibble count, although there may be more than one such scheme in use.

But, the only way to implement these schemes in Pascal is by way of machine language modules, which usually stick out like sore thumbs if you know what to look for. These are pre-fabricated routines tacked on so they can be called by the main Pascal program, which is compiled. Often they barely take up a page of memory and sit by themselves on lonely sectors, waiting to be loaded in and used briefly. They can be easily located by spotting the disk access code they contain. This can be done by searching a disk for 8C C0 (\$C08C in reverse order), which is the most common disk access location used.

Once located, they are defeated by altering the code in such a manner as to fool the program logic, usually in the form of a simple flag which indicates a pass or fail on the part of the protection scheme. The most common flag used is the carry flag, which can be either set or clear (you may wish to refer to a book on assembly language programming for further information). The alteration made would then make the routine think it should set the flag for "pass" everytime. So, before even thinking about how to crack Dollars and Sense, you already know a lot about what you are dealing with. That helps a great deal!

There remains, however, a little trick that Monogram has used which is probably the reason so many people have been frustrated in defeating this protection scheme. Yes, you can COPYA the disks. Yes, you can locate the protection scheme code (on the boot side, track 0, sector 3). And yes, they use a simple little flag. But, if you change the program so that the flag always indicates 'pass', it does not work! How come? Well, there are a few possibilities. They could be running a checksum on their code, such as Electronic Arts does. Any attempt at balancing a checksum or side-stepping it fails. Well, there could be yet another protection scheme on the disk. No, exhaustive searching yields nothing. Well, maybe it cannot be cracked...NEVER! Taking a closer look at the code calling the protection scheme and the code that follows it reveals a glimmer of hope. (By the way, tracing P-code can be hazardous to your health). The scheme itself is called not once, not twice, but THREE times! And here's the catch... on the second call, it WANTS to fail! So if you change the code to always pass, they have caught you! The solution is simple and looks like this:

LDA	LABEL
EOR	#\$20
STA	LABEL
LABEL	SEC
	RTS

What this code does is make the routine pass the first and last times, but fail the second time. The EOR #\$20 will change the SEC instruction (SEt Carry) to a CLC (CLear Carry) instruction. This is done because a clear carry means "pass" and a set carry means "fail" for this particular routine. The exact changes are summarized in the table. The technique is slightly different for Dollars and Sense version IV.8 because the protection scheme is not quite as isolated as the earlier version. The use of the carry by itself is not used directly as a flag, but rather loading the accumulator with an \$FF or \$00. The outcome is the same, though.

Step by Step

- 1) Make a backup using COPYA
- 2) For Dollars and Sense vIII.14 or Forecast I.1 make the following sector edit to track 0, sector 03 (DOS 3.3 sector):

Starting at byte \$00:
AD 08 40 49 20 8D 08 40 38 60

For Dollars and Sense vIV.8 make the following sector edit to track 0, sector 03 (DOS 3.3):

Starting at byte \$0C:
AD 0F 24 49 26 8D 0F 24 4C 73 24

- 3) Put your original in a safe place and use your backup!

Christopher James Dean's softkey for...

Strip Poker

Artworx
150 N. Main Street
Fairport, NY 14450

Requirements:

Apple II Plus, IIe, or IIc
COPYA
1 blank disk

Strip Poker, by Artworx, is a very good poker game in which you must beat Suzi or Melissa at Draw Poker. The game offers excellent game play and startling graphics, the graphics consisting of four pictures of Suzi and five of Melissa. The game is protected but fortunately it is very simple.

The only protection is altered address and data epilogues which have been changed from the normal DE AA to FF FF. The disk can easily be deprotected using COPYA by telling the RWTS to ignore the epilogues.

The Procedure

- 1) Boot DOS 3.3 system master
- 2) Startup COPYA.
RUN COPYA
- 3) When the drive stops, hit CTRL Reset.
- 4) Delete line 70
70
- 5) Enter the monitor
CALL -151
- 6) Tell the RWTS to ignore epilogues
B925:18 60
B988:18 60
- 7) Re-enter BASIC by hitting CTRL Reset.
- 8) Copy the disk.

RUN

readers' softkey & copy exchange

Christopher James Dean's softkey for...

Coveted Mirror

Penguin Software
P.O. Box 311
Geneva, IL 60134

Requirements:

Apple II Plus, //e or //c
Super IOB
2 Blank disk sides

The Coveted Mirror is a challenging text and graphics adventure by Penguin software. In the game you must explore the castle of King Voar and the town of Starbury to find the five pieces of the coveted mirror. Once found, the mirror will break Voar's power.

The Protection

The Coveted Mirror's format is fairly simple and is the same as the other Penguin adventures. Both address and data epilogues are changed to DA AA instead of the normal DE AA. Also, on odd numbered tracks, the address prologue is changed to D4 AA 96. The disk can be easily copied to a normal format with a controller for Super IOB.

However, the program is not yet deprotected. The Coveted Mirror contains a program called AMP 3.0 which cannot be read by a normal DOS. The only way to solve the problem is to deprotect the DOS and tell the program's RWTS to read normally. Investigation of the DOS tracks reveals that the Coveted Mirror's RWTS starts on sector two of track zero. Byte \$9E of this sector is where the RWTS looks to write the epilogues. Bytes \$35 and \$91 of the next sector is where the RWTS looks to read the epilogues. By changing these bytes to \$DE the copy will be fully deprotected.

The Procedure

1) Boot DOS 3.3.

PR#6

2) Type in the program at the end of this article called "Coveted Mirror RWTS Capture."

3) RUN the program and follow its directions.

4) Boot Super IOB.

5) Install the controller at the end of this article into Super IOB and run the resulting program.

6) Copy the boot side of Coveted Mirror.

7) Delete lines 5010-5040 and line 1060 in the Super IOB controller.

DEL 5010,5040
1060

8) Copy the game side using the controller sans various lines.

That's all. Super IOB has automatically performed the following sector edits on the boot side of Coveted Mirror:

Trk	Sector	Byte	From	To
\$00	\$02	\$9E	\$DA	\$DE
\$00	\$03	\$35	\$DA	\$DE
\$00	\$03	\$91	\$DA	\$DE

Coveted Mirror RWTS Capture Program

```
10 HOME : VTAB 11 : HTAB 5 : PRINT "INSERT^
COVETED^ MIRROR^ BOOT^ SIDE" : PRINT :
HTAB 14 : PRINT "PRESS^ ANY^ KEY" : WAIT
- 16384 , 128 : POKE - 16368 , 0
20 TR = 0 : SE = 2 : CD = 1 : BF = 56 : POKE 47413
, 218 : POKE 47505 , 218
30 POKE 768 , 32 : POKE 769 , 227 : POKE 770 , 3 :
POKE 771 , 76 : POKE 772 , 217 : POKE 773
, 3
40 POKE 47083 , 0 : POKE 47088 , 0 : POKE 47089
, BF : POKE 47090 , 0 : POKE 47091 , 0 :
POKE 47092 , CD
50 POKE 47084 , TR : POKE 47085 , SE : CALL 768
60 SE = SE + 1 : BF = BF + 1 : IF SE = 10 THEN 80
70 GOTO 30
80 POKE 47413 , 222 : POKE 47505 , 222
90 HOME : VTAB 11 : HTAB 10 : PRINT "INSERT^
A^ DISK^ FOR^ RWTS" : PRINT : HTAB 14 :
PRINT "PRESS^ ^ ANY^ KEY" : WAIT - 16384
, 128 : POKE - 16368 , 0
100 PRINT : PRINT CHR$( 4 ) "BSAVE^ COVETED^
MIRROR.RWTS,A$3800,L$800" : END
```

checksums

10	- \$FDC4	60	- \$B617
20	- \$34E5	70	- \$5301
30	- \$CBD3	80	- \$C77B
40	- \$5506	90	- \$D141
50	- \$B743	100	- \$334B

controller

```
1000 REM COVETED MIRROR CONTROLLER
1010 TK = 0 : TL = 35 : CD = WR : MB = 151
1020 ST = 0 : T1 = TK : GOSUB 490 : GOSUB 360
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 310 : GOSUB 360
1065 TK = T1 : ST = 0 : GOSUB 490
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 : A$ = "COPY^ COMPLETED" : GOSUB 450
: END
```

```
5010 DATA 3^ CHANGES
5020 DATA 0 , 2 , 158 , 222
5030 DATA 0 , 3 , 53 , 222
5040 DATA 0 , 3 , 145 , 222
10010 PRINT CHR$( 4 ) "BLOAD^ COVETED^
MIRROR.RWTS,A$1900"
```

controller checksums

1000	- \$356B	1080	- \$05EB
1010	- \$A1D2	1090	- \$224F
1020	- \$3B9E	1100	- \$038F
1030	- \$2D9F	5010	- \$AEFC
1040	- \$ED38	5020	- \$10B8
1050	- \$4925	5030	- \$0D26
1060	- \$8B82	5040	- \$BB83
1065	- \$BBA9	10010	- \$C18B
1070	- \$B3AC		

Ron Dover's softkey for...

Wizard's Crown

Strategic Simulations, Inc.
1046 N. Rengstorff Ave.
Mountain View, CA 94043

Requirements:

Super IOB 1.5
Wizard's Crown disk
2 blank disk sides

Wizard's Crown is a multiple-character fantasy role-playing game. You create a party of eight adventurers that travel around the ruins of the town of Arghan to find the coveted Crown. Your quest will take you through buildings and several dungeons where you may run across the fearsome denizens of the land. An encounter with a group of monsters produces one of the most detailed tactical battles of any role-playing game.

The Protection

The first thing I tried to do was copy the program with a sector copier. Having no success with the sector copier, I used my nibble editor to look at a random selection of tracks. On the even tracks (0, 2, 4...) I discovered that the address marks were a normal D5 AA 96. On the odd tracks (1, 3, 5...) the address marks were changed to D4 AA 96. This is the same trick used in some Penguin releases and Gato 1.3, and the solution is the same. Simply patch DOS to accept both D5 and D4 as the start of the address header (line 1020 of the controller below).

Using this information I tried to look at a random selection of sectors. After several I/O errors I decided to ignore the checksums on

readers' softkey & copy exchange

those sectors. I was now able to read any sector on the front side of the the Wizard's Crown disk with a sector editor and could write a controller for Super IOB from that.

The back side of the Wizard's Crown disk was not protected and could be copied with any copier.

Step By Step

- 1) Install the Super IOB controller below and run it on side 1 of the Wizard's Crown disk.
- 2) Copy side two of the disk with any copier.
- 3) Play and enjoy.

controller

```
1000 REM WIZARD'S CROWN CONTROLLER
1010 POKE 47444 ,74 : POKE 47445 ,201 : POKE
    47446 ,106 : POKE 47447 ,208 : POKE 47448
    ,239
1020 TK = 0 : LT = 35 : ST = 15 : LS = 15 : CD = WR
    : FAST = 1
1030 GOSUB 270 : POKE 47405 ,24 : POKE 47406
    ,96 : POKE 47497 ,24 : POKE 47498 ,96
1040 GOSUB 490 : GOSUB 610
1050 POKE 47405 ,208 : POKE 47406 ,19 : POKE
    47497 ,208 : POKE 47498 ,183
1060 GOSUB 490 : GOSUB 610 : IF PEEK (TRK ) =
    LT THEN 1080
1070 TK = PEEK (TRK ) : ST = PEEK (SCT ) : GOTO
    1030
1080 HOME : PRINT "COPYDONE" : END
```

controller checksums

1000 - \$356B	1050 - \$CB17
1010 - \$7144	1060 - \$9543
1020 - \$A043	1070 - \$D4B5
1030 - \$BA7D	1080 - \$E4C3
1040 - \$1075	

Christopher James Dean's softkey for...

Swordthrust Series

Requirements:

Apple][,][Plus, //e or //c
1 Blank disk per game
COPYA
A sector editor

The Swordthrust series is a three game set of text fantasy-role playing games in which you must escape various dungeons and obtain treasure and weapons or armor while battling various monsters. It is protected, however, and its protection is very tricky.

The Protection

The protection consists of altered address epilogues (F5 AA), invalid checksums, and the last byte of the data prologue is different for every track. To deprotect it, one must tell the RWTS to ignore the checksums and the last byte of the data prologue, and to read F5 AA instead of DE AA.

After this is completed and the sector edits are made the RWTS will read the deprotected copy, and the copy will load the DOS tracks then cause disk drive errors. I thought there may be a routine which changes the RWTS parameters after the DOS is loaded but I could not find one. However, I did notice that after the DOS was loaded the last byte of the data prologue was changed to \$8D instead of the normal \$AD. I searched the disk for the bytes \$FC B8 to see where the byte was changed. On track 0, sector 1, I found the following routine:

```
B775: 08      PHP
B776: 78      SEI
B777: 48      PHA
B778: AE EC B7 LDX $B7EC
B77B: BD D0 BE LDA $BED0,X
B77E: 4D 42 B9 EOR $B942
B781: 8D FC B8 STA $B8FC
B784: 8D 5D B8 STA $B85D
B787: 68      PLA
B788: 20 00 BD JSR $BD00
B78B: B0 03   BCS $B790
B78D: 28      PLP
B78E: 18      CLC
B78F: 60      RTS
B790: 28      PLP
B791: 38      SEC
B792: 60      RTS
```

The normal jump to the RWTS is at \$B7B5 but in this case it is at \$B775. The above routine EORes the accumulator with the byte at \$B942 (38 - do not ignore checksums). This would normally come out to be a \$AD which is stored in the RWTS read and write locations at \$B8FC and \$B85D. This routine is accessed every time a call to the RWTS is used. On the copy, \$B942 has to be set to \$18 to ignore any disk errors. So, when the above routine is called, a \$8D results. To remove this check the store routines need to be replaced with NOP instructions.

The Procedure

- 1) Boot the DOS 3.3 System master
- 2) Startup the COPYA program
RUN COPYA
- 3) When it is loaded hit CTRL Reset
- 4) Tell COPYA not to reload its object code
70
- 5) Enter the Monitor

- 6) Tell the RWTS to read the protected disk

```
B8FB:29 00
B942:18
B991:F5
```

- 7) Re-enter BASIC

```
ESC
```

- 8) Type RUN and copy all the sides

- 9) Perform the following sector modifications to the boot side

Trk	Sec	Byte	From	To
\$00	\$01	\$81	\$8D	\$EA
\$00	\$01	\$82	\$FC	\$EA
\$00	\$01	\$83	\$B8	\$EA
\$00	\$01	\$84	\$8D	\$EA
\$00	\$01	\$85	\$5D	\$EA
\$00	\$01	\$86	\$B8	\$EA
\$00	\$03	\$42	\$38	\$18
\$00	\$03	\$91	\$F5	\$DE

R. Wideman's softkey for...

Axis Assassin

Electronic Arts

Requirements:

Disk copier that can skip tracks or ignore errors
Disk editor
Blank Disk

Axis Assassin is a fast-paced, exciting arcade game and was one of Electronic Arts' first software offerings. The protection scheme used is just a simple check of a disk signature. To circumvent the check, the program code needs a modification to skip over it. This is done on a backup of the original program disk. So to begin, make a copy of your original Axis Assassin disk using any copier that will skip tracks five and six, or ignore any errors encountered on those tracks. The Locksmith Fastcopy option is good example. A bit-copier is not necessary though, as the rest of the disk is in a normal format. Then, with your favorite disk editor, make the following changes to your backup:

Track	Sector	Byte	Change To
\$01	\$0C	\$00	18 60 42
\$01	\$0F	\$00	18 60 DD

These changes will provide you with a deprotected Axis Assassin. Some earlier versions of Axis Assassin may use a different incarnation of this protection scheme and will require a different approach to the deprotection.

readers' softkey & copy exchange

William Forsyth's softkey for...

Manuscript Manager

Pergamon Press
Fairview Park
Elmsford, NY 10523

Requirements:

Apple //e or //c
Super IOB 1.5
A blank disk

For those who write papers in APA style, Manuscript Manager (APA style) is a dream come true. All formatting associated with writing an APA style paper is eliminated by this program, thereby taking the tedium out of manuscript preparation and allowing you to devote more time to the creative aspect of the writing itself. Manuscript Manager automatically prompts for references and citations, making it unnecessary to remember any stylistic rules. It also guides you through the entry of headings, footnotes, tables, figures, and equations; automatically numbering them and all text references to them in the document! Combine the above features with all the standard features found in word processors such as Apple Writer, and you have a truly remarkable program!

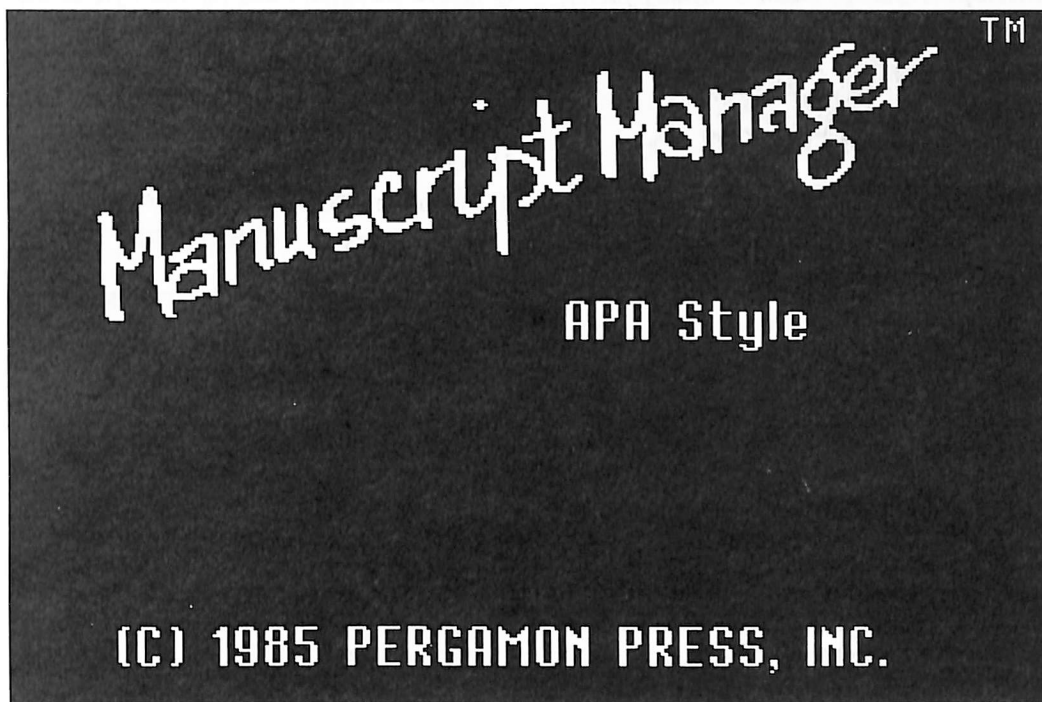
Unfortunately, the program is copy protected. Since I consider copy protection to be a "bug" in the software, I took it upon myself to "fix the bug." The result of my work is the softkey below, which will remove the copy protection routine from the disk.

The Protection

The disk itself has completely normal address and data marks on all tracks except track \$22, allowing the disk to be copied with any normal copier that can ignore errors on tracks. If a copy is made in this manner, the program will boot and display its hi-res title page and then hang. After a few unsuccessful tries with Locksmith 6.0 and Copy II Plus 6.2, I elected to remove the routine that checks track \$22.

Since Manuscript Manager runs under ProDOS, any routine to check for the integrity of track \$22 would probably have to use direct calls to the disk drive. Upon scanning the disk for the bytes 8C C0 (\$C08C reversed), close inspection revealed that a nibble count routine lies on track \$19, sectors 7 and 8. These sectors are loaded into memory at \$6000 and proceed to do checks on track \$22.

Rather than mess around with the actual routine at \$6000, I noticed that it ended with



an RTS indicating that it was called from some main code as a subroutine. To find this code, I recalled that my Apple hung right after displaying the hi-res title page. To display the hi-res screen, the program is required to flip the soft switches inside the Apple for the graphics mode. Scanning the disk for references to \$C057 (the switch for hi-res graphics) revealed a routine on track 4, sector 5. And sure enough, right after flipping the switches, there is a call to the nibble count routine at \$6000.

```
xx5E- STA $C052 set full screen graphics
xx61- STA $C057 set hi-res graphics
xx64- STA $C050 turn on graphics
xx67- STA $C054 show page one
```

```
xx8F- LDA $BF30 get contents of $BF30
xx92- JSR $6000 CALL NIBBLE COUNT
xx95- BCC $xA0 if successful, continue
xx97- STA $C051 else, enable text mode
xx9A- STA $C054 and...
xx9D- JMP $08FD hang the system
```

The best way to defeat this routine is to simply change the single byte at \$5095 from a \$90 to a \$B0. This changes the BCC (Branch if Carry Clear) to a BCS (Branch if Carry Set), and since a backup copy without track \$22 will always set the carry, the program will continue on its merry way!

The Softkey

Use the Super IOB controller below to make the copy. It will perform the sector edit automatically. Make sure to format the backup first.

controller

```
1000 REM MANUSCRIPT MANAGER CONTROLLER
1010 TK = 0 : LT = 34 : ST = 15 : CD = WR : FAST = 1
1020 GOSUB 490 : GOSUB 610 : T1 = TK : TK = PEEK
      (TRK) - 1 : RESTORE : GOSUB 310 : TK = T1
1030 GOSUB 490 : GOSUB 610 : IF PEEK (TRK) =
      LT THEN 1050
1040 TK = PEEK (TRK) : ST = PEEK (SCT) : GOTO
      1020
1050 HOME : PRINT "ALL^ DONE." : END
1100 DATA 1^ CHANGES , 4 , 5 , 149 , 176
```

controller checksums

1000 - \$356B	1040 - \$232B
1010 - \$F5F2	1050 - \$99DF
1020 - \$FAA5	1100 - \$ED98
1030 - \$D3CA	

If, for some reason, this controller does not produce a working copy, then perhaps you have an older or newer version. If this is the case, first copy the disk with a whole disk copier that will ignore track \$22. then, search around track 4 for the bytes 4C 00 60 (JSR \$6000). Immediately following the \$60 in the JSR \$6000 should be the BCS instruction (\$90). Change this \$90 to a \$B0 (BCC), and the backup should work correctly.

readers' softkey & copy exchange

Christopher James Dean's softkey for...

The Crown of Arthain

Micro Lab
3218 Skokie Valley Road,
Highland Park, IL 60035

Requirements:

Apple][Plus, //e or //c
COPYA
A sector editor
A blank disk

The Crown of Arthain, an early game by Micro Lab, is a fantasy-adventure game in which you must traverse the countryside in search of the priceless Crown of Arthain. While playing the game, you will find treasure and encounter hostile creatures that you must fight and destroy.

The Protection

The protection of the Crown of Arthain is similar to DOS 3.3. The DOS tracks are unprotected and contain a near-normal DOS. Tracks \$3-\$22 consist of invalid checksums and an altered data prologue consisting of a D5 AA B5. The format can easily be deprotected. Upon viewing the catalog track, however, garbage is shown. This means that the DOS must be captured.

After looking at the RWTS on track zero, I noticed that it was perfectly normal and thus could not read the protected disk in its normal state. This RWTS also would not read the deprotected copy. This meant, that the RWTS is altered after the DOS is loaded and just before the hello program is run. After performing a boot trace, all seems normal until the hello program was to be executed at \$9E4D. Instead of a jump to \$A180 to run the hello program, there was a jump subroutine to \$BC61 and then a jump to \$A180. Investigation of the following routine revealed the following routine:

```
BC61: A9 01    LDA #$01
BC63: 8D 00 B9 STA $B900
BC66: A9 B5    LDA #$B5
BC68: 8D FC B8 STA $B8FC
BC6B: 60      RTS
```

This routine, stored in the end of the RWTS write translate table and an area used for DOS patches allows the RWTS to ignore checksums and read with the altered data epilogue D5 AA B5. The routine cannot be bypassed for some reason, so just change \$BC67 to \$AD and \$B942 to \$18 and the program will work. Because the DOS tracks are unprotected and the rest of the disk is, we will have to tell COPYA

to ignore checksums and the last byte of the address header. Listed below are the sector edits needed to complete the copying process.

The Procedure

- 1) Boot the DOS 3.3 system master
- 2) Startup the COPYA program
RUN COPYA
- 3) when the drive stops, hit CTRL Reset
- 4) Delete line 70
70
- 5) Enter the monitor:
CALL -151
- 6) Tell the RWTS to ignore checksums and last byte of address header
B942:18
BE48:18
B8FB:29 00

- 7) Enter Basic and type RUN and copy the disk
- 8) Perform the following sector edits:

Trk	Sec	Byte	From	To
\$00	\$03	\$42	\$38	\$18
\$00	\$06	\$67	\$B5	\$AD

Tony Phalen's softkey for...

Address Book

Muse Software
347 N. Charles Street
Baltimore, MD 21201

Requirements:

Apple][Plus, //e, //c with 48K
Super IOB v1.2
One Blank disk

Address Book is a program which allows you to store close to 700 names, addresses and telephone numbers on disk and allows quick and easy recall for editing or printing. The Address Book allows you to print or view individual records or groups of records. It also has a sort module, which allows you to store your records in any order (last name, first name, zip code, telephone number, etc.).

The first thing I did when I got this program was to back it up, knowing that any program which could store this kind of data would be a valuable one. Copying it with the normal copy programs (COPYA, Disk Muncher) all didn't seem to work well, and even bit copiers had

a little trouble. I finally got a good bit copy of the Address Book, but the disk access time and bootup were still quite long. So, I decided to remove the copy protection.

Protection

On the first page of the booklet, the first line states, "DO NOT UPDATE this disk with other versions of the disk operating system (DOS). If you do, it will destroy the program disk." "Hmmm, interesting" I thought. This told me that the protection had to do with DOS. So, out came Quality Software's "Bag of Tricks" and using the program Trax, I found that the address field header had been changed to D5 DA 96, as opposed to the normal D5 AA 96. Also, the data field header had been changed to D5 DA AD, instead of the normal D5 AA AD. And finally, the data field end marker had been changed to DE DA, instead of the normal DE AA. Okay, thinking that was it, I wrote a Super IOB controller to read the Address Book markers and write with normal ones. Well, it didn't work!

Something was wrong and I was hoping it wasn't a nibble count. So, I scanned the disk for any suspicious looking code, but I couldn't find any. Being a little discouraged, I read back issues for anything that might shed some light on this subject. Then I found it. Near the end of Mike Roetman's softkey for Ultima IV it states "And when you are playing your next 'Copy the Disk' game, don't forget the translate tables. They might hold the key you are looking for." I then checked the translate tables and bingo! Two changes had been made, one in the nibble translate table and one in the byte translate table. (To see these, enter the monitor and type BA29.BA68 for the nibble table and BA69.BAFF for the byte table.) One change was at location BA4C, where instead of a DA, there was an AA. The other change was at location BAAA, where a 23 was found instead of an AA. So, I incorporated these changes into my controller and wah-lah, it worked.

Step by Step

- 1) Initialize a disk with (preferably with a fast DOS).

INIT HELLO

- 2) Insert a controller at the end of this article into Super IOB and run the resulting program.
- 3) Boot and enjoy!

A faster Boot

The hello program of this disk is compiled. All it does is load in the title page, display it and the run a file called MAIL8.0.T. Overriding this just makes the program boot faster. You can bypass the program by typing the following:

The Games of 1986

by Jeff Hurlburt

This month we wrap up the annual reviews with the emphasis on adventuring. While pure arcades command an ever shrinking share of game production, adventures continue to proliferate, often incorporating arcade sequences which once would have been released separately. Much the same sort of transformation has occurred with simulations and other game forms. Everything, it seems, plays better (and longer) as an adventure; and, with the best numbers, variety, and overall quality ever, 1986 has been a super year for computer wizards, warriors, explorers, and detectives.

My goal in these reviews is to make it easier for you to zero in on the best values for YOUR entertainment dollar. At a local software parlor it's difficult to give even one adventure (let alone several) much of a tryout; so each review aims to supply the maximum information in the space available. Game type and, if multi-player, number of players for which the product is designed are shown up front, along with peripherals requirements/options and machine compatibility. I've tried all the games on the IIGs; and "Apple II series" now includes the new gs model. The bulk of each review describes the game, with the remainder devoted to critique, publisher information, pricing, and ratings.

Comments and ratings reflect my evaluation based upon playing a game and, sometimes, watching as others try it. Each game is rated in five areas and "overall" on a ten-point scale: 10=SUPERIOR (rarely awarded; indicates a breakthrough of some kind), 09 = Excellent,

07 = Good, 05 = Fair, 03 = Poor, 01 = Rotten.

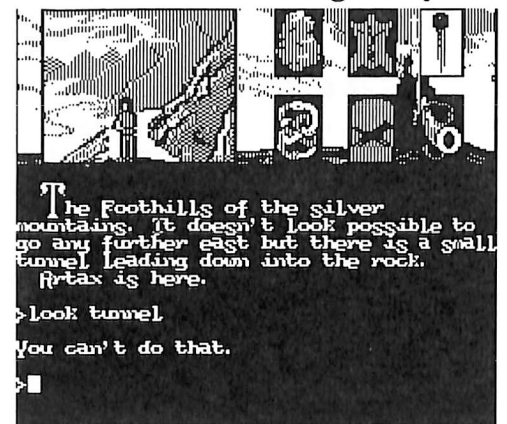
Graphics (GRFX) is the first area rated. It concerns quality of artwork, clarity, impact, smoothness, speed, and realism. Good **Support Materials (S.M.)** include clear, thorough directions for play. In some cases attractiveness, tutorial value, or effectiveness in creating 'atmosphere' may be important. **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 which enhance playability.

Difficulty (DIFF) is self-explanatory for single-player games. For others it relates to how much effort is required to achieve a decent level of play. Unlike other areas, the rating here simply reflects "level of". An "8" is "very tough", which may or may not equal "very good". 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 amounts to a summary of player reaction(s) during tryouts. For educationally-oriented games, a second summary rating (/ED) of **educational value** is included.

In case you are relatively new to adventure gaming, here are a few guidelines which may help in selecting the best entertainment values: Text and picture-text adventures tend to be problem/puzzle oriented; so they are especially well suited to multi-player participation. Picking an attractive scenario is important, since for maximum enjoyment you must be willing to involve yourself in the game situation. Other adventures are beefed-up simulations (flight,

space war, etc.) which usually incorporate low to medium difficulty action sequences. Some of these can be very long-playing, whereas others are short duration contests offering high scores competition and multiple replays. Finally, map and map-maze adventures like the *Ultimas*, *Questron*, *Bard's Tale*, etc. all emphasize exploration, combat, and character development. Often these are the longest playing of games; so if you find one you like, you're in for many hours of fun.

The Never Ending Story



(Picture/Text Adventure)

Compatibility: 64K Apple II series

Requirements: One disk drive

Scientific scepticism, the "realistic" approach to child rearing, and similar influences have taken their toll on Fantasia. Indeed, the personification of disbelief, known as the Great All Consuming Nothing, is swallowing the land of imagination and wonder at an alarming rate. In DataSoft's *The Never Ending Story* you are Artreyu, a boy of magical Fantasia whom fate has chosen to restore faith in fantasy and thus

turn back the Nothing before it munches your land into extinction.

As in the movie your quest is two-pronged. In *Fantasia* you must find Auryn, an amulet symbolizing the land's magical powers, penetrate the Ivory Tower, and restore the stricken Empress. Meanwhile, back in the mundane world, young Bastian Bux is in a dusty attic reading about your adventures. As Atreyu makes progress, Bastian's belief in the realm of magic grows. With success in *Fantasia* Bastian's faith is confirmed and the Nothing is vanquished (reduced to nothingness?) Pop metaphysics aside, your main tasks are to befriend key characters (such as Falkor the luckdragon), collect twenty or so needed items, and look for clues for guidance through each of three "levels". Except for Gmork, the Nothing's henchman, there are few hazards; and, with a minimal parser recognizing fewer than forty commands, not much room for complications either.

Though offering decent (one-third screen) graphics, above average sound, and efficient save/restore routines, the game is beset by some unfortunate embellishments. Notably, the pseudo-cursive script is difficult to read; and the Nothing continues its advances whether or not you are moving. The latter is especially bothersome since you end up having to enter "PAUSE" frequently just to keep the program from displaying its notification (that time has passed) and scrolling out the text you are trying to read. Representing a Mr. Rogers-class challenge wrapped in a cliché-ridden clap-if-you-believe-in-magic scenario, *The Never Ending Story* might work as a parent plus child undertaking. Otherwise, score one for the Great Nothing.

Available from: DataSoft, 19808 Nordhoff Place, Chatsworth, CA 91311. (818) 886-5922. \$29.95

GRFX	S.M.	PLAY	DIFF	INTR	GAME
06	05	07	05	06	05

The Cave of Time



(Picture/Text Adventure
Compatibility: 48K Apple II series
Requirements: One disk drive; joystick optional

If a Grinch can steal Christmas, then it should come as no surprise that Evil Time Grouches

have stolen history. Actually, what those pesky grouches have done is snatch four key objects from different periods: a shard of flint from some cavemen, a large egg from the Loch Ness Monster, a golden crown from the time of castles and kings, and President Lincoln's famous stovepipe hat. Paradoxes aside, the long-term affects of these thefts upon history is awesome to contemplate. Bantam's multiple-setting adventure launches you on an epoch-spanning quest to recover the precious artifacts and return each to its proper owner- a feat only possible if you are prepared to brave the mysterious *Cave of Time!*

The three-way fork you encounter upon entering the cave branches left and right to the four time portals and downward to the 'grouches' dungeon, where the items are secured in separate cells. To obtain each object you must enter the dungeon, defeat the grouches in a swordfight, and search one of the cells. Fortunately, the guards don't care much for swordplay, so this part is easy. The real challenge is to find your way to the correct time and wind through the mini-adventure to return an item. Each is very different, with additional items to obtain and use, personages to meet, and questions to answer. Sometimes, as in the swordfights or riding a woolly mammoth in caveman times, low level arcade skills are tested as well.

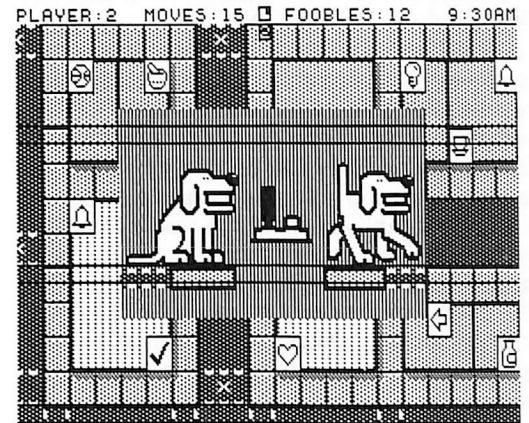
Since player adventuring inputs are via multiple-choice responses and none of the scenarios is especially involved, winning, on first inspection, appears absurdly easy. However, such minor slip-ups as a wrong answer or falling off the mammoth tend to disrupt the flow of time and you are hurled back to the cave (with items intact). But, if you happen to arrive at a critical juncture without a needed tool, everything is lost. Also, there is no save/restore option and cave passages are randomly arranged upon powerup- fair enough, as the game is entirely winnable in a single two or three hour session.

Adapted from the popular "Choose Your Own Adventure" book series, *The Cave of Time* is a well-integrated, nicely-paced medium level challenge. Providing a score based upon such achievements as winning a swordfight and returning an object is a good idea, since most players will tackle the game several times before winning; but not saving scores to diskette is a blunder. (Achievements unsaved are achievements unsung!) Still, with excellent scenario graphics, decent sound, and frequent use of animation, *The Cave of Time* is an attractive, fun to play adventure well suited to ages nine through adult.

Available from: Bantam Software, 666 Fifth Avenue, New York, NY 10103. (212) 765-6500. \$34.95

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

Fooblitzky



('Boardgame' Adventure for 2-4 players)
Compatibility: 128K Apple IIe, IIc, IIgs
Requirements: One disk drive; joystick optional

For years a favorite diversion of experienced game players has been speculation over the question of when (or whether) a certain well-known vendor would publish something besides a text adventure. Perhaps it is only proper that, in the year of the IIgs, Infocom should render the issue moot with the release of *Fooblitzky*. Featuring color graphics, windowing, and (gasp!) animation, this full-scale boardgame without the board challenges you to adopt the role of scavenger-hunting hound and be the first to identify and retrieve four secret items.

The game is played on a 36x24-square map of downtown Fooblitzky, only one-fourth of which is shown on-screen at any given time. To make your hunt a little easier, each quadrant of the map has a drugstore, grocery, and other shops selling toys, hardware, pets, and sporting goods. Each kind of store sells the same items, one priced at four foobles, another at eight, and a third selling for sixteen foobles. All drugstores, for instance, sell hairspray (4F), toothpaste (8F), and an eyedropper (16F). Altogether, there are eighteen different items.

To start, each peerless pooch gets to decide one secret item, picked while others look away. (For two or three dog games, the computer picks the rest.) As play commences you have some money and a shopping bag which can hold four items. In addition, one of the items you chose is placed in your locker where it may be picked up at any time by moving to the appropriate square. To win you must go to a "checkpoint" square carrying all four secret items.

You can run your paws ragged, wasting time and foobles, unless the numerous clues and other available resources are employed to best advantage. The price of each secret item, displayed just prior to play, is one example. Another is the information provided by visits you and your fellow hounds make to checkpoint squares. Here carried items are listed and a display shows a check for each correct item, with an "x" for those not correct. However, checks and "x's" are not matched to specific items. (That would be too easy.) Recognizing that all this process of elimination stuff demands careful note-taking, Infocom supplies four

super-colorful, 11x17-inch laminated fold-out "workboards", each complete with map, item lists, and ample note space.

Well planned and nicely executed, *Fooblitzky* is a comprehensive computer 'boardgame' that works! For ease of play and just plain fun it actually surpasses some old tried and true die-and-token favorites. Though replete with such embellishments as game save/restore, a "Chance Man" substitute for stacks of cards, risky street crossings (and a hospital), rapid transit via the Underground (of course) Gliding Highway, restaurants where you can earn foobles licking plates, and much more- the game's great attraction is the underlying simplicity of the puzzle. Supplied with workboards, felt-tip pens, and superb documentation, "Fooblitzky" sets a high standard for an entirely new kind of high-interaction, multi-player entertainment.

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

GRFX	S.M.	PLAY	DIFF	INTR	GAME
07	10	07	07	09	09

Continents and Countries



(Geography Knowledge Games for one or two players)

Compatibility: 48K Apple II series

Requirements: One disk drive

How many times have you opened an almanac to locate some minor fact and wound up spending an extra half hour or so perusing charts comparing nation areas, income, and other statistics? Well, CBS has parlayed this curious fascination with seemingly dry geographical information into a software package targeted for almanac freaks and students of all ages.

Continents and Countries is a set of four activities built around a 140-country data base. In "Nation Combination" players compete to match countries in randomly dealt 'hands' with those presented by the computer for same continent, language, government, or religion. "Geo 21" is a blackjack-type game based on country areas. Each country dealt increases the value of your hand proportional to the country's area. The object is to get as close to '21' as possible without 'going bust'. "Flag Frenzy"

tests your coordination and knowledge of which countries are in which continents. As continent names are flashed and flags are raised on six poles, you aim to jump your man to a pole with the flag of a country located in the continent. Successful jumps score points but misses end a turn. After five turns, high scorer wins.

The fourth and most impressive activity is not a game but rather a system to allow flexible access to *C&C's* data base. With "Country Computer" you can sort countries according to area, population, and per capita income. Sort limits are adjustable, and you can always select the "Tell Me More" option for more detailed information (language, capital, government, etc.) on any given country.

Featuring colorful graphics and full-sized keyboard overlays (for][Plus and //e), "Continents and Countries" is an attractive, easy to use learning and information resource. Typical of CBS's attention to the little 'extras' which instill pride of ownership, the package includes a detailed manual; and everything fits in a rugged, handsome plastic case. While activities are unlikely to supplant state of the art games for pure entertainment, *Continents and Countries* is ideal for adding a touch of high-tech pizzazz to anyone's geography studies.

Available from: CBS Software, One Fawcett Pl., Greenwich, CT 06836. (203) 622-2614. \$49.95

GRFX	S.M.	PLAY	DIFF	INTR	GAME/ED
06	08	08	04	06	05/08

The Luscher Profile

(Personality Profile)

Compatibility: 64K Apple II series

Requirements: One disk drive; second drive and printer optional

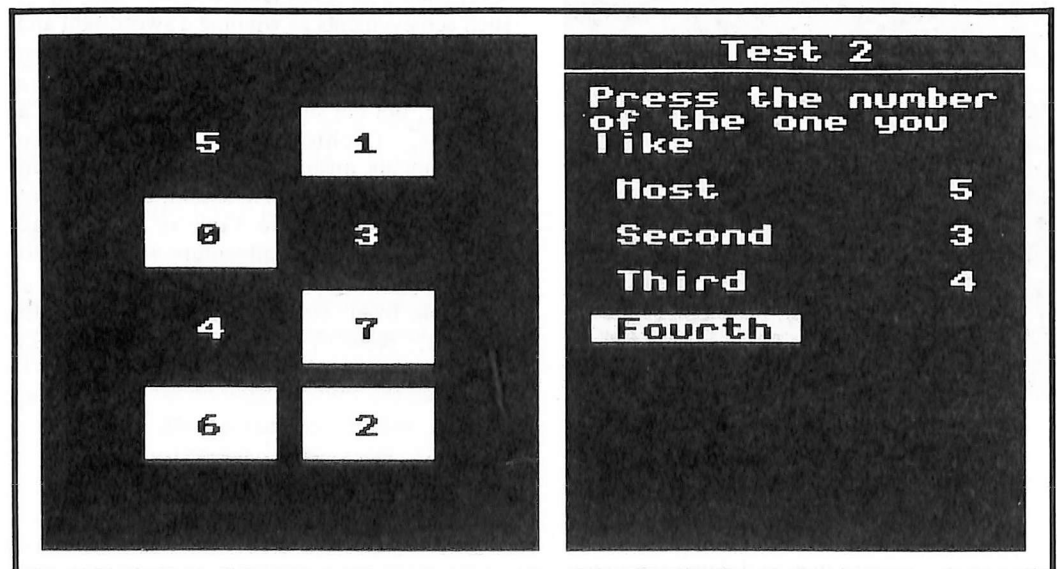
Hardly anything is more interesting to people than people, particularly when the person is oneself. Perhaps with this in mind, Mindscape has taken the unusual step of releasing a well-known personality assessment instrument. The

Luscher Profile (AKA the "Luscher Color Test") has long been popular magazine fare, usually in quickie form, because it is easy to present and fun to take, and because it possesses good "face validity". That is, most people know that color affects behavior and are willing to believe that, conversely, color preferences can tell us something about ourselves.

Mindscape's "long version" of the *Luscher Profile* comes in an attractive booksize folder which holds the diskette, fold-out color cards, and directions manual. The latter proved largely superfluous given explicit program menus and straight-forward test procedures. To obtain a profile you simply enter your name, turn to the first test card, and follow step-by-step prompts. Approximately half the test consists of ranking five or six color squares in order of preference, with the remainder involving selections from color pairs. Altogether, a complete testing requires five to ten minutes.

The program takes care of all analysis and develops a profile arranged under several headings. These address current mood; needs, desires, and goals; motivations, emotional involvements, response to challenges, future expectations, and "things to consider". Averaging four or five sentences per heading, results may be read directly from the screen or, for more leisurely perusal, from a printout. Since a Luscher profile represents the instrument's view of your current status, you may wish to save yours for comparison with subsequent testings. The program permits storing profiles on a separate diskette and even includes an option for individual passwords to protect confidentiality.

Response to the profile has been very positive; indeed, surprisingly so. Evidently, most people feel unthreatened by an instrument which, unlike a questionnaire, requires no obviously personal responses; even though the resulting analysis is supposed to be a "personal" profile. Of course, it helps that discussions are objective and non-judgemental; and it is easy to take home-computer-generated statements with a grain of salt- always a healthy attitude. Accuracy, at least in my case, was good; though, of necessity, such evaluations cannot be very specific.

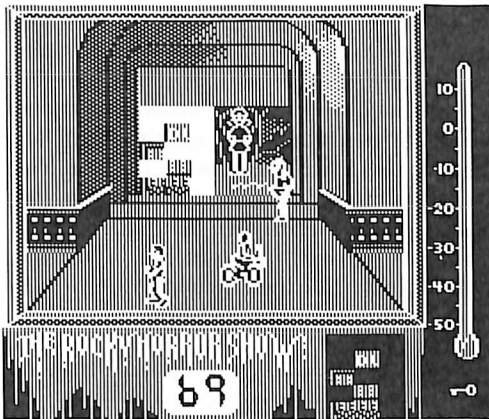


Perhaps the only real weakness is in the area of 'hard test' documentation. It is nice to know that the profile was developed by a respected psychologist (Max Luscher) and that it is widely used in Europe; but specific data on standardization, validity, reliability, and recommended time between retests would be welcomed. Still, Mindscape's *Luscher Profile* is a very slick, smooth-running package, at once insightful and uniquely entertaining.

Available from: Mindscape: 3444 Dundee Road, Northbrook, IL 60062. (312) 480-7667. \$39.95

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

The Rocky Horror Show



(Mini-Adventure)

Compatibility: 64K Apple II series

Requirements: One disk drive, joystick

No, you can't use the phone; and don't bother trying to leave either. Your host, the infamous Dr. Frank N. Furter, just will not hear of it-not on such a stormy night- and to drive the point home he freezes your fiancée with his Medusa Machine! In Activision's *The Rocky Horror Show* you are Brad or Janet, locked in a madhouse with Frank and his gang of Transylvanian flakes. The only way to free your loved one and escape is to construct a de-Medusa machine from parts scattered about the castle. Don't look for any help and forget about things looking better in the morning. The countdown has already started; and sometime tonight the whole place is scheduled to blast-off for Transylvania!

Showcasing smooth four-quadrant movement against colorful castle room backgrounds, this first edition of the new "Electric Dreams" series is a true, no-game-save, adventure quickie. You have only about twenty frantic minutes to locate the fifteen machine pieces and bring them, one at a time, to the theatre room where your fiancée is cooling her (or his) heels. To make sure all this is a suitable test of your affections, most of the doors are locked, pieces are rearranged upon replays, and there are a few hazards. Besides high-voltage traps, you will need to watch out for a laser-armed manic-depressive (the butler) and reckless motorcycling Eddie, one of Frank's failed

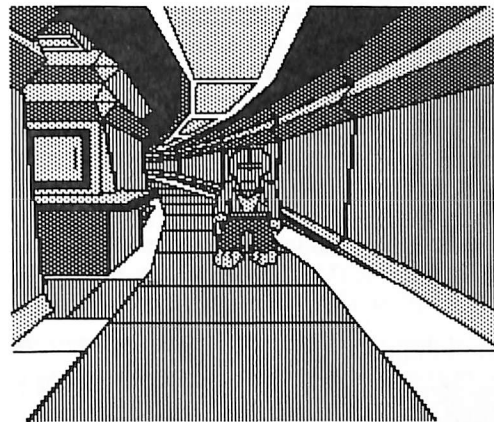
experiments who thaws to awareness when the freezer temperature goes above zero. Happily, most of the castle's residents are satisfied with wisecracks, though some will snatch your clothes if you let them get too close. (Bad news! since you can't do anything until once again decently attired.)

Chiefly a challenge to organizational ability and coolness under fire, *Rocky Horror* is a deceptively tough little nut to crack. Required stick expertise is minimal, keys to locked rooms are all over the place; and, once you get into a room, any pieces there are in plain view. It looks so simple that it's easy to get sucked into replays without even being aware that the game has 'got you'. Whether a newcomer to *The Rocky Horror Show* or a devotee of the original stage play, this is one Electric Dream sure to haunt several fun filled hours.

Available from: Activision, P.O. Box 7286, Mountain View, CA 94039. (415) 960-0410. \$34.95

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

Oo-Topos



(Picture/Text Adventure)

Compatibility: 64K Apple II series

Requirements: One disk drive, 128K and double hi-res optional

Unbeknownst to Earth, an interstellar carrier has been zapped by meteors and now an enormous life-extinguishing cloud of transfusion waste is headed towards the planet. You've been hired by the Space Ecological society to deliver the seeds of a neutralizing compound and are well on your way when alien space pirate types ground your ship on a rock named "Oo-Topos" and toss you into a cell. Unless you can escape and deliver the goods in time, there will be some very red faces at the next S.E.S. convention- even if there are no complaints from Earth!

In Penguin's *Oo-Topos* busting out of a crackerbox cell proves to be the least of your problems. Even staying out is easy, since most of the pirates are off with the fleet on a raid. Unhappily, your trusty Astro series spacer is not just parked downstairs, waiting and ready. It's 'out there' somewhere, untroubled by rust in Oo-Topos's tangy ammonia atmosphere; and,

wouldn't you know, somebody has tossed your spacesuit down a garbage chute! Not that you're going anywhere until the tractor beam pinning your craft to this rock is turned off and certain vital components, scattered around the base, have been recovered and reinstalled. Otherwise, except for poison gas and radiation hazards, aliens which are invisible unless you can find the proper goggles, and an ever alert robot sentinel... well, it's smooth sailing!

Winning *Oo-Topos* is chiefly a matter of cracking many small puzzles and good mapping. The latter poses special difficulties since, until you find a light, several rooms are dark; and the only access to at least one key area is via a maze-like system of five-way transfer tubes. Granted, knowing how to get somewhere quickly is merely a convenience for most of the adventure. However, once the inevitable fleet recall signal is broadcast, a good map is worth its weight in Vegan silver. While there are relatively few fatal traps per se, with many little puzzles and numerous items to locate and use correctly, it is easy to make fatal errors. The game's super efficient, three-position save/restore feature proved a great aid for mapping and solution testing.

A solid, mid-level challenge, *Oo-Topos* is one of an all too rare breed: a text-input adventure which doesn't exceed the capabilities of its parsing. Penguin's respected "Comprehend" parser fits the game like a glove; so you will seldom, if ever, find yourself unable to try out a promising idea. Add exceptional artwork optionally available in double hi-res, and the result is a package approaching the mythical "Infocom with pictures" standard. Clever and often humorous, if you are ready to save the Earth, *Oo-Topos* is the fun way to do it!

Available from: Penguin, P.O. Box 311, Geneva, IL 60134. (312) 232-1984. \$17.95

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

High Stakes

(Text Adventure)

Compatibility: 64K Apple II series; IBM PC
Requirements: One disk drive; printer optional

The trouble with making a lot of money is that the moment you start to spend it on something really fun, like race horses, people start calling you a "playboy". Then, when it turns out your trainer is stealing a fat percentage of every winning purse and you discretely tell him he's fired- voila! You show up in the tabloids as an ungrateful, boorish playboy. Such are the first signs that trouble looms on the horizon for Steven Scott, millionaire toy designer. In Mindscape's adaptation of the Dick Francis horse racing mystery you are the beleaguered Scott, who discovers, almost too late, that everything he's got, including his life, is on the line. This time, for sure, you're playing for *High Stakes*!

OK, so maybe you should have filed a complaint and had Leeds arrested. At least that way he wouldn't have had the chance to nearly run you down at the park AND take off with your horse, Energise, in the trailer! (Obviously the guy is a hotheaded nut; and if Energise isn't back by... well, the caller claimed your horse was left with another trainer.) After such a morning it was bad enough to come home and read that nasty little piece in the paper; but why should anyone break into your workroom and wreck almost every toy model in the place? (Leeds again? an angry competitor?) Just what the blazes is going on?!

Set in a semi-rustic preserve of racing parks and stables north of London, *High Stakes* is one of those snowballing, race against the clock adventures. Typically, you begin unconcerned as time ticks away on every move; that is, until it starts to look like a deadline of some kind is approaching. Then, when everything seems about to fall into place, there's a frantic rush to make sure you're not the one everything falls into place upon. You can count on doing some amateur detective work in this one; but, fortunately, not so much as to seriously strain the capabilities of a mediocre parser backed by an efficient multi-position save/restore. Late night drives along deserted roads, sudden violence, an attractive stranger, and the smell of big money all lend a distinctly Phillip Marlowe flavor to one of Mindscape's better role-playing fantasies.

Available from: Mindscape, 3444 Dundee Road, Northbrook, IL 60062. (312) 480-7667. \$39.95

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

Real Life

(Text Adventure/Simulation)

Compatibility: 128K Apple IIe, IIc

Requirements: One disk drive

In case you have wondered where your present computer gaming, thrill seeking existence is leading, Relational Systems is ready with *Real Life*. This adventure/simulation, so the publisher claims, will help you determine where you're going and, perhaps, how to avoid getting there. Set in the streets and buildings of a modern city, *Real Life* comes with a few hint sheets, and a map with a plastic overlay marked-off in ninety-plus squares. Since directions are on diskette, there is no game manual.

After entering a name, gender, and age, you find yourself in a parking lot behind an office building with a few bucks in your pockets,

dirty, and dressed in rags. Not a very promising beginning for your quest of self discovery; but then the idea is to force some sort of action. You may, for instance, enter the building and look for a washroom; find your home on the map and go there; or forget about your appearance and just explore. For each location there is a description of surroundings and a multiple-choice type listing of your options (which do include a game save).

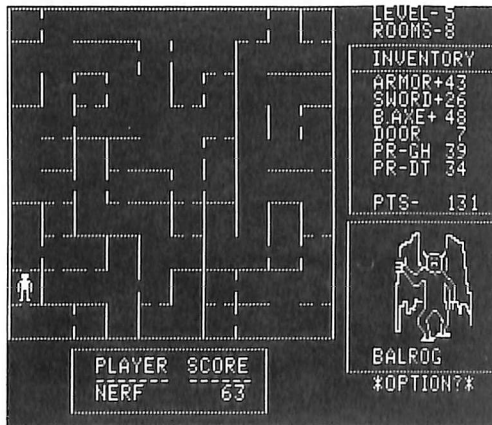
As you move around there are opportunities to interact with twelve or so key characters. Some, like beggars and pushers, are after your money and may get you into trouble; others, such as a prospective employer, may offer helpful advice and even a job. Of course, there is no requirement that you keep to the straight and narrow. You set your own goals; if the outcome is satisfactory, you win.

Predictably, in a text adventure which lists all player options on the screen, there is little real opportunity to explore any given situation. In fact, most of your *Real Life* decisions turn out to be strategic- mainly a matter of going somewhere so that something can happen to you. (So when forced to buy something which subsequently fails to appear in your inventory, don't worry; it wasn't important anyway!) The game could provide some useful insights into values, especially in a classroom setting with an instructor to guide discussion of experiences. As leisure time entertainment, however, *Real Life* is unlikely to satisfy experienced adventurers.

Available from: Relational Systems, P.O. Box 83070, Troy, MI 02140. (313) 645-5090. \$29.95 (first 100 orders per month FREE)

GRFX	S.M.	PLAY	DIFF	INTR	GAME/ED
NA	05	07	07	05	04/06

Warrior's Realm



(Maze Adventure)

Compatibility: 48K Apple II series

Requirements: One disk drive

For any true-blue, monster-bashing hero, the ultimate reward is not wealth or power; it is fame, the grudging respect of peers, and a place in the songs of minstrels. In Gerhardt Software's *Warrior's Realm* your way to glory is up, through as many as ninety-nine levels of 10x10 randomly created mazes. Enter where you dare; but remember, the further down you start, the more monsters there are to bash, the more points to be gained, and the more brilliantly your achievement will shine in the Heroe's Hall!

Featuring non-arcade combat very similar to that found in such favorites as *Phantasy* and *Bard's Tale*, *Warrior's Realm* is a player-paced, swords and sorcery test of strategies and nerve. In this game you are, for the most part, only as good as the weapons, armor, and magical items you carry at the moment- that is, except for base hit points, a character 'develops' by acquiring goodies. Better swords, axes, and armor are obtained in treasure chests, along with a plethora of nifty magical artifacts. The latter include scrolls which absorb the attacks of specific monsters, cast lightning bolts, and charm monsters to fight on your side! There are potions to heal or show the location of hidden stairways, and wands good for death blasts or immediate passage to the next level. The power in such devices is expended all too soon, so they must be continually replenished.

Still, if you could keep a tenth of the items won, there would be no contest; but you can never carry more than seven. Thus much thought goes into making such decisions as whether to dump a scroll still good for taking 20 balrog or dragon hits in favor of one good for absorbing 50 troll or giant strikes. Or what about dumping a potion worth two healings to pick up a three-kill deathwand?, etc.. Everything depends on your current situation, which, of course, is always changing! Fortunately, you only face one adversary at a time; and, except for wandering monsters, you can usually break off combat if things really get hot.

Offering several new wrinkles in the venerable mazes and monsters theme, *Warrior's Realm* is a well thought-out, smooth-running product. The game's magic system is among the best you will find anywhere, and the Heroe's Hall display of winners' names and data is a strong plus. Graphics, sound, and speed are adequate; and save/restore functions work well. Supplied with a detailed manual, *Warrior's Realm* is persistently addictive, fun, and as challenging as you dare to make it. Available from: Gerhardt Software, 32600 Concord Drive, Dept. 401, Madison Heights, MI 48071. \$29.95

GRFX	S.M.	PLAY	DIFF	INTR	GAME
05	07	08	04-08	08	07



Ultima IV

by Doctor Destruction

Origin Systems, Inc.
340 Harvey Road
Manchester, NH 03103
\$59.95

1) In case you're wondering about the "Fens of the Dead", a "fen" is a swamp or bog. There is one lonely square of swampland just north or west of Vesper at D'G" L'G". You can get Mandrake root there when the moons are both dark by (S)earching.

2) You may have been told that you can get nightshade at J'F" C'O" when the moons are both dark, but what you won't be told is that you can also get it at C'M" M'N", near the Shrine of Sacrifice, also when both moons are dark.

3) Once you have a good number of companions (4 or 5), and they are all fairly powerful (4th or 5th level), you should get as many reagents as you can (keeping the number of each the same, if possible), then mix up 5-10 of each of the following spells: (C)ure, (H)eal, (K)ill, (D)ispell, (S)leep, (W)inds, and one (X)it. Next, after saving the game, venture to Lord British's castle, and follow the secret doors outside the right of the castle and up to the secret dungeon (which is really Hythloth).

Then (D)escend into the depths with all of your characters fully healed and ready for battle. The first level is nothing but a set of stairs with four force fields protecting nothing in all directions. (D)escend the ladder and continue to do so until you reach the bottom, level 8. Face the north and move forward one space to (D)ispell the force field. Then move east one space and north two into a doorway. This room contains some dragons, but it should be easy to pass through without getting hurt badly. Just remember that in dungeon rooms, you can leave the room before the battle is over without losing any virtues.

Exit to the west and go through two more fairly easy rooms (if you use your (K)ills and (S)leeps) before entering the final objective: the Treasure Room. There are twenty-odd chests protected by only two Balrons. If you have a good-sized party, at least one of your characters should be awake at all times. Have one of the spell-casting party-members (D)ispell the field which separates you and the loot, and go for an all-out attack. After you have defeated the guardians, have all characters except your strongest leave the room. Let this remaining character get all chests, and when finished, leave the room also.

Now, it's decision time. If you have enough hit points and guts, you can go back in and get more gold again and again until you have 9999 gold pieces (you can't get any more than that) or until your characters are getting weak. Don't let them lose too many points, for you have to

again trek through the three outer rooms to get back to a dungeon square so you can (X)it. After doing this, you will be on the isle of the abyss by a "back door" to Hythloth. There is only one way out: the balloon which is sitting a bit to the west. (B)oard it and use the (W)inds spells to get back to the mainland and the castle, where Lord British should give you a few levels of experience. You can go through this escapade any time, because the balloon is ALWAYS there after you (X)it. That means if you left it on the other side of the world, it will be teleported to the exit of the dungeon. (No, I'm afraid there's only one balloon). This extra gold should help you buy some good weapons and tons of food, which you'll need when you get all eight characters, because they sure eat a lot.



Auto-Duel

by Tim Scott

Requirements:

Apple][Plus or better
Auto-Duel

Auto-Duel, the Car Wars role-playing game come to computer, is a fun, if not difficult, game. You are to get a large amount of dough and make a car filled with all kinds of weapons such as anti-tank guns, machine guns, and even smoke screens. After earning enough prestige, you could head an FBI investigation to throw Mr. Big into the slammer.

The attributes to your Auto-Duel character are all stored in the file CR. Most of the info, which appears to be a common practice with Origin, is stored into binary coded decimal formats, that is, a "15" in the file is read as fifteen and not as twenty one (as a PEEK from a BASIC program would give).

The Auto-Dueler Editor is able to change the following: location of your duelist and his currently used car, his name, the amount of money he has, his driving, marksmanship, and mechanic skills, his health, his body armor, and the current day, month, and year of the game.

Table 1 shows where the bytes of each attribute are stored in the file CR.

Money, Location, and Date

Unlike the other attributes, these three are stored each in a special way, with money being as close to the "normal" format of the three.

Money is stored in three different bytes, \$14, \$15, and \$16. The unusual thing about the money bytes, is the way they're stored in reverse order, meaning that if you have 609010 dollars, byte \$16 has the value of 60, byte \$15 has the value of 90, and byte \$14 has the value 10.

The Location is stored in a different way than the others but it is not too unusual, being stored in hexadecimal form (values can be \$0A, \$0B, etc.) Each number stored in this byte represents being in a certain city. \$00 stands for being in Watertown, while \$0A means that the duelist is located in Harrisburgh.

Most strange of all the bytes found, is the date. It is stored in normal decimal format, but has a value of -1 of what is shown when, during play, a [L] is pressed. What that means is,

if the date, according to the game, is 2-9-2030, the bytes, \$22, \$23, and \$24, where the values are put, will be 01, 08 and 29 (the 2000 is added automatically with no controlling bytes that I could find.)

Table 1

Byte	Controlled Attribute
\$04-\$13	Name in ASCII (16 chrs in length)
\$14-\$16	Money
\$17	Prestige
\$18	Driving Skill
\$19	Marksmanship Skill
\$1A	Mechanic Skill
\$1E	Health
\$20	Location
\$26	Body Armor
\$22-\$24	Day, Month, and Year respectively

Entering and Using The Auto-Dueler Editor

The Auto-Dueler Editor is one BASIC program. Type it in, and SAVE it before RUNNING it.

SAVE AD EDITOR

Run the program and enter which drive the Auto-Duel Player Disk will be in. Then press RETURN after inserting the disk into the chosen drive.

A selection menu after that should then appear on the screen. Enter your choice and then press RETURN. Now, depending on which one you selected, should be a screen showing the current value of that choice and give you the option to change it. To change it, just type in the appropriate numbers and then hit RETURN. If you just want to view what the current value was and do not wish to change it, just press RETURN and the value will remain the same.

Now go out there and get Mr. Big!

Auto-Dueler Editor

```

10 REM -----
20 REM == THE AUTO-DUEL ==
30 REM -- EDITOR --
40 REM == BY TIM SCOTT ==
50 REM -----
60 ONERR GOTO 1600
70 DIM PL$(15)
80 FOR I = 0 TO 15 : READ PL$(I) : NEXT
90 D$ = CHR$(4) : BA = 35327
100 TEXT : HOME
    
```

```

110 VTAB 1 : HTAB 12 : PRINT "AUTO-DUELER^
EDITOR"
120 POKE 34 , 1
130 HTAB 15 : PRINT "BY^ TIM^ SCOTT"
140 VTAB 10 : HTAB 7 : INPUT "DRIVE^ (1)^ OR^
DRIVE^ (2)^ USED?^ " ; A$ : D = VAL (A$ ) :
IF D < 0 OR D > 2 THEN GOTO 100
150 VTAB 13 : HTAB 9 : PRINT "INSERT^ DISK^
INTO^ DRIVE^ " ; D
160 VTAB 15 : HTAB 13 : INPUT "PRESS^
'RETURN' " ; A$
170 PRINT D$ "BLOAD^ CR , A$A00 , D" D
180 REM MAIN MENU
190 HOME
200 PRINT : PRINT "CHOOSE^ ONE : ^ "
210 PRINT "1)^ NAME"
220 PRINT "2)^ MONEY"
230 PRINT "3)^ PRESTIGE"
240 PRINT "4)^ DRIVING^ SKILL"
250 PRINT "5)^ MARKSMANSHIP"
260 PRINT "6)^ MECHANIC^ SKILL"
270 PRINT "7)^ HEALTH"
280 PRINT "8)^ BODY^ ARMOR"
290 PRINT "9)^ DAY , ^ MONTH , ^ & ^ YEAR"
300 PRINT "10)^ LOCATION"
310 PRINT "11)^ QUIT^ & ^ SAVE"
320 PRINT : INPUT "CHOICE?^ " ; A$
330 A = VAL (A$ )
340 IF A$ = "" THEN GOTO 190
350 IF A < 1 OR A > 11 THEN GOTO 190
360 ON A GOSUB 460 , 570 , 740 , 830 , 910 , 990
, 1070 , 1150 , 1230 , 390 , 1470
370 GOTO 190
380 REM LOCATION ROUTINE
390 HOME : PRINT
400 PRINT "CURRENT^ LOCATION : ^ " ; PL$( PEEK
(BA + 29) )
410 PRINT : FOR I = 0 TO 15 : PRINT I ") ^ "
; PL$(I) : NEXT
420 PRINT : INPUT "NEW^ LOCATION : ^ " ; NL$ : NL
= VAL (NL$ ) : IF NL$ = "" THEN RETURN
430 IF NL < 0 OR NL > 15 THEN GOTO 390
440 POKE BA + 29 , NL
450 RETURN
460 REM NAME ROUTINE
470 HOME
480 PRINT : PRINT "CURRENT^ NAME : ^ " ;
490 FOR I = 1 TO 16 : PRINT CHR$( PEEK (BA + I
) ) ; NEXT
500 PRINT : INPUT "NEW^ NAME^ (16^ CHARS) : ^ "
; NA$
510 IF LEN (NA$ ) > 16 THEN GOTO 470
520 IF LEN (NA$ ) = 0 THEN RETURN
530 FOR I = 1 TO 16 : M$ = MID$( NA$ , I , 1 )
540 IF M$ = "" THEN M$ = " ^ "
550 POKE BA + I , ASC (M$ ) + 128 : NEXT
560 RETURN
570 REM MONEY ROUTINE
580 HOME
    
```



```

590 X = 17 : GOSUB 1570 : AM = NU
600 X = 18 : GOSUB 1570 : AM = AM + NU * 100
610 X = 19 : GOSUB 1570 : AM = AM + NU * 10000
620 PRINT : PRINT "CURRENT^ AMOUNT:^ " ; AM
630 PRINT : INPUT "NEW^ AMOUNT^ (0-999999)^ :^ " ; NA$
640 IF NA$ = "" THEN RETURN
650 NA = VAL ( NA$ )
660 IF NA > 999999 THEN GOTO 580
670 POKE BA + 17 , 0 : POKE BA + 18 , 0 : POKE BA + 19 , 0
680 ON ( NA < 10000 ) GOTO 700 : PN = VAL ( MID$ ( NA$ , 1 , ( INT ( LEN ( NA$ ) / 3 ) ) ) ) : X = 19 : GOSUB 1590
690 NA$ = RIGHT$ ( NA$ , 4 )
700 ON ( NA < 100 ) GOTO 720 : PN = VAL ( MID$ ( NA$ , 1 , ( INT ( LEN ( NA$ ) / 2 ) ) ) ) : X = 18 : GOSUB 1590
710 NA$ = RIGHT$ ( NA$ , 2 )
720 ON ( NA = 0 ) GOTO 730 : PN = VAL ( MID$ ( NA$ , 1 , ( LEN ( NA$ ) ) ) ) : X = 17 : GOSUB 1590
730 RETURN
740 REM PRESTIGE ROUTINE
750 HOME
760 X = 20 : GOSUB 1570
770 PRINT : PRINT "CURRENT^ PRESTIGE:^ " ; NU
780 PRINT : INPUT "NEW^ PRESTIGE^ (0-99)^ :^ " ; PN$
790 PN = VAL ( PN$ ) : IF PN$ = "" THEN RETURN
800 IF PN < 0 OR PN > 99 THEN GOTO 740
810 GOSUB 1590 : RETURN
820 RETURN
830 REM DRIVING SKILL ROUT.
840 HOME
850 X = 21 : GOSUB 1570
860 PRINT : PRINT "CURRENT^ DRIVING^ SKILL:^ " ; NU
870 PRINT : INPUT "NEW^ DRIVING^ SKILL^ (0-99)^ :^ " ; PN$
880 PN = VAL ( PN$ ) : IF PN$ = "" THEN RETURN
890 IF PN < 0 OR PN > 99 THEN GOTO 830
900 GOSUB 1590 : RETURN
910 REM MARKSMAN ROUTINE
920 HOME
930 X = 22 : GOSUB 1570
940 PRINT : PRINT "CURRENT^ MARKSMAN:^ " ; NU
950 PRINT : INPUT "NEW^ MARKSMAN^ (0-99)^ :^ " ; PN$
960 PN = VAL ( PN$ ) : IF PN$ = "" THEN RETURN
970 IF PN < 0 OR PN > 99 THEN GOTO 910
980 GOSUB 1590 : RETURN
990 REM MECHANIC SKILL
1000 HOME
1010 X = 23 : GOSUB 1570
1020 PRINT : PRINT "CURRENT^ MECHANIC^ SKILL:^ " ; NU
1030 PRINT : INPUT "NEW^ MECHANIC^ SKILL^ (0-99)^ :^ " ; PN$
1040 PN = VAL ( PN$ ) : IF PN$ = "" THEN RETURN
1050 IF PN < 0 OR PN > 99 THEN GOTO 990
1060 GOSUB 1590 : RETURN
1070 REM HEALTH ROUTINE
1080 HOME
1090 X = 27 : GOSUB 1570
1100 PRINT : PRINT "CURRENT^ HEALTH:^ " ; NU
1110 PRINT : INPUT "NEW^ HEALTH^ (0-99)^ :^ " ; PN$
1120 PN = VAL ( PN$ ) : IF PN$ = "" THEN RETURN
1130 IF PN < 0 OR PN > 99 THEN GOTO 1070
1140 GOSUB 1590 : RETURN
1150 REM BODY ARMOR ROUTINE
1160 HOME
1170 X = 35 : GOSUB 1570

```

```

1180 PRINT : PRINT "CURRENT^ BODY^ ARMOR:^ " ; NU
1190 PRINT : INPUT "NEW^ BODY^ ARMOR^ (0-99)^ :^ " ; PN$
1200 PN = VAL ( PN$ ) : IF PN$ = "" THEN RETURN
1210 IF PN < 0 OR PN > 99 THEN GOTO 1150
1220 GOSUB 1590 : RETURN
1230 REM DAY/MONTH/YEAR ROUT.
1240 HOME
1250 X = 31 : GOSUB 1570 : D = NU
1260 X = 32 : GOSUB 1570 : M = NU
1270 X = 33 : GOSUB 1570 : Y = NU
1280 PRINT : PRINT "CURRENT^ DAY:^ " ; D + 1
1290 PRINT "^^^^^^ MONTH:^ " ; M + 1
1300 PRINT "^^^^^^ YEAR:^ " ; 2000 + Y + 1
1310 PRINT : INPUT "NEW^ DAY^ (1-30)^ :^ " ; A$
1320 IF D < 1 OR D > 30 THEN GOTO 1310
1330 INPUT "^^ MONTH^ (1-12)^ :^ " ; M
1340 IF M < 1 OR M > 12 THEN PRINT : GOTO 1330
1350 INPUT "^^ YEAR^ (1-99)^ :^ 20" ; Y
1360 IF Y < 1 OR Y > 99 THEN PRINT : GOTO 1350
1370 X = 31 : D = D - 1 : PN = D : GOSUB 1590
1380 X = 32 : M = M - 1 : PN = M : GOSUB 1590
1390 X = 33 : Y = Y - 1 : PN = Y : GOSUB 1590
1400 RETURN
1410 DATA ^ WATERTOWN , MANCHESTER , BUFFALO
1420 DATA ^ SYRACUSE , ALBANY , BOSTON
1430 DATA ^ SCANTON , NEW^ YORK , PROVIDENCE
1440 DATA ^ PITTSBURGH , HARRISBURGH , PHILADELPHIA
1450 DATA ^ ATLANTIC^ CITY , BALTIMORE , DOVER
1460 DATA ^ WASHINGTON
1470 REM SAVE ROUTINE
1480 HOME
1490 PRINT : INPUT "ARE^ YOUR^ SURE?^ (Y/N)^ :^ " ; A$
1500 IF A$ = "N" THEN HOME : PRINT "DONE..." : END
1510 IF A$ = "Y" THEN GOTO 1530
1520 GOTO 1480
1530 PRINT : PRINT "SAVING..."
1540 PRINT D$ "BSAVE^ CR, A$8A00, L$28"
1550 PRINT : PRINT "SAVED..."
1560 POP : END
1570 NU = INT ( PEEK ( BA + X ) / 16 ) * 10 + PEEK ( BA + X ) - INT ( PEEK ( BA + X ) / 16 ) * 16
1580 RETURN
1590 POKE BA + X , INT ( PN / 10 ) * 16 + ( PN - INT ( PN / 10 ) * 10 ) : RETURN
1600 REM ERROR ROUTINE
1610 PRINT
1620 A = PEEK ( 222 )
1630 IF A = 4 THEN PRINT "DISK^ IS^ WRITE-PROTECTED"
1640 IF A = 8 THEN PRINT "I/O^ ERROR"
1650 IF A = 9 THEN PRINT "DISK^ FULL"
1660 IF A = 10 THEN PRINT "FILE^ LOCKED"
1670 IF A = 11 THEN PRINT "SYNTAX^ ERROR^ (DOS)"
1680 IF A = 6 THEN PRINT "NOT^ A^ AUTO-DUEL^ DISK"
1690 END

```

checksums

10	- \$BADD	860	- \$39A0
20	- \$9B13	870	- \$0F0F
30	- \$4D3B	880	- \$D85E
40	- \$AD92	890	- \$869C
50	- \$C899	900	- \$E28D
60	- \$197B	910	- \$24F1

70	- \$6D1A	920	- \$E562
80	- \$99A6	930	- \$F11C
90	- \$3B09	940	- \$DB9B
100	- \$54D2	950	- \$2877
110	- \$60DF	960	- \$DEED
120	- \$882D	970	- \$C693
130	- \$D4B7	980	- \$0DE5
140	- \$C806	990	- \$D4FA
150	- \$7A27	1000	- \$829C
160	- \$869E	1010	- \$23A0
170	- \$44ED	1020	- \$70AA
180	- \$1B65	1030	- \$939E
190	- \$46D5	1040	- \$F217
200	- \$32BC	1050	- \$75EA
210	- \$4C2E	1060	- \$210F
220	- \$84AB	1070	- \$3B2D
230	- \$C48E	1080	- \$3CAE
240	- \$F830	1090	- \$C0F5
250	- \$1407	1100	- \$03BB
260	- \$A2B9	1110	- \$B37C
270	- \$1257	1120	- \$88FF
280	- \$C880	1130	- \$78F6
290	- \$A618	1140	- \$173A
300	- \$C508	1150	- \$2A21
310	- \$3DD1	1160	- \$48DB
320	- \$298F	1170	- \$04E4
330	- \$5DEF	1180	- \$293A
340	- \$19D6	1190	- \$2361
350	- \$D326	1200	- \$C18F
360	- \$8F7A	1210	- \$AC83
370	- \$3560	1220	- \$EAF6
380	- \$083F	1230	- \$FE88
390	- \$43A8	1240	- \$A585
400	- \$A308	1250	- \$FC34
410	- \$4355	1260	- \$A052
420	- \$FBA6	1270	- \$EE46
430	- \$23C4	1280	- \$CF08
440	- \$5252	1290	- \$79B2
450	- \$3102	1300	- \$4E13
460	- \$02D7	1310	- \$101C
470	- \$5629	1320	- \$3E5F
480	- \$1C91	1330	- \$2B2D
490	- \$57B4	1340	- \$16F6
500	- \$AC70	1350	- \$2ADC
510	- \$84A8	1360	- \$13B4
520	- \$1D0D	1370	- \$34E7
530	- \$566E	1380	- \$C3F0
540	- \$D94B	1390	- \$6653
550	- \$89BC	1400	- \$76C9
560	- \$70F7	1410	- \$0EF6
570	- \$F4EC	1420	- \$49D2
580	- \$7E1F	1430	- \$2319
590	- \$19E7	1440	- \$313C
600	- \$DD1B	1450	- \$A002
610	- \$F1C9	1460	- \$9722
620	- \$FAF8	1470	- \$5070
630	- \$22C5	1480	- \$8F4A
640	- \$0B9B	1490	- \$411E
650	- \$4953	1500	- \$6D96
660	- \$7112	1510	- \$1698
670	- \$6781	1520	- \$FBA1
680	- \$3ACB	1530	- \$2B6F
690	- \$946F	1540	- \$B2B0
700	- \$10A1	1550	- \$80CD
710	- \$5F8B	1560	- \$E264
720	- \$8267	1570	- \$02A2
730	- \$37C7	1580	- \$345E
740	- \$4404	1590	- \$7F1A
750	- \$1EBE	1600	- \$37C8
760	- \$0AB3	1610	- \$CD11
770	- \$5687	1620	- \$B7F0
780	- \$6774	1630	- \$5F20
790	- \$2901	1640	- \$8000
800	- \$A465	1650	- \$BA31
810	- \$8168	1660	- \$AAD0
820	- \$A67C	1670	- \$1FE0
830	- \$F17F	1680	- \$31F5
840	- \$BB37	1690	- \$4E20
850	- \$360E		

Wizard's Crown

by Jeff Hurlburt

*Wizard's Crown available from:
Strategic Simulations, Inc.
883 Stierlin Rd., Bldg. A-200
Mountain View, CA 94043*

Your quest to reclaim the fabled Crown of the Emperor from the demented wizard, Tarmon, has led to some strange places; but surely none so odd as Ye Mad Computist's Spell Shoppe. Having entered with the hope of augmenting your mage's sorely tried powers, you find a dusty chamber, bare but for a graffiti-covered wall. Just beneath the crudely scrawled "Repent! Ilx is nigh!!" is a slot; and a nearby plaque instructs: "Questers' Aid- Results Guaranteed! Deposit 1 gold coin (Denars, Quatloons, and Zorkmids OK)."

Despite cries of "rip-off!" and dark murmurings of "demonic greed" from your priest, there is little real opposition as you roll the party's last gold coin into the slot. (Everyone recalls the last, nearly disastrous, sortie into the Ruins.) After some muffled clattering and a loud "beep!", out pops a neatly pleated sheet of paper. Half expecting a message along the lines of "Thank you for supporting YMCSS", hope surges as you read the heading of an elaborate enchantment: "Spell for Expeditious Quester Embellishment"!!!

Featuring five occupations and more than forty attributes and skills, SSI's "Wizard's Crown" offers plenty of both latitude and motivation for character editing. Most

parameters max-out at 250, typically starting with values in the "teens"; and improvement can be an arduous, time-consuming process. While those inclined towards an endless series of combats may disagree, the game is really more fun with somewhat enhanced characters.

The program which follows allows you to edit your eight roster members and to obtain printouts for each. Selecting the "EDIT" option from the main menu produces a list of your stalwarts such as the one shown below:

A- MOTHBOWL
B- FROOLIN
C- RUBYWAND
D- PURPLEMORE
E- GOO GOO
F- BAYWOOF
G- IGMO
H- BUGNOSE
X- EXIT

< SELECT

Entering a character's letter then calls up a listing of his/her current parameters. You can accept a parm's current value ("RETURN"), enter a new value, or simply press "M" to set a parameter to its maximum. Automatic scrolling, forward and backward, makes fine-tuning characters a breeze. ("ESC" exits editing for a character.) Since the program assumes that you wish edited individuals to be free of INJURY, BLEEDING, and DISEASE, these parms are zeroed; and, of course, a dead character will be revived. To remind you which characters have been processed, an "*" is displayed after an edited character's name.

PRINTOUT lists the selected character's roster position (A-H) and name in expanded

type, followed by occupations (fighter, thief, etc.), and then attributes/skills parms. To the right, beneath a "POSSESSIONS" heading, ten blanks are printed to facilitate recording current weapons, armor, tools, and other items carried.

Since the program needs to load several arrays, there is a brief pause following a "RUN" after which you are prompted to insert your game character diskette (i.e. the "Disk 1" copy). Pressing "RETURN" loads character data from track 15/sectors 6 through 2, into a buffer at \$2000-\$24FF, reads character names into the C\$(x) array, and then displays main menu choices. "LOAD" permits working on other character diskettes without having to reRUN the program; and "SAVE" writes the buffer onto the diskette currently in Drive 1.

During EDIT the A(x) array is loaded from the buffer when a character is selected, and written back when you respond "Y"es to the "OK? (Y/N)" prompt after an "ESC". This arrangement has the incidental benefit of protecting your work from such hazards as inadvertent RESET's, etc. Since buffer character data is unaffected, you can recover by doing a RUN and responding to the initial LOAD prompt with some non-RETURN key. PRINTOUT uses one sheet per character and assumes Epson compatibility for expanded type and form feed functions.

Finally, a caveat: the Expeditious Quester Embellishment spell is strong stuff and one is naturally tempted to max-out every party member on all parameters. Indeed, at the last Enchanter's Expo, Belboz told of an apprentice who worked just such mischief, ending up with a party of golems devoid of any individuality. Fortunately, the game manual makes it clear which parms relate to which occupations; so it's

easy to maintain character specialization by selectively enhancing relevant skills. This approach, or any of several variations (such as limiting the active party to three or four enhanced members) can lend an added dimension to one of the year's more entertaining adventures.

Important Variables

- TK - Track character data is recorded on
- SS - Starting character data sector
- C\$(x) - Character names
- A(x) - Attributes/skills data temporary storage
- A\$(x) - Parm names (except "9" = no change, "0" = substitute this value. These are not displayed.)
- J(x) - Indexes in A(x) of displayed parms
- O(x) - Starting addresses in buffer for each character's data
- K(x) - Display/printout spacing
- P\$(x) - Occupations
- P(x) - Indexes in A(x) of occupation indicator parms (if A(P(x)) <> 0 then Yes)

Character Editor

```

10 REM SPELL FOR EXPEDITIOUS
20 REM QUESTER EMBELLISHMENT
30 REM (WIZARD'S CROWN
40 REM CHARACTER EDITOR )
50 REM BY JEFF HURLBURT
60 REM COPR. 1986 COMPUTIST
70 REM
80 LOMEM: 10240
90 DIM A$(60) ,A(60) ,K(60) ,J(60)
100 GOTO 310
110 REM SUBS
120 PRINT A$(J(I) ); SPC( K(I) );A(J(I)
);S$; : RETURN
130 GET Q$ :AC = ASC (Q$) :NN = (AC < 48 OR AC
> 57) : RETURN
140 GOSUB 130 : PRINT Q$ : RETURN
150 GOSUB 290 : PRINT "INSERT^ CHAR^ DISK^
IN^ DRIVE^ 1" : PRINT : PRINT "PRESS^
RETURN^ TO^ " F$ ", " : PRINT : PRINT
"ANY^ OTHER^ KEY^ SKIPS:^ " : GOSUB 140
: IF AC <> 13 THEN 200
160 TK = 15 :SS = 6 : FOR I = 0 TO 4 :S = SS - I
170 POKE Z + 4 ,TK : POKE Z + 5 ,S : POKE Z + 8
,0 : POKE Z + 9 ,32 + I : POKE Z + 2 ,1 :
POKE Z + 3 ,0 : POKE Z + 12 ,F : CALL 768
180 IF PEEK (255) THEN PRINT "ERROR, ^
SECTOR^ " ;S; ". ^ " F$ ^ " INCOMPLETE. " :
PRINT "PRESS^ A^ KEY:" ; : GET Q$ : GOTO
150
190 NEXT I
200 RETURN
210 PRINT CHR$ (65 + C) "-^ " C$(C) ;E$(C) :
RETURN
220 GOSUB 290 : FOR C = 0 TO 7 : GOSUB 210 :
NEXT C : PRINT "X-^ EXIT" : GOSUB 280 :C
= ABS (AC - 65) : IF C > 7 THEN POP : GOTO
370
230 O = O(C) + 20 : IF PEEK (O + 10) > 2 THEN
POKE O + 10 ,1
240 FOR I = 0 TO 59 :A(I) = PEEK (O + I) : IF
A$(I) = "0" THEN A(I) = 0
250 NEXT I : RETURN
260 FOR C = 0 TO 7 :O = O(C) :C$ = "" : FOR I = 0
TO 18 :AC = PEEK (O + I) : IF AC THEN C$ =
C$ + CHR$ (AC) : NEXT I

```

```

270 C$(C) = C$ : NEXT C : RETURN
280 PRINT : PRINT "<^ SELECT" ; : HTAB 1 :
GOSUB 140 : RETURN
290 TEXT : HOME : VTAB 7 : PRINT F$ : PRINT :
PRINT : RETURN
300 REM MAIN LINE
310 TEXT : HOME : FOR I = 0 TO 16 : READ Z :
POKE 768 + I ,Z : NEXT I
320 JJ = - 1 :TN = 14 : FOR I = 0 TO 59 : READ
A$(I) : IF ASC (A$(I) ) > 57 THEN JJ = JJ
+ 1 : J(JJ) = I :K(JJ) = TN - LEN (A$(I)
)
330 NEXT I
340 FOR I = 0 TO 4 : READ P$(I) ,P(I) : NEXT I
350 FOR I = 0 TO 7 :O(I) = 8224 + I * 160 :
NEXT I :Z = 47080 :S$ = " ^ ^ ^ ^ ^ "
360 F$ = "LOAD" :F = 1 : GOSUB 150 : GOSUB 260
370 F$ = "MENU" : GOSUB 290 : PRINT "1-^ EDIT"
: PRINT "2-^ LOAD" : PRINT "3-^ SAVE" :
PRINT "4-^ PRINTOUT" : PRINT "5-^ QUIT"
: GOSUB 280
380 ON ABS (AC - 48) GOTO 400 ,360 ,640 ,650
,390 : GOTO 370
390 TEXT : HOME : END
400 F$ = "EDIT" : GOSUB 220 : HOME : GOSUB 210
410 VTAB 1 : HTAB 22 : PRINT
" (VALUE,M,,^ESC) " : POKE 34 ,2
420 HOME : FOR I = 0 TO JJ
430 IF PEEK (37) > 2 THEN 460
440 VTAB 3 : HTAB 1 :S = I : FOR T = S TO JJ : I =
T : GOSUB 120 : IF PEEK (37) < 23 THEN
PRINT S$ : NEXT T
450 VTAB 3 : HTAB 1 : I = S
460 GOSUB 120 : HTAB TN + 1 : GOSUB 130 : IF AC
= 27 THEN 620
470 IF AC = 77 THEN A = 250 - 242 * (I = 8) :
PRINT S$ : GOTO 590
480 IF AC <> 8 OR I = 0 THEN 520
490 HTAB 1
500 I = I - 1 : IF PEEK (37) > 2 THEN VTAB PEEK
(37)
510 GOTO 430
520 IF NN THEN PRINT : GOTO 600
530 Z$ = " ^ " + Q$
540 HTAB TN : PRINT Z$ ; :L = LEN (Z$) : GOSUB
130
550 IF AC = 8 AND L > 1 THEN Z$ = LEFT$ (Z$ ,L -
1) : GOTO 540
560 IF NN = 0 THEN Z$ = Z$ + Q$ : GOTO 540
570 IF AC <> 13 THEN 540
580 PRINT :A = VAL (Z$) : IF A > 250 THEN A =
250
590 A(J(I) ) = A
600 VTAB PEEK (37) : HTAB TN + 1 : PRINT A(J(I)
);S$
610 NEXT I : GOTO 420
620 PRINT : VTAB 24 : PRINT : PRINT "OK?^
(Y/N)^ " ; : GOSUB 140 : IF Q$ = "Y" THEN
FOR I = 0 TO 59 : POKE O + I ,A(I) : NEXT I
:E$(C) = " ^ * "
630 GOTO 400
640 F$ = "SAVE" :F = 2 : GOSUB 150 : GOTO 370
650 F$ = "PRINTOUT^ (TURN^ ON^ PRINTER)" :
GOSUB 220
660 PRINT CHR$ (4) "PR#1" : PRINT
670 PRINT CHR$ (14) ; : GOSUB 210 : PRINT
680 FOR I = 0 TO 4 : IF A(P(I) ) THEN PRINT
P$(I)
690 NEXT I : PRINT
700 T = 0 : FOR I = 0 TO JJ :T = NOT T : GOSUB
120 : IF I = 2 THEN PRINT TAB( 30) ;
"POSSESSIONS" ;

```

```

710 IF I > 3 AND I < 23 AND T THEN PRINT TAB( 30
); : FOR J = 0 TO 29 : PRINT CHR$ (95) ; :
NEXT J
720 PRINT : NEXT I
730 PRINT CHR$ (12) : PRINT CHR$ (4) "PR#0"
: GOTO 650
740 REM RWTS
750 DATA 32 ,227 ,3 ,32 ,217 ,3 ,169 ,0 ,133
,72 ,144 ,2 ,169 ,255 ,133 ,255 ,96
760 REM ATTRIBUTES & SKILLS
770 DATA STRENGTH ,DEXTERITY ,INTELLIGENCE
,LIFE(MAX) ,LIFE ,EXPERIENCE ,9 ,9 ,0
,0 ,9 ,POWER ,POWER(MAX) ,0 ,PRAYER^
LEVEL ,9 ,0 ,COPPER$ ,SILVER$
,ELECTRUM$ ,GOLD$ ,9 ,9 ,9 ,KARMA(MAX)
,KARMA ,9 ,9 ,0 ,9 ,9
780 DATA CLOSE^ COMBAT ,SWORD ,AXE ,SPEAR
,MACE ,FLAIL ,BOW ,CROSSBOW ,SHIELD
,AWARENESS ,SCAN ,SWIMMING ,STEALTH
,HUNT ,TRACK ,FIRST^ AID ,SEARCH
,DISARM^ TRAP ,PICK^ LOCK ,HAGGLING
,TREAT^ POISON
790 DATA TREAT^ DISEASE ,9 ,TURN^ UNDEAD
,ALCHEMY ,LUCK ,READ^ RUNES ,EVALUATE
,CAST^ SPELL
800 REM OCCUPATIONS
810 DATA SORCERER ,59 ,PRIEST ,51 ,FIGHTER
,32 ,RANGER ,44 ,THIEF ,50

```

checksums

10	- \$BADD	420	- \$D0AD
20	- \$9B13	430	- \$1143
30	- \$4D3B	440	- \$7098
40	- \$AD92	450	- \$00D8
50	- \$C899	460	- \$4639
60	- \$FF65	470	- \$4D8C
70	- \$A3BF	480	- \$C87F
80	- \$DE8A	490	- \$32E7
90	- \$D4B1	500	- \$B955
100	- \$9A92	510	- \$FFE1
110	- \$00E4	520	- \$7C81
120	- \$BAEC	530	- \$CAC9
130	- \$9BDA	540	- \$4D13
140	- \$3685	550	- \$F6CD
150	- \$724F	560	- \$1440
160	- \$BF43	570	- \$1A21
170	- \$A94D	580	- \$530D
180	- \$871C	590	- \$B0AE
190	- \$D40A	600	- \$0160
200	- \$133C	610	- \$C930
210	- \$40E4	620	- \$2F88
220	- \$C253	630	- \$A762
230	- \$DE31	640	- \$C992
240	- \$3E97	650	- \$55BC
250	- \$D581	660	- \$BF85
260	- \$EBE3	670	- \$D088
270	- \$23B2	680	- \$3807
280	- \$A214	690	- \$5EC5
290	- \$D7DC	700	- \$9BF1
300	- \$14A5	710	- \$2E27
310	- \$8906	720	- \$B7B5
320	- \$511F	730	- \$D45B
330	- \$1567	740	- \$B053
340	- \$AC98	750	- \$474F
350	- \$A062	760	- \$1C92
360	- \$14AC	770	- \$8E14
370	- \$58BF	780	- \$9D7E
380	- \$74BD	790	- \$ABA6
390	- \$9FA3	800	- \$53C1
400	- \$21FC	810	- \$299A
410	- \$1905		

Questron

by Jeff Hurlburt & Zeh Hurlburt

As part-time curator of the Royal Museum my duties include sorting through items accepted in trade with adventurers for weapons, armor and other questing supplies. Usually there is little of real value; so perhaps I may be excused for nearly passing over a small silver case resembling hundreds of tinderbox/sewing kit containers piled in a corner of the museum. As it is my thumb brushed a catch and the box flipped open to reveal, of all things, a single diskette (labeled simply "Backup Copy") and a note: "found this in the old Mondain ruins back on Terra". (Princess Lucane, being an ardent dabbler in Technology, owns a computer; so diskettes are not totally unknown in the empire.) Imagine our amazement when, upon "booting-up" we were greeted by the following message:

Dear Mantor:

Received time machine in good condition. As agreed, on disk are the castle maps along with designs for three super deadly dungeons.

Mondain of Terra, E.W. !!!

Overview


The mapping of Questron presents two major challenges. First, the game's designers seem to have taken a special delight in contriving oddly dimensioned layouts. One finds 8 and 17-level dungeons with mazes measuring 16x16, 11x11, and 11x10; Mantor's Castle measures 30x63 and The Royal Castle is 121x70 including seven

bytes of wrap-around landscaping! Thus the mapping program must employ several formats and a variety of printer commands. The second obstacle concerns map storage. Map files are on copy-protected diskettes and are unreadable under standard DOS.


A Questron map is represented in memory as a block of code bytes. Each identifies some feature such as a wall section, doorway, or treasure chest. On castle maps the codes stand for 2x16-byte hi-res characters; in dungeons they tell line-drawing routines which features to display. Like the Ultima III mappers (COMPUTIST No. 11), Q-MAPPER creates hardcopy maps by substituting standard alphanumeric characters for map codes. For example a "#" is printed for each "wall" code encountered.

The maps produced are of Questron's two great castles as well as of the three multi-level "dungeons." To facilitate easy reference all levels of a dungeon are printed on the same sheet. Each printout includes a heading (e.g. "Mantor's Mountain") and a map key near the bottom.

Obtaining The Map Files

While it would be nice if Questron wrote its maps onto some kind of DOS 3.3 "player disk," access to these files is easily obtained via the game's own RDOS 2.1. The first step is to initialize a DOS 3.3 "Mapper Disk" for storage of maps and the mapper program. (Use a short HELLO such as 10 PRINT CHR\$(4); "CATALOG".) Now just boot the game and Reset into the monitor at the first menu. A  gets you into BASIC with RDOS in tact.

In case your machine is not equipped to force monitor access, the same effect is obtainable using a "Bomb Disk". This is a DOS 3.3 INITed diskette (perhaps the back of your Mapper Disk) modified so that, upon booting,

it immediately turns off the drive and jumps to the monitor. Using a sector editor, such as the one supplied with Copy II Plus, replace bytes 01 - 06 near the beginning of track 0, sector 0 with 2C E8 C0 4C 59 FF. After booting Questron press RESET at the first menu; and when asked to "INSERT DISK #0 AND PRESS A KEY" insert the Bomb Disk instead. The game will try to reboot and suddenly you're in the monitor just a  away from RDOS. (Fortunately, Questron does not wipe out its DOS upon a RESET.)

Once in BASIC insert Questron Disk #2 and check RDOS by entering &CAT. If the expected catalog appears, then all is well. Some other RDOS commands you may wish to try in the future include:

```
&LOAD "BASIC prg"  
&STORE "BASIC prg"  
&RECALL "bin file" {,addr}  
&SAVE "bin file",start addr,length.
```

Address and length parms are in decimal and drive may be selected by an optional "D1," or "D2," just after the "&" (e.g. &D2,CAT).

For now, to load-in the map files by typing the following:

```
&RECALL "CASTLE-1",4096  
&RECALL "CASTLE-2",12288  
&RECALL "DUNGEON OF DEATH",14336  
&RECALL "MANTOR'S MOUNTAIN",16384  
&RECALL "MOUNTAIN CATACOMBS",18432
```

Now, inserting your short-HELLO Mapper Disk and doing a PR#6 installs DOS 3.3 without messing up the map files; and you are ready to save the maps:

```
BSAVE MAP-THE ROYAL CASTLE,A$10'0'0',L$20'0'0'  
BSAVE MAP-MANTOR'S CASTLE,A$30'0'0',L$80'0'0'  
BSAVE MAP-DUNGEON OF DEATH,A$380'0',L$80'0'  
BSAVE MAP-MANTOR'S MOUNTAIN,A$40'0'0',L$80'0'  
BSAVE MAP-MOUNTAIN CATACOMBS,A$480'0',L$80'0'
```



```

250 ND = 7 : DL = 256 : LL = 6 : PS = 3 : DS = 5 : LS
    = 14 : VS = 8 : OS = 5 : IF DN = 3 THEN ND =
    16 : DL = 121 : LL = 15 : PS = 5 : DS = 3 : LS =
    7 : VS = 5 : OS = 2 : FOR I = 0 TO 10 : POKE
    8190 + I , 0 : NEXT I

```

```

260 NR = SQR ( DL ) : POKE 771 , NR : POKE 780
    , 64

```

```

270 PRINT : PRINT : FOR Z = 0 TO ND : A = 6144 +
    DL * Z : H(Z) = INT ( A / 256 ) : L(Z) =
    A - H(Z) * 256 : NEXT Z

```

```

280 FOR J = 0 TO LL STEP PS

```

```

290 K = PS : IF J = LL THEN K = 2

```

```

300 X = OS : FOR PL = J + 1 TO J + K : PRINT SPC(
    X ) "LEVEL^ " PL ; : X = LS - ( PL > 10 ) : :
    NEXT PL

```

```

310 PRINT : FOR F = 0 TO NR - 1

```

```

320 POKE 769 , F * NR

```

```

330 X = 0 : FOR S = J TO K - 1 + J : POKE 775 , L(S
    ) : POKE 776 , H(S) : PRINT SPC( X ) ; :
    CALL ROWP : X = DS : NEXT S

```

```

340 IF K > 2 OR F > 12 THEN PRINT : GOTO 360

```

```

350 PRINT SPC( DS ) ; L$( F )

```

```

360 NEXT F : IF K > 2 THEN FOR I = 1 TO VS :
    PRINT : NEXT I

```

```

370 NEXT J

```

```

380 IF DN = 3 THEN PRINT SPC( 28 ) ; L$( 11 ) :
    PRINT SPC( 28 ) ; L$( 12 )

```

```

390 GOTO 530

```

```

400 REM CASTLES

```

```

410 PRINT : POKE 769 , 0 : POKE 780 , 65 : NC = 30
    : NP = NC : NR = 62 : IF DN = 4 THEN NC = 114
    : NP = 121 : NR = 69 : FOR I = 0 TO 6 : POKE
    14125 + I , 1 : NEXT I : PRINT CHR$( 15 ) :
    REM CONDENSED PRINT

```

```

420 POKE 771 , NP

```

```

430 FOR Y = 0 TO NR : Q = 6144 + Y * NC : H = INT
    ( Q / 256 ) : L = Q - H * 256 : POKE 775 , L
    + 1 : POKE 776 , H : CALL ROWP

```

```

440 IF DN = 4 OR Y < 51 THEN PRINT : GOTO 480

```

```

450 IF Y = 51 THEN PRINT SPC( 7 ) ; L$( 0 )

```

```

460 IF Y = 52 THEN PRINT

```

```

470 IF Y > 52 THEN PRINT SPC( 7 ) ; L$( Y - 43 )

```

```

480 NEXT Y

```

```

490 IF DN = 5 THEN 530

```

```

500 PRINT : PRINT SPC( 24 ) ; L$( 0 ) : PRINT :
    REM EXP

```

```

510 FOR I = 10 TO 17 : PRINT L$( I ) $$ ; : NEXT I
    : PRINT

```

```

520 PRINT L$( 20 ) ; $$ ; L$( 21 ) ; $$ ; L$( 22 ) ;
    SPC( 5 ) ; L$( 23 ) ; SPC( 9 ) ; L$( 24 )

```

```

530 PRINT : PRINT CHR$( 12 ) : PRINT CHR$( 4 )
    "PR#0" : GOTO 170

```

```

540 REM ROWP & FILL

```

```

550 DATA 160 , 0 , 169 , 11 , 133 , 255 , 185 , 0 , 24
    , 170 , 189 , 0 , 64 , 32 , 237 , 253 , 200 , 198
    , 255 , 208 , 241 , 96 , 169 , 160 , 162 , 0 , 157
    , 0 , 64 , 232 , 208 , 250 , 96

```

```

560 REM LABELS

```

```

570 DATA "^^^ LEGEND^^^ " , "^^ " , "^^^ A^
    WAY^ UP^^^ N , V^^ A^
    WAY^ DOWN^^^ T^^ TRAP^^
    W<^^ >E , R^^ ROOF^^
    OPENING^^ V , F^^ FLOOR^^
    OPENING^^ S , C^^ COFFIN , U^^
    URN

```

```

580 DATA S^^ SAFE , #^^ WALL , O^^ DOOR , +^^
    CHEST , ^^ GRASS , ^^ TREE , "^^
    FLOOR^^ TILES" , -^^ GUARD^^ BARRIER , G^^
    GUARD

```

```

590 DATA M^^ MANTOR , D^^ DOOMSDAY^^ MACHINE
    , K^^ KING , P^^ PRINCESS , W^^ WIZARD^^
    ( MESRON^^ OR^^ THE^^ DOCTOR ) , @^^
    PRISONER , X^^ TELEPORT

```

```

600 REM MAP/CHAR PAIRS

```

```

610 DATA 1 , 10 , 7 , 11 , 10 , 5 , 11 , 6 , 12 , 4 , 13
    , 4 , 14 , 4 , 20 , 5 , 21 , 6 , 22 , 4 , 23 , 4 , 30
    , 2 , 31 , 3 , 32 , 2 , 33 , 3 , 34 , 9 , 35 , 12 , 36
    , 8 , 37 , 7 , 38 , 12

```

```

620 DATA 1 , 13 , 2 , 15 , 3 , 15 , 4 , 15 , 5 , 16 , 6
    , 10 , 7 , 14 , 8 , 10 , 9 , 12 , 10 , 12 , 11 , 11
    , 12 , 10 , 13 , 10 , 14 , 10 , 15 , 10 , 17 , 20
    , 18 , 21 , 19 , 23 , 20 , 17 , 21 , 22 , 22 , 18
    , 23 , 17 , 24 , 19 , 48 , 24 , 52 , 15 , 54 , 15
    , 67 , 15 , 999

```

```

630 REM MAP NAMES

```

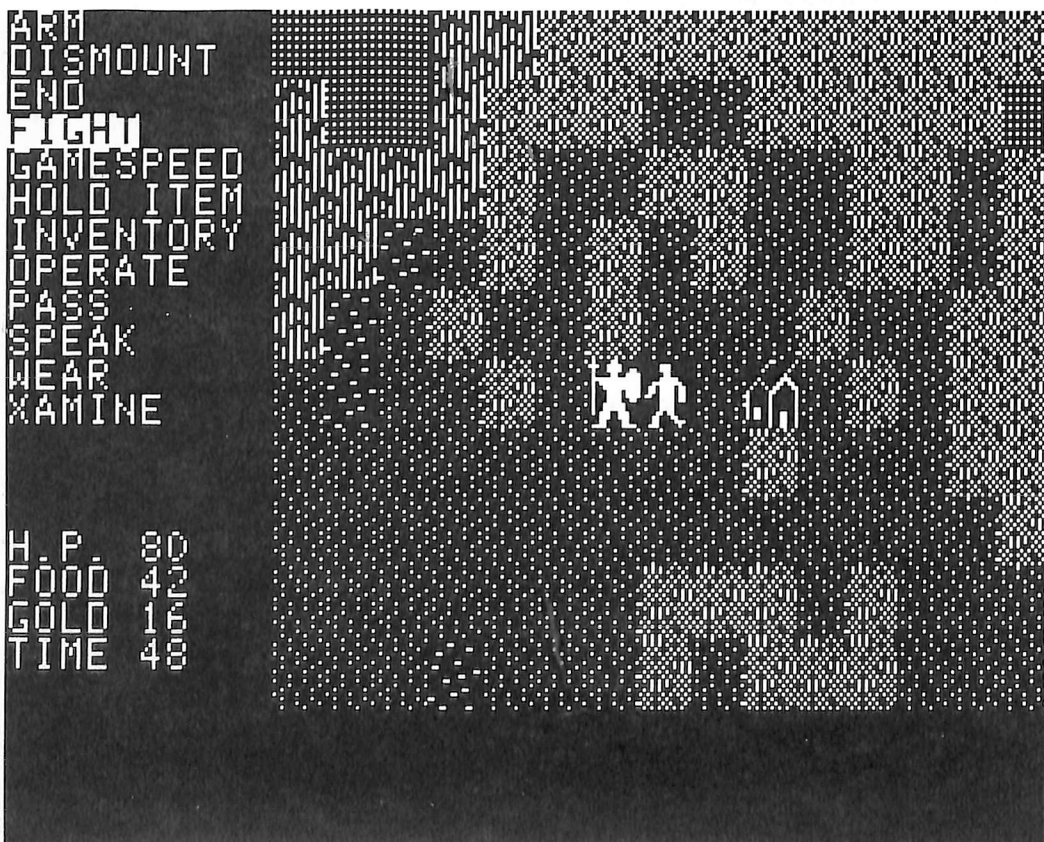
```

640 DATA DUNGEON^^ OF^^ DEATH , MOUNTAIN^^
    CATACOMBS , MANTOR'S^^ MOUNTAIN , THE^^
    ROYAL^^ CASTLE , MANTOR'S^^ CASTLE

```

checksums

10	- \$BADD	330	- \$5D6E
20	- \$9B13	340	- \$104D
30	- \$4D3B	350	- \$E386
40	- \$AD92	360	- \$2637
50	- \$C899	370	- \$21B6
60	- \$FF65	380	- \$E5E6
70	- \$A3BF	390	- \$9C6C
80	- \$A900	400	- \$CC84
90	- \$22AC	410	- \$224A
100	- \$ECA9	420	- \$FA7E
110	- \$CFE9	430	- \$B026
120	- \$CA60	440	- \$54F0
130	- \$D488	450	- \$36AD
140	- \$CD6F	460	- \$90A1
150	- \$7C0D	470	- \$A55F
160	- \$5A12	480	- \$3027
170	- \$BB13	490	- \$271E
180	- \$5A79	500	- \$379F
190	- \$D378	510	- \$ABC7
200	- \$3FB1	520	- \$A559
210	- \$7EDD	530	- \$830F
220	- \$5601	540	- \$EC7C
230	- \$2209	550	- \$9AD9
240	- \$4FF9	560	- \$1AE3
250	- \$563E	570	- \$6635
260	- \$4649	580	- \$7FD1
270	- \$8F70	590	- \$95C2
280	- \$ACD9	600	- \$B502
290	- \$78DF	610	- \$D29B
300	- \$47FE	620	- \$3127
310	- \$6C3E	630	- \$5CB7
320	- \$2AFA	640	- \$F336



Light Simulator

by Billy Tessio

Trispot Inc.
227 Walk St. N.
Brownsville, OR 97327
\$350.37

Requirements:
A blank disk
Super IOB v1.5

Light simulator is an incredible simulation program offering 16 color graphics and very smooth animation. Don't ask me how the folks at Trispot did it, but they even managed to produce different colored text for the various modes! The educational value of Light Simulator (LS) is immense with emphasis on safety in real life situations.

Of all the software I own, LS has probably given me more peaceful hours of entertainment than anything else. So, you can imagine my dismay when I discovered that it was copy protected. If you can believe it, Trispot Inc. actually wanted a photo of me holding the original disk plus \$114.03 for a backup.

The Protection

As far as I could determine, LS used a form of synchronized track arcing (over 3/8 tracks) with a nibble count on the hub ring (track \$57 for those of you who are not familiar with this form of deception) accompanied by a three-stage boot, 23 sectors per track with address headers consisting of illegal bytes and 4+4+1.5 encoding for fast loading.

Creating a Deprotected Disk

Before I decided to deprotect my copy of LS, my son (Vern Jr.) buried it under our house (along with a quart jar of pennies) and drew a treasure map so he could find it again. A week later, my wife cleaned out my son's room and threw away the map. We've been trying to find that disk for nine months.

Since I don't own a camera (and I didn't feel like shelling out \$114.03), I was unable to obtain a backup copy of LS. I therefore created the ultimate softkey. By extrapolating the probable bit patterns from a matrix consisting mainly of the atomic weights of several subphoton particles, I was able to obliterate the need for the original LS disk. That is: A disk containing Light Simulator is not needed to perform this procedure!

Step by Step

The following procedure will create your own unprotected Light Simulator disk!

1) Turn on your stereo and play "Wild Thing" by The Troggs (my friend tells me that "Born to be Wild" by Steppenwolf will also work, but I haven't verified this).

2) Turn the volume control all the way up and sing loudly (it doesn't have to be the same song).

3) When the song is over, turn off your stereo and boot your computer (take care not to damage the off-white coating).

PR#6

4) Key in the hexdump at the end of this article and save it on your Super IOB disk. This hexdump helps Super IOB read some bizarre disk formats that it normally cannot.

BSAVE CPU68000NV.4Q2,A\$2700,L\$1A2

5) Install the "Light Controller" (a third less calories than our normal controller) into Super IOB and RUN the resulting program. Since I have eliminated the need for the original disk, set both the source and target drive to the same thing. When the program asks if you want to format the target disk you must reply with a "Y"

"That is: A disk containing Light Simulator is not needed to perform this procedure!"

6) Remove your original disk (if you have one) from the safe place you had it stored in and run it through your Vegimatic (my friend says that a La Machine will also work, but once again, I haven't verified this).

7) Watch a show on public broadcasting about the sex life of the earthworm.

8) Turn off your computer.

9) Turn on your computer with the disk that Super IOB wrote to in the drive. If all went well (and your reception of the public broadcast station wasn't interrupted), you should now be enjoying your deprotected version of Light Simulator! (To get the most realistic effect, use it on a color monitor).

CPU68000NV.4Q2

```

2700: 02 A0 00 A9 03 85 FF BD $D8EF
2708: 80 C0 A6 2B BD 8C C0 29 $931F
2710: 03 0A 05 2B AA BD 81 C0 $8B4E
2718: A9 28 20 8A FC C8 D0 E7 $3E68
2720: 20 EB 08 C6 FF D0 E0 A6 $507E
2728: 2B 9D 88 C0 20 58 FC A0 $569B
2730: 14 B9 8D 09 99 B2 05 88 $A849
2738: 10 F7 A0 20 20 F0 08 8D $8816
2740: 50 C0 8D 52 C0 8D 56 C0 $C4B8
2748: 20 32 F8 A9 55 85 30 A9 $7BBC
2750: 2E 85 E1 A9 0E 85 2C A5 $070B
2758: E1 A0 00 20 19 F8 C6 E1 $DFD5
2760: 10 F5 A9 AA 85 30 A9 01 $ADB5
2768: 20 31 09 A9 11 20 31 09 $F46E
2770: A9 21 20 31 09 A9 0B A0 $0EC5
2778: FF A2 15 20 FB 08 A9 21 $DF54
2780: A0 CC 20 2F 09 20 EE 08 $0B9E
2788: 20 2D 09 A9 0B A0 99 A2 $748E
2790: 15 20 FB 08 A9 11 A0 DD $1DF5
2798: 20 2F 09 A2 07 86 E0 A9 $1E9E
27A0: 02 A0 00 A2 00 20 FB 08 $AE84
27A8: A9 0B A0 00 A2 15 20 FB $20F7
27B0: 08 20 EB 08 A9 02 A0 99 $E610
27B8: A2 00 20 FB 08 A9 0B A0 $1A9C
27C0: 99 A2 15 20 FB 08 20 EB $54B1
27C8: 08 C6 E0 D0 D2 A9 11 20 $0295
27D0: 2D 09 A9 01 A0 11 20 2F $0C1A
27D8: 09 20 EE 08 20 2D 09 A9 $1DB0
27E0: 02 A0 00 A2 00 20 FB 08 $5D4A
27E8: 4C 75 08 A0 02 2C A0 28 $23B8
27F0: 48 A9 00 20 A8 FC 88 D0 $F618
27F8: F8 68 60 85 E1 84 30 A9 $3245
2800: 06 85 FF A0 0F D0 18 A0 $C2B3
2808: 10 E6 E1 C6 FF 10 01 60 $470E
2810: 0A 90 07 48 A5 E1 20 00 $1C26
2818: F8 68 C6 FE 10 08 E8 A9 $688F
2820: 07 85 FE BD 63 09 C8 C0 $904D
2828: 28 90 E5 B0 DA A0 AA 84 $088C
2830: 30 48 85 E1 A0 00 84 FF $803A
2838: B9 56 09 48 29 0F 85 2C $E756
2840: 68 4A 4A 4A 4A A8 A5 E1 $C4F1
2848: 20 19 F8 E6 E1 A4 FF C8 $1EBC
2850: C0 0D 90 E2 68 60 68 59 $DC99
2858: 4A 4A 3B 3B 3B 3B 3B 4A $745A
2860: 4A 59 68 78 E4 5F 45 14 $879E
2868: 44 45 16 44 45 15 44 45 $A371
2870: 14 C4 45 14 44 78 E4 44 $99EA
2878: 44 44 11 44 A4 12 45 14 $ABB5
2880: 14 55 14 18 55 F4 14 6D $2740
2888: 14 12 45 17 D1 CC C9 C7 $BF86
2890: C8 D4 A0 D3 C9 CD D5 CC $9933
2898: C1 D4 CF D2 A0 D6 B4 AE $FA9A
28A0: B7 B7 $2402
    
```

light controller

```

1000 REM LIGHT SIMULATOR
1010 TK = 0 : LT = 35 : ST = 15 : LS = 15 : S2 = 0
      : D2 = 0 : CD = RD
1020 GOSUB 490 : POKE DRV ,D1 : POKE SLT ,S1
      * 16
1030 GOSUB 610 : IF PEEK (TRK ) = LT THEN 1050
1040 TK = PEEK (TRK ) : ST = PEEK (SCT ) : GOTO
      1020
1050 HOME : PRINT "COPYDONE" : END
10010 PRINT CHR$ ( 4 ) "BLOAD^ CPU68000NV.4Q2
      ,A$3600" : PRINT CHR$ ( 4 ) "BLOAD^
      CPU68000NV.4Q2 ,A$2E00"
    
```

The Book Of Softkeys

Legends tell of the days when the ancient back issues of Hardcore COMPUTIST were readily available to anyone who wished to purchase them. Those days may be long since past, but the information contained in these ancient documents has been diligently transcribed to the pages of a modern reference work: The Book Of Softkeys.

From deep within the COMPUTIST archives comes a collection of softkeys originally contained in issues 1 through 15. These volumes also contain some of the more useful programs and tutorials presented in those early issues. The books make an economical alternative to those rare (and unavailable) back issues of Hardcore COMPUTIST.

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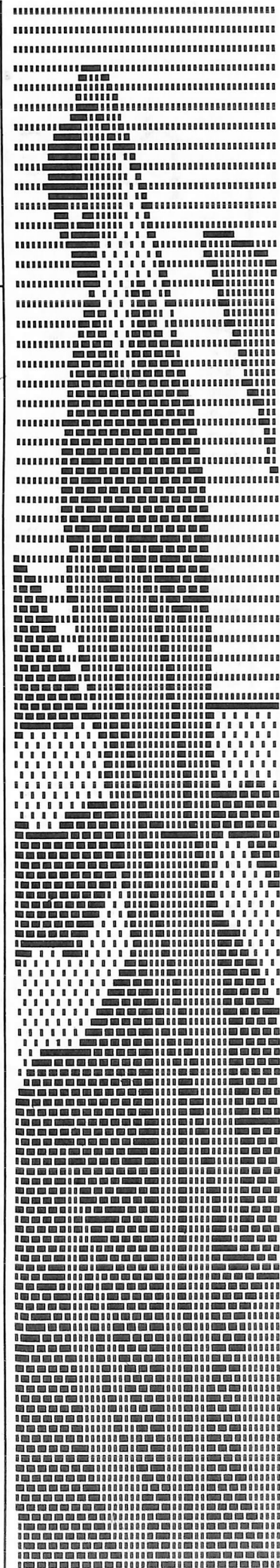
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☆ 7	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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..... Book of Softkeys Vol 1			
☆ 4	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Core 2	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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Core 1	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Core 3	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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7 Softkeys | Zaxxon | Mask of the Sun | Crush Crumble & Chomp | Snake Byte | DB Master | & Mouskattack | Features | Making Liberated Backups That Retain Their Copy Protection | S-C Assembler: Review | Disk Directory Designer | Core | COREfiler: Part 1 | Upper & Lower Case Output for Zork.....

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41 *Softkeys* | The Periodic Table | Gemstone Warrior | Inferno | Frogger | *Readers' Softkeys* | Story Maker | Adventure Writer | Mummy's Curse | Zaxxon | The Quest | Pitfall II | H.E.R.O. | *Features* | A Two-Drive Patch for Winter Games | Customizing the Speed of a Duodisk | Roll the Presses Part Two: Printshop Printer Drivers | The Games of 1986 |

40 *Softkeys* | Adventure Writer | Mychess II | Raster Blaster | *Readers' Softkeys* | Cranston Manor | Ghostbusters | Designer's Pencil | E-Z Learner | The American Challenge | Crime Wave | Encyclopedia Britannica Programs | *Features* | Taking the Wiz out of Wizardry | Adding a Printer Card Driver to Newsroom | *Core* | The Games of 1986 |

39 *Softkeys* | MIDI/8 Plus | Homeword v2.1 | Borrowed Time | Amazon | Speed Reader II | *Readers' Softkeys* | Discovery! | M-ss-ng L-nks series | Donald Ducks's Playground | Mastering the SAT | Copy II Plus 4.4C | Master of the Lamps | One on One | Bridge Baron | A.E. | Great American Cross-Country Road Race | Computer Preparation for the SAT | Castle Wolfenstein | Luscher Profile | Skyfox | Silent Service | Echo Plus | Swashbuckler | Randamn | *Features* | Electronic Disk Drive Swapper | Abusing the Epilogues | Print Shop Companion's Driver Game | *Core* | Keyboard Repair | Fixing the Applesoft Sample Disk | *Hints* | Carmen Sandiego |

38 *Softkeys* | Cyclod | Alternate Realty | Boulder Dash I & II | Hard Hat Mack (Revisited) | The Other Side | *Readers' Softkeys* | F-15 Strike Eagle | Championship Lode Runner | Gato V 1.3 | I, Damiano | Wilderness | Golf's Best | *Features* | The Enhanced/Unenhanced IIe | Looking into Flight Simulator's DOS | *Core* | Appavarex | Installing a RAM disk into DOS 3.3 |

37 *Softkeys* | Under Fire | Pegasus II | Take 1 (revisited) | Flight Simulator II v1.05 (part 2) | *Readers' Softkeys* | Magic Slate | Alter Ego | Rendezvous | Quicken | Story Tree | Assembly Language Tutor | Avalon Hill games | Dark Crystal | *Features* | Playing Karateka on a //c | Track Finder | Sylk to Dif | *Core* | Breaking In: tips for beginners | Copy II Plus 6.0: a review | The DOS Alterer |

36 *Softkeys* | Flight Simulator II v 1.05 | AutoDuel | *Readers' Softkeys* | Critical Reading | Troll's Tale | Robot War | General Manager | Plasmania | Telarium Software | Kidwriter v1.0 | Color Me | *Features* | ScreenWriter meets Flashcard | The Bus Monitor | Mousepaint for non-Apples | *Core* | The Bard's Dressing Room | *Advanced Playing Techniques* | Championship Lode Runner |

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34 *Softkeys* | Crisis Mountain | Terripin Logo | Apple Logo II | Fishies 1.0 | SpellWorks | Gumball | *Readers' Softkeys* | Rescue at Rigel | Crazy Maze | Conan | Perry Mason: The Case of the Mandarin Murder | Koronis Rift | *Feature* | More ROM Running | *Core* | Infocom Revealed |

33 *Softkeys* | Word Juggler | Tink! Tonk! | Sundog v2.0 | G.I. Joe & Lucas Film's Eidolon | Summer Games II | Thief | Instant Pascal | World's Greatest Football Game | *Readers' Softkeys* | Graphic Adventure #1 | Sensible Grammar & Extended Bookends | Chipwits | Hardball | King's Quest II | The World's Greatest Baseball Game | *Feature* | How to be the Sound Master | *Core* | The Mapping of Ultima IV |

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- ▶ **COMPUTIST No. 32**, which contains an extensive article detailing the hows and whys of Super IOB v1.5 and at least 5 articles using the new Super IOB program.
- Several of the controllers deprotect the software completely with no further steps. This means that some programs are only minutes away from deprotection (with virtually no typing).
- The issue of COMPUTIST in which each controller appeared is indicated in case further steps are required to deprotect a particular program.**

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*Requires at least 64K of memory.

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